TEACHER EDUCATORS' PERCEPTIONS AND PRACTICES OF TEACHING IN A BLENDED LEARNING MODE IN GHANA

BY

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DECLARATION

I, **BOAHEMAA BRENYA,** declare that the thesis, *Teacher Educators' Perceptions and Practices of Teaching in a Blended Learning Mode in Ghana*, submitted for the qualification of Doctor of Philosophy in Higher Education Studies at the University of the Free State, is my independent work.

All the references I have used have been indicated and accepted by means of a complete reference list.

I also declare that I have not previously submitted this work to another university or faculty for the purpose of obtaining a qualification.

Signature: Date: 3/30/2022

DEDICATION

This work is dedicated to my lovely mother,

Lucy Birago

and my sweet sister,

Fosua Brenya

who have both been strong pillars in my Ph.D. journey.

Remain blessed my dearests

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May our Lord, Jesus Christ, bless you all abundantly.

ABSTRACT

The teaching and learning approach for higher education institutions all over the world has been transformed as a result of the emergence of the Coronavirus (Covid-19) in March 2020. The pandemic necessitated the shift from face-to-face teaching to a blended learning mode by higher educational institutions in Ghana. Despite the effectiveness of blended learning in the delivery of instruction and learning, the scenarios created by Covid-19 forced teacher educators to accept the transformation of their teaching practice from residential classes to partly or full virtual programmes.

This mixed-methods explanatory sequential study investigated the perceptions of teacher educators in their practices of blended learning in Ghana. The Technology Acceptance Model (TAM) was employed as a theoretical framework for the study. Data collected from the quantitative study was analysed using SPSS (R-Package) and inductive thematic analysis was employed to analyse the qualitative data. Results indicated that teacher educators have positive perceptions about the blended learning approach being effective and efficient for teaching and learning. That is, the perceptions of teacher educators have an influence on the blended learning approach; hence, the blended learning method should be practised for effective and creative teaching. However, educators revealed certain challenges such as lack of internet resources, disturbances (such as technical problems, lack of office space and recording studio) in the blended learning environments, students' poor attendance and participation in teaching sessions, inadequate and continuous training workshops for educators and poor functionality of technological gadgets. This study concludes by making philosophical recommendations to strengthen teacher educators' application of the blended learning approach in their teaching and student learning practices in Ghana.

Keywords: Blended Learning, Online Learning, Face-to-Face Teaching and Learning, Teacher Educator, and Higher Education Institutions.

LIST OF ACRONYMS

BL	Blended Learning
CENDLOS	Centre for National Distance Learning and Open Schooling
CoI	Community of Inquiry
Covid-19	Coronavirus pandemic
ESL	English Second Language
GER	Gross Enrolment Ratio
GES	Ghana Education Service
GNA	Ghana News Agency
HEI	Higher Education Institution
ICT	Information and Communication Technology
ICT4AD	Information and Communication Technology for the Accelerated Development
ISP	Internet Service Providers
IRB	Institutional Review Board
JHS	Junior High School
LMS	Learning Management System
MMR	Mixed-Methods Research
MOE	Ministry of Education
MOOC	Massive Open Online Course
MOODLE	Modular Object-Oriented Dynamic Learning Environment
NAB	National Accreditation Board
NABPTEX	National Board for Professional and Technician Examinations
NCTE	National Council for Tertiary Education
ODL	Open and Distance Learning
PEOU	Perceived Ease of Use
PU	Perceived Usage
RECAAST	Regional Colleges of Applied Science, Arts, and Technology
SPSS	Statistical Package for the Social Sciences
SSA	Sub-Saharan Africa
TA	Technology Adoption
TAM	Technology Acceptance Model

TE	Teacher Educator
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UCC	University of Cape Coast
UEW	University of Education Winneba
UNDP	United Nations Development Projects
UTAUT	Use of Technology Theory
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom
URC	University Rationalization Committee
VET	Vocational Education and Training
WHO	World Health Organisation
WiFi	Wireless Fidelity

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CHAPTER ONE

ORIENTATION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

In recent times, the application of digital technologies has increased in all sectors of higher education institutions. In addition, as declared by the World Health Organisation (WHO) on 11 March 2020 the Coronavirus (Covid-19) pandemic has influenced the application of digital technologies in educational and industrial institutions around the world. Digital technologies continue to impact blended learning (BL), web-based education, computer-based knowledge, virtual or remote classroom learning, as well as online communication innovations in education, especially those aimed at improving human performance, knowledge and skills (Addah, Kpebu & Fumpong Kwapongo, 2018; Benson & Kolsaker 2015; Selwyn, 2017). Digital technologies use a range of face-to-face forms, which combine the best features of the innovative technologies for instructional delivery and learning in higher institutions of learning (Cobcroft, Bruns, Smith, & Towers, 2006; Gaol & Hutagalung, 2020; Kintu, Zhu & Kagambe 2017; Moorhouse & Wong, 2022; Oliver, 2018). The idea of blended education is not limited to the attention of a single technology as it is intended to allow the effective application of existing higher education technologies (Zhang & Zhu, 2020). Even though digital technologies have been part of multimedia in a blended system, little is known about how teacher educators (TEs) use blended learning (BL) to prepare student teachers in higher education institutions (HEIs). Thus, this study sought to unearth the perceptions and practices of teacher educators' delivery of instructional activities in a blended learning setting in a selected Ghanaian higher institution. In addition, it expounded on possible challenges and prospects of the use of blended learning in teaching in Ghana.

A study conducted by Ananga and Biney (2017) identified that little empirical evidence exists on teacher instructional practices in the blended learning mode in the Ghanaian context. It further highlighted a lack of empirical studies that explore teacher educators' views and practices of blended education technologies for teaching in Ghana's education centres. The researcher aimed to bridge this gap and contribute to the body of knowledge through the current study.

This chapter comprises an overview and background of the study and the statement of the problem. The purpose of the study is also introduced in this chapter as are the research questions and overview of the theoretical framework that buttressed the study. Additionally, the significance of the study and how this research advanced understanding of the problem, is presented. Concluding the chapter are the delimitations, limitations, ethical considerations, key definitions and chapter outlines for the study.

1.2 BACKGROUND OF THE STUDY

A teacher educator (TE) differs from other university lecturers regarding their teaching roles (that is, second order teaching), which reflects the student's potential career (Berry, 2009; Korthagen, Loughran & Lunenberg, 2005; Lunenberg, Dengerink & Korthagen, 2014). Teacher educators largely determine the quality of teachers and hence, the quality of education. They are responsible for a range of tasks linked to various positions or functions taking on various roles through the complexity of their work (Lunenberg *et. al.,* 2014). As used in this study context, teacher educators are higher education professionals who provide training in teaching and learning to student-teachers in higher education institutions.

The often overburdened and diverse roles of teacher educators may hinder the blended learning approach since it demands time, effort, different skills, knowledge, and competencies to accomplish the specific learning objectives (Katzin, 2020; Sorbie, 2015). Therefore, it is crucial to investigate and discover the perceptions of teacher educators, their beliefs and experiences in order to comprehend their involvement with blended learning in their different roles. Nowadays, blended learning as an approach is used in teaching and learning in Ghanaian HEIs (Ananga & Biney, 2017) to enhance the quality of learning and instructional delivery. The responsibility, however, depends on teacher educators, and their ability to ensure the active application of blended learning activities.

Blended learning is an aspect of an instructional method that helps students to apply computer-based activities for learning, which includes elements of student influence over time, location, guidance, and/or speed (Oliver, 2018; Taylor *et al.,* 2018). Blended learning is seen as the 'new standard' in HEIs (Dziuban, Graham, Moskal, Norberg & Sicilia, 2018; Norberg, Dziuban & Moskal, 2011; Ross & Gage, 2006) with the

combination of physical and digital components in learning environments being considered an important approach for higher education institutions (Madsen, Thorvaldsen, & Archard, 2018; Sharma, 2010), primarily due to its cost-effectiveness (Graham, 2019; Lothridge, Fox & Fynan, 2013; Maloney, Nicklen, Rivers, Foo, Ooi, Reeves, Walsh & Illic, 2015) in meeting learning goals.

The versatility and ease of blended learning benefits teacher educators and students (Shebansky, 2018) as it facilitates instruction and learning outcomes. This approach supports learners in practising autonomy, self-styled learning and free time to solve difficult problems (Oliver, 2018; Taylor, Ghani, Atas & Fairbrother, 2018). Blended learning also offers teacher educators increased accessibility, it ensures active teaching and learning, improves pedagogy richness and transforms an instructor-centred approach to a student-centred pedagogy (Admiraal, Louws, Lockhorst, Paas, Buynsters, Cviko, Janssen, de Jonge, Nouwens, Post & van der Ven, 2017; Yang, 2020). Furthermore, it enables teacher educators to develop creative ways of utilising and integrating pedagogical methods and learning and teaching theories (Oliver, 2018). Teacher educators may achieve a range of pedagogical objectives when students undergo training that promotes their critical thinking skills' growth, which means that it improves teaching effectiveness and improves a social order (Das, 2021; Ying & Yang, 2017). However, teacher educators face the challenges which could relate to the commitment of time needed in the creation of initial classes, limited contact with students as well as technology and technical issues. In addition, teacher educators experience problems regarding workload, changed responsibility, curriculum consistency and training style, professional know-how and internet access in blended learning settings (Antwi-Boampong, 2020; Jeffrey, Milne, Suddaby & Higgins, 2014; Ying & Yang, 2017). A personal survey highlighted the need to encourage higher education administrators to increase the digital knowledge of teachers, which could be done through the provision of physical and technological resources, continuous instructional support and the growth of digital knowledge community initiatives to ensure the effective adoption of the blended learning method.

Studies have revealed some supporting facilities such as programmed assessment instruments, wireless systems and the provision of technologies to create a successful blended learning environment (Bevell & Umar, 2018). However, a limited number of teaching staff use these new technologies (Benson, Anderson & Ooms, 2011; Noh,

Abdullah, Teck & Hamzah, 2019; Sorbie, 2015) which could improve instruction delivery and learning. Similarly, despite successful interactive teaching examples that prevail in blended learning settings, many teacher educators find the time-consuming and technology-supporting preparation stage vulnerable to failure in blended learning practices (Benson, Anderson & Ooms 2011). A teacher educator is a catalyst for assessing the success of blended erudition, thus it is vital to develop an understanding of the practices and perceptions, and experiences of teacher educators in meeting the growing expectations required in the blended learning and teaching approach.

Perceptions, beliefs and experiences influence teacher educators' behaviour (Agyei & Voogt 2014), and ultimately affect teaching practices, such as in a blended learning context. More specifically, integrating technology into teachers' activities (Madsen, Thorvaldsen & Archard 2018), can facilitate or hinder their blended learning adoption and implementation, despite their perceived influence of use and perceived ability of that innovation. The perception of teachers regarding self-efficiency can, therefore, effectively support or impede the acceptance and use of blended learning resources (Azli, 2016; Noh *et al.,* 2019). The teacher educators' personal opinions and past experiences impact their attitude and behaviour (Farjon, Smits & Voogt, 2019) towards an activity in a particular blended learning environment. Thus, the application of technology to implement blended learning requires academic support and individual competence.

Higher education institutions in Ghana are expected to apply modern tools in teaching, research and dissemination of knowledge, including information and communication technology, ICT (Public University Bill, 2020). In 2003, the Republic of Ghana released the ICT for the Accelerated Development (ICT4AD) document, a policy that focused on turning Ghana into an information-rich, knowledge-based society and economy by creating, deploying and leveraging Information and Communication Technologies (ICTs) within the economy and society (Ghana ICT4AD Report, 2003). Some state institutions were mandated to not only implement the ICT policy but also to ensure improvement in training and learning in educational and industrial establishments in Ghana. Such an initiative could improve blended learning application in higher institutions as policymakers and school administrators have a responsibility to implement policies that truly personalise learning and strengthen the teaching-learning process (Horn & Staker, 2011).

The Ministry of Education in Ghana thus established a Centre for National Distance Learning and Open Schooling (CENDLOS) with the aim of reinforcing tertiary-level Open and Distance Learning (ODL) and making it a reality at the secondary and tertiary levels stage. CENDLOS has generated and distributed academic material on different subjects in junior high schools and senior high schools. Even though tertiary institutions are encouraged to use ICTs, there is no specific, clear National eLearning policy designed for higher education institutions, creating a void in Ghana's tertiary learning centres in the quest to implement eLearning. It seems that every institution has its own set of expectations regarding the augmentation of conventional classroom learning and the offering of online courses. As a challenge for educators to strike a balance between technology and high-quality teaching and learning, designing a policy framework specifically to address such a task is crucial for higher education stakeholders.

In 2019, the government of Ghana initiated the Tertiary Education Policy Reform, in collaboration with the National Council for Tertiary Education, to strengthen academic performance and governance of higher education institutions (GNA Report, 2019). The reform aimed to provide a clear framework for higher education systems' structure, planning, development, regulation, operations, overall management and accountability (GNA Report, 2019). In addition, by raising the standard of Ghana's higher education institutions, the government essentially emphasises the need for the adoption of modern teaching and learning approaches. This approach focuses on initiating a learning management system that promotes blended learning by including electronic learning and online educational interaction in all higher education institutions in Ghana (GNA Report, 2020) in order to improve teaching and learning.

These new reforms form a portion of the Ghanaian government's plan of leveraging technology and improving remote instruction and knowledge prospects. As a result, institutions of higher learning must ensure that graduate students have the necessary knowledge and skills, as well as the needed experience to contribute to the nation's development. Subsequently, this study on teacher educators' perceptions and practices of teaching in a blended model in Ghana could contribute to the government's agenda.

1.3 STATEMENT OF THE PROBLEM

It seems there is reluctance among teacher educators to effectively and creatively utilise blended learning applications in their teaching activities. According to Noh *et al*. (2019), the unwillingness and hesitation of teacher educators are triggered by their attitudes, which refers to a lack of trust in blended learning approaches to achieve desired goals. However, teacher educators lack the technical skills and competence in the use of blended learning in teaching (Ertmer & Ottenbreit-Leftwich, 2010; Farjon, Smits & Voogt, 2019; Shebansky, 2018; Tondeur, Van Braak, Ertmer & Ottenbreit-Leftwich, 2017). Therefore, the researcher suggests that when teacher educators move from conventional classroom-based instruction to a blended teaching programme, difficulties arise which might affect their performance in lesson delivery.

Little empirical evidence exists within the Ghanaian context that ascertains teacher educators' views on the low patronage, passive involvement and factors influencing their lack of interest in employing an effectual blended learning approach in instructional delivery and learning, hence the current study.

1.4 PURPOSE OF THE STUDY

The study aimed to investigate the perceptions and practices of teacher educators teaching in a blended learning mode in Ghana. Included in these aspects, is the aim to investigate challenges that teacher educators experience in the use of blended learning mode in teaching in Ghana.

1.5 RESEARCH QUESTIONS

The main research question leading to the investigation and discussion of teacher educators' perceptions and practices of blended learning adoption and implementation is: *What are the perceptions and practices of teacher educators teaching in a blended learning mode in Ghana?*

The main research question necessitated the formulation of secondary research questions**:**

1. What are the perceptions of teacher educators teaching in a blended learning approach in Ghana?

2. What are the practices of teacher educators in the use of a blended learning mode in teaching in Ghana?
3. What are the challenges of teacher educators in the use of a blended learning mode in teaching in Ghana?

1.6 RESEARCH HYPOTHESIS

The null and alternative hypothesis were formulated as follows:

H_0: There is a statistically significant difference between teacher educators' perceptions and human factors, such as usefulness, ease of use, personal factors, time commitment, workload capacity, change role and other parameters, in the blended learning approach.

H_1: There is no statistically significant difference between teacher educators' perceptions and human factors, such as use/ease of use, personal factors, time commitment/ workload capacity/change role and other parameters, in the blended learning approach.

1.7 RESEARCH OBJECTIVES

The objectives of the study are to:

1. Ascertain the perceptions of teacher educators teaching in a blended learning approach in Ghana.
2. Identify the prevalent practices of teacher educators in the use of a blended learning mode in teaching in Ghana.
3. Investigate the challenges of teacher educators in the use of a blended learning mode in teaching in Ghana.

1.8 RATIONALE OF THE STUDY

Teacher educators remain one of the main stakeholders in the blended education initiative's active implementation (Ocak, 2011). Although the use of blended learning has risen dramatically, investigations to ascertain the perceptions, practices and the challenges of teacher educators' adoption and practice of blended learning has been

scarce (Brown, 2016; Katzin, 2020). The majority of blended learning research has concentrated on student experiences, while neglecting the needs of teacher educators charged with establishing blended teaching practices (Dziuban *et al.,* 2018; Graham, 2019). Brown (2016) contends that gaining a better understanding of a teacher's decision to integrate approaches such as cooperative learning into their pedagogy would profit both teacher training and student learning. Hence it is crucial to investigate the perceptions of teacher educators of the blended learning method and their practices in using the approach in teaching in higher education institutions. This study was thus designed to find answers to address the issues at stake and also make an input to the existing organisation of knowledge in blended teaching and learning.

Administrators of higher education institutions have reported that although institutions make substantial investments in educational technology, teacher educators tend not to fully adopt technology (Reid, 2014). Hao (2016), as cited in Geng, Kris, Law, & Niu (2019), established that the utilisation of blended education technologies in instructional delivery appears to be an evolving method of instruction for university teachers and students, yet learning success remains uncertain. In a study conducted by Gyampoh, Ayitey, Fosu-Ayarkwah, Ntow, Akossah, Gavor & Vlachopoulos (2020), teacher educators acknowledged that the whole world has moved into a 'new normal' therefore education in the Colleges of Education in Ghana have needed to move to a blended learning method for instructional delivery and learning instead of purely online learning adoption for the colleges. Hence, the rationale for this study was grounded on the above explanations, and for the fact that if teacher educators' perceptions, practices and the challenges that they face are not addressed, the success of blended learning practices could not be achieved by educational institutions.

1.9 SIGNIFICANCE OF THE STUDY

The outcomes of this study deal with the deficiencies that exist in the literature on teacher educators' blended learning practices. The study's main objective was to provide insight into the possible effects of teacher educators' observations, attitudes, and activities that impact effective blended learning applications. The opinions of teacher educators help to create awareness of conditions influencing their perceptions and how to distinguish between their personal and fact-based assumptions about a blended learning pedagogy.

Consequently, the study could be used to support teachers to practise blended learning instruction effectively and to inform education stakeholders on best blended learning practices. The study is important in the education of teachers in Ghana and among the fraternity of education of higher institutions in general as it analysed the perceptions and practices of teacher educators using the new approach that could promote critical thinking skills in teachers. It also focused on providing direction to teacher educators at a selected university in Ghana, enabling them to build a learning condition that motivates learners to achieve excellence in blended teaching competencies as well as the knowledge that is required to qualify them as competent professional teachers serving the nation.

The study sought to further contribute significantly to pedagogy and andragogy through innovative educational strategies in higher education institutions. This, in turn, addresses teacher educators' perceptions of and practices in their teaching strategies, which should involve integrated, interactive and active teaching by using blended learning approaches. The study could enable higher education centres to enhance curriculum delivery with the application of a blended learning model. The findings of this study can help managers, planners, and initiators of professional development training for teachers, educators, students, and administrators by incorporating innovations, new digital accessories, and best practices for blended learning delivery. Policymakers could also use the results from this study to strengthen blended teaching and learning frameworks for higher education institutions.

1.10 DELIMITATION

Collecting data from a single population of academic staff from one higher education institution, with the focus on teacher educators, cannot determine the previous performance of teaching in a blended learning environment. However, the use of a mixed methods approach allowed the researcher to take advantage of both quantitative and qualitative methods. The qualitative approach, for example, provided opportunities for a comprehensive analysis of the teacher educators' challenges experienced in their practices of teaching in a blended learning setting. Thus, a study only focused on teacher educators allowed the discovery of both surface and

underlying factors that contributed to each teacher's success experience and practice of the blended learning method in their teaching practice (Yin, 2014).

1.11 LIMITATION OF THE STUDY

Possible problems with a study or potential weak points are known as limitations (Creswell, 2009). Because the study focused on a particular environment of one higher education institution in Ghana and centred only on teacher educators, there is minimal generalisability to the wider education system. Survey research can pose problems that can impact the validity of collected data, the key issues being the specificity of issues raised, and the integrity of the respondents and the rate of response. A limitation associated with purposive sampling is the inability to generalise research findings (Sharma, 2017). Even though the study focused on two colleges in a selected university in Ghana for data collection, response from the College of Distance Education was limited. This could be that the college registrar did not distribute the online survey questionnaire to the prospective teacher educators as the researcher had requested even though approval had been received from the authorities.

1.12 OVERVIEW OF THEORETICAL FRAMEWORK

The theoretical framework underpinning the present study is the Technology Acceptance Model (TAM), which is an information systems theory that models the way individuals accept and use technology. Davis, Bagozzi and Warshaw (1989) developed the Technology Acceptance Model (TAM) from Fishbein and Ajzens' Theory of Reasoned Action (TRA) (1977). TAM puts great emphasis on 'perceived ease of use (PEOU)' and 'perceived usefulness (PU)' of technology, which have an impact on an individual's attitude formation towards behavioural acceptance or rejection of technology use (Davis, 1989). The researcher adopted TAM as the theoretical support for this study because of its relevance, an extensive variation of means in which its measures can be applied, and the fact that it serves as a useful framework that will assist in unravelling the understanding of teacher educators' perceptions, attitudes, practices and the use of blended learning technologies.

According to Davis *et al.* (1989), perception grows into attitude and attitude directs behaviour that calls for acceptance or resistance towards an action. The Theory of Reasoned Action posits that users' motivation in technology is explained through

concepts such as external variables, perceived ease of use, perceived usefulness, attitude towards use, behavioural intention and actual usage. It may be that teacher educators' past experiences, perceptions and beliefs about the use of technology influence their attitude towards blended learning system acceptance and application. Therefore, the anticipation of blended learning technology's usefulness and its ease of use will greatly impact teacher educators' attitudes towards its acceptance or resistance. Once the perceived ease of use and outcome is anticipated to be useful to teaching and learning, a change in behaviour occurs towards its actual usage (Davis *et al.,* 1989; Lavidas, Komis & Achriani, 2021).

The perceived ease of use could be attributed to an individual's competencies and skills in accessing the tools of blended learning. In this regard, teacher educators seem to be more likely to display positive instructional habits and boost the academic success of students because they have a strong degree of competence in the blended learning approach. Teacher educators' competencies and skills impact directly on the use of technology and subsequently on the successful adoption and implementation when the blended learning pedagogical system is introduced (Hsu, 2017). Consequently, a teacher educator's attitude, or understanding and readiness to embrace and adopt blended learning may rely on facilitating them with professional growth training in the use of technology (Archambault, Kennedy, Shelton, Dalal, McAllister, & Huyett, 2016; Hsu, 2017).

Before participating, people predict the effects of their activities and these anticipated implications impact the successful execution of an activity or action. Perceptions largely stem from past experiences, while expectations focus on the outcome's value and are subjective to the individual. Teacher educators' beliefs, past experiences, and the perceived idea of technology integration could alter the acceptance and application of their teaching activities (Agyei & Voogt, 2014), especially when the perceived usefulness is realised. Research evidence shows that it is always challenging for teacher educators to adjust their teaching strategies (Caravias, 2015; Wang, 2009) in a blended learning model; hence, they are unwilling to take chances and try innovation. Therefore, teacher motivation and professional training could help change their behaviour towards blended learning practices.

The Theory of Planned Behaviour (TPB) suggests that human attitudes may be dictated by specific actions (Ajzen, 1991). Noh *et al*. (2019) indicate that teachers do not use learning resources effectively and efficiently because of their mind-set and that their adoption of technology is affected by factors such as the amount of trust they have in technology advantages relative to other technologies used, the usefulness of current methods, usability and versatility.

The TAM as a well-thought-out model is relevant in understanding teacher educators' perceptions of blended teaching and/or learning practices. The constructs of perceived ease of use, usefulness, attitude towards use, behavioural intentions and actual use provide an application framework to investigate and understand the effects of other variants towards teacher educators' perceptions of explaining blended learning model acceptance or resistance in teaching and learning practices. For instance, time spent, role change, heavy workload, complex instructional design, lack of skills and competency, unavailable technology resources, absence of technical/institutional backing, dearth of motivation and professional training in a blended learning environment, perceived by teacher educators, are addressed and understood by the technology acceptance model.

1.13 AN OVERVIEW OF RESEARCH METHODOLOGY

In this section, a brief overview of the research methodology followed in this research is given and it is discussed in more detail in Chapter three.

1.13.1 Research Approach

A mixed methods research approach was appropriate to investigate teacher educators' perceptions and practices of delivering instruction in a blended learning mode in higher education institutions (Creswell & Creswell, 2018). Guided by the research questions, mixed methods research incorporates both quantitative and qualitative research procedures to better understand the phenomenon being studied (Mills & Gay, 2018). The integration of data, collected through mixed methods research, provides deeper insight into the problem than would otherwise be found by using only quantitative or qualitative research methods (Creswell & Creswell, 2018).

1.13.2 Research Design

The researcher employed an explanatory sequential research design to draw from the positive aspects of both research methods and address the research questions (Cohen, Manion, & Morrison, 2018; Creswell, 2018; Creswell & Plano Clark, 2011). An explanatory sequential design was chosen for the study due to its steps falling into clear and separate stages, making it easy to implement (Creswell, 2018). Its design features also allowed for simple description and reporting. For example, the quantitative component of the research comprised a survey questionnaire followed by qualitative data comprising semi-structured interview questions. This explanatory sequential approach was accurate and included the explanation of issues surrounding teacher educators' perceptions and experiences of blended learning teaching in higher education institutions.

1.13.3 Population and Sampling

This study was conducted at a selected institution in Ghana. The target population involved all the teacher educators from both the College of Distance Education and the College of Education Studies of the institution. The population represented teacher educators who provided educational programmes for students on a distance/sandwich and regular semester basis. The researcher adopted a simple random sampling technique for quantitative samples (n = 100) so that each candidate was equally likely to be chosen, and the sample can be generalised to the broader population. A purposive sampling procedure was applied to select 10 participants from the same population for the qualitative sample as they had experimented with the use of a blended instruction delivery method in their teaching practice.

1.13.4 Data Collection Instruments

Two different instruments were employed and used for the study, namely: a questionnaire and an interview. An online survey questionnaire was created by the researcher to gather quantitative data for the study. Questionnaires are inexpensive, practical, allowing participants to choose from multiple-choice questions and offering a quick way to collect results with online and mobile tools (Debois, 2016). Both one-on-one and telephone interview guides were used to collect the qualitative data during the interview sessions, where semi-structured interviews allowed participants to offer their views and experiences according to the research question.

1.13.5 Data Collection Procedure

The two different instruments used during data collection were a questionnaire and an interview. In Phase one, the survey questionnaire was structured with participants responding to various statements using a five-point Likert scale. Data were collected and then reviewed. Phase two comprised the gathering of qualitative data through semi-structured interviews to guide and allow participants to give in-depth information about the matter. Thus, this second phase sought information about the challenges that teacher educators experienced in their practice of teaching in a blended learning mode. Email invitations were sent to participants through administrators in the two colleges, and the survey questionnaire and structured interview questions were distributed to the participants' emails during the two different phases.

Content and face validity testing were conducted for the survey, and reliability testing was checked using Cronbach's alpha (Heale & Twycross, 2015). Validity testing for interview questions was done by faculty members with varying degrees of blended learning expertise and their feedback guided the researcher in the revision of the interview guide for qualitative data collection.

1.13.6 Data Analysis

In an explanatory sequential mixed-methods study, the quantitative and qualitative data are analysed independently (Creswell & Creswell, 2018). Data from the survey questionnaires were analysed first using descriptive statistics using the Statistical Package for the Social Sciences (SPSS), precisely the Holm Bonferroni routine from R-package, version 0.88, 2021 software, to solve the research queries. In answering the research questions for the second phase, data from interviews were transcribed from the audio-recordings and coded using thematic analysis. After independent analysis, the two data sets were then combined through integration, (Creswell & Plano Clark, 2018), discussed and reported.

The quality of the study was assured by ensuring that the datasets were valid and reliable. This was done by using measurement procedures and instruments that had acceptable levels of reliability and validity (Tashakkori & Teddlie, 1998).

1.14 VALIDATION AND TRUSTWORTHINESS OF THE STUDY

Construct validity was reinforced throughout data collection using evidence from questionnaires and interviews aimed at checking the trends that arose from the sample. By applying methods, the researcher attempted to establish a chain of proof that was drawn in the study of higher education institution programmes. Reliability was important during the data collection as it serves to determine whether or not the instruments and processes would yield the same set of tests if replicated in any other test sample.

1.15 ETHICAL CONSIDERATIONS

Approval for ethical consideration was acquired from the University of the Free State and the University of Cape Coast. The flexibility was accomplished by specifying the study's goals to the target respondents. The informed agreement was acquired by requesting the participants to sign a consent form. Participants were given assurance that names and tags used during data collection would be eliminated in the analysis of the data. Participants were notified that their involvement in the study was entirely voluntary and that they could opt out at any time without recrimination, but any data that might have been collected as a result of their participation could not be removed from the analysis.

1.16 KEY TERMS DEFINED

The following terms are defined for the purpose of this study:

Blended Learning: blended learning is defined as the combination of conventional face-to-face and online learning mode of teaching and learning.

Teacher Educators: teacher educators are higher education specialists who provide training in teaching and learning to student-teachers in higher education institutions.

Higher Education: these are all kinds of training, preparation or teaching for research at the post-secondary level, presented by universities or tertiary education institutions or other approved educational establishments that are recognised as institutions of higher learning by the state authorities mandated to do so.

Perceptions: perception in this regard refers to teacher educators' beliefs, experiences, attitudes, understandings of and their behaviours toward blended learning method to the delivery of instruction and learning.

Practices: this is explained as teacher educators' actual and prevalent activities performed in the blended learning mode of teaching.

1.17 CHAPTERS OUTLINE

Chapter One presented an introduction to the study context, the specified research problem, the study relevance and purpose, the research questions and objectives of the study, the methodology and the importance of the analysis. Included in the chapter are the limitation/delimitation, validity/reliability and ethical considerations.

In Chapter Two, offers a comprehensive review of the literature in relation to teacher educators' perceptions and practices as well as challenges. Also, a concise overview of the higher education concept in Africa and in Ghana is presented. A summary of the theoretical framework used for the study concludes the chapter.

The methodology utilised in the study is discussed in Chapter Three, including the research method adopted, the system employed, designs, procedures used for sampling, and how the data were obtained and analysed.

A presentation and analysis of the data collected are provided in Chapter Four while Chapter Five brings the study to a close with a discussion on the findings, conclusions and recommendations.

CHAPTER TWO

A REVIEW OF THE LITERATURE

2.1 INTRODUCTION

This chapter examines related research works and existing literature on blended learning from teacher educators' perspectives. The intention was to find in-depth knowledge of their views and practices of instructional delivery in blended learning settings in institutions of higher learning. The review of literature delves into the complexities, challenges, and controversial issues that surround the perceptions and strategies of teaching in blended learning settings by teacher educators in the educational institutions at the higher levels of academia. Major themes with relevant sub-sections under discussion included a blended learning approach and definition, general perceptions and practices. Presented in addition, are the determinants of resistance to blended learning, institutional blended education practices and the theoretical framework.

2.2 A BLENDED LEARNING APPROACH

The increased use of digital learning in HEIs is attributable to its positive effects on instruction delivery and learning practices, even as revealed in a crisis situation like the coronavirus pandemic. A blended learning (BL) approach, which introduces the blend of the latest technologies with the benefits of face-to-face and virtual instruction, is expected to scale back the restrictions of the instructional environment and increase learning effectiveness. It is, therefore, encouraging to envision that many teacher educators and academic practitioners begin to contemplate complete approval and execution of the blended education method to make teaching and learning more meaningful.

The blended delivery of the instruction and learning concept was implemented first in business settings in a course design permitting all workers to stay in the workplace while at the same time studying. Instead of moving to a residential class, instruction was provided via self-study guides, videos and the Web (Anthony *et al.* 2019; Caravias, 2015; Sharma, 2010). Blended learning emerged in most educational sectors as a result of the full-time/part-time student phenomenon, in which students work part-time while attending school (Anthony *et al.* 2019; Concannon, Flynn &

Campbell, 2005; Dziuban *et al*. 2018). Blended learning creates environments that cater to both students who desire face-to-face class engagement and students who have a preference for online learning and its pedagogy's adaptable design accommodates students' hectic schedules (Caravias, 2015). Blended learning was partially adopted by educational institutions as a cost-saving measure (Driscoll, 2002; Lothridge *et al.,* 2013; Maloney *et al.,* 2015), in particular, training more graduates with limited resources (Vaughan, Reali, Stenbom, Van Vuuren & MacDonald, 2017). Thus, a blended learning curriculum is considered to be one such cost-effective approach (Lothridge *et al.,* 2013; Maloney *et al.,* 2015), which emerged as a consequence of information openness beyond the classroom, the creation of the educational prospective of teaching and learning technology (Yu, 2015) and the disbelief of virtual education with the stand-alone acceptance of new media (McDonald & Picciano, 2014).

Though the concept was developed in the 1960s, the term failed to acquire its present form until the 1990s, and precisely in 1999, the term appeared in a publication in which the collaborating learning centre, an Atlantic-based education commerce, made a modification of its name to EPIC learning and adopted blended methodologies in its training (Cronje, 2020). Terms such as blended, hybrid, mixed-mode, facilitated learning, web-enhanced teaching and web-supported training have been used interchangeably. However, this study will be using the term blended learning or hybrid learning because it is the most popularly used in an educational environment (Moskal, Dziuban & Hartman, 2013; Spring & Graham, 2017).

Blended learning does not have a generally acceptable definition since there appear to be unlimited possibilities for integrating different-level modalities, innovations and institutional strategies (Caravias, 2015; Moskal *et al.,* 2013; Nortvig, Petersen & Balle, 2018). Due to the dearth of a definition, institutions can adapt and apply the term as they see fit, gaining proprietorship of it (Graham, 2019; Sharpe, Benfield, Roberts & Francis, 2006). Graham (2019) claims that despite widespread adoption and practice of blended learning across educational sectors, quantifying adoption rates is difficult. This is due to different definitions provided by various institutions and a lack of a mechanism to identify a blended learning module and the decision to merge is frequently made by educators without institutional supervision (Graham, 2019). Vaughan *et al.* (2017) affirm that the absence of a common unified meaning of blended

learning to enable teacher educators to embrace and incorporate the term, prevents its successful usage.

Alammary, Sheard and Carbone (2014) in a review on blended education in higher education, discuss the three separate design strategies that reveal an argument on the interpretation of the conception of blended education. The researchers testified this in effect creates a most important challenge for teachers in institutions of higher education to develop diverse perceptions of the term and different design approaches for blended learning courses. In view of this, teacher educators' misunderstandings about the definition of blended learning and limited research on blended learning's best practices could restrict achieving the effectiveness of instructional delivery and the potential benefits that blended learning brings. Hence, higher education authorities must endeavour to offer teacher educators the best professional development on blended learning definitions and practices to ease challenges that teachers and students may face in their use of this educational innovation.

As previously indicated, blended learning means different things to different institutions based on how it is defined and measured which creates disagreement (Graham, Woodfield & Harrison 2013; Katzin, 2020; Oliver, 2018; Sharpe *et al.,* 2006). A programme or module can be considered as blended if a proportion (that is, 30-79%) of the course subject matter is delivered via the World Wide Web (Allen & Seaman, 2013). According to Gurley (2018:200), blended learning is defined "as the amalgamation of face-to -face and online courses, with at least 30 to 79 percent of the course materials and activities delivered online". Alternatively, Nortvig *et al.* (2018:48) defined blended learning as having "50 per cent of the total duration of the course dedicated to conventional classroom instruction". However, a lack of specifically defined blended learning terms restricts the appreciation of common interactions and concerns by teacher educators (Gurley, 2018; Vaughan *et al.,* 2017). Additionally, in the absence of a clear definition of blended learning, Vaughan *et al.* (2017) found that blended learning adoption rates in teachers' instructional delivery have slowed down. Blended higher education learning courses can be put on a spectrum somewhere between full-online and full-face-face courses (Brown, 2016; Raymond, 2019; Partridge *et al.,* 2011). Hence, as proposed by Riel *et al.* (2016), the perspectives of teacher educators on terminology misunderstandings and blended learning pedagogy are essential to be considered through deployment and future growth.

Blended learning is defined holistically as the conveyance of instruction strategy which incorporates the combination of instructional media into a conventional classroom or into a remoteness education setting (Caravias, 2014). From the educational viewpoint, hybrid learning implies programmes that incorporate virtual teaching with conventional classroom meeting practices in a prearranged pedagogically appreciated manner, and an aspect of conventional time is substituted by online action (Sharpe *et al*., 2006). Blended learning applies to any educational method uniting online education with face-to-face classroom learning, usually involving both synchronous (real-time engagement) and asynchronous (independent student participation) learning environments (Alvarado- Alvarado-Alcantar, Keeley & Sherrow, 2018; Dziuban *et al.,* 2018; Horn & Staker, 2011 & 2015 ; Moore *et al.,* 2017); for example, the fusion of dual distinct patterns such as the lecture hall-synchronous and the asynchronous web (Moorhouse & Wong, 2022). For the sake of this study, blended learning is explained as the combination of a conventional face-to-face and online learning mode of delivering instructions for student learning.

Blended learning is defined from the corporate training angle to be the usage of various educational platforms to offer one course, such as pre-reading performance management training courses, workshops and role-playing activities to members (Sharma, 2010). It appears from this definition that not only can the teacher educator use a hybrid approach to deliver instruction to students, but various administration departments can adapt its use to train members in the HE centres.

Practically, hybrid learning courses are conducted both in the classroom and at a distance, incorporating various pedagogical strategies to deliver instruction to learners. Thus, it incorporates various pedagogical methods such as behaviourism (Owusu-Agyemang *et. al.,* 2017; Thorndike, 1913), constructivism (Vygotsky, 1978, 1980), and social learning approaches to construct successful learning objectives with or without the use of teaching technology. Bervell and Umar (2018) and Liu and Chen (2017) express blended learning as the integration of face-to-face instructor-led training with some kind of instructional technology such as learning management systems, and web-based workout to teaching and learning. Blended learning is defined as an educational strategy that incorporates face-to-face instruction with computer-mediated instruction, in which digital training has surfaced as a viable alternative to teacher-directed instruction (Jensen, Price & Roxå, 2020).

In spite of the diverse definitions across the board, specific models have also developed through blended learning definitions. For instance, Halverson, Spring, Huyett, Henrie and Graham (2017) explained that Graham (2006) established three ways of blending learning that is, combining instructional modalities, merging teaching approaches and joining virtual and face-to-face schooling. Subsequently, Graham (2013) elucidated four definitional questions about what is blended. The question is whether the reduced time spent sitting should be included in the explanation. Should the amount of virtual learning be included in the definition? Should quality factors be part of the definition? Therefore, a combination of conventional classroom teaching methods and remote teaching styles, is accompanied by technology-mediated training in which learners in the learning process are mostly separated by space (Geng *et al.,* 2019; Katzin, 2020). Thus, blended learning brings together instructional technologies and pedagogies into a face-to-face and online environment to improve instructional delivery and learning in higher education institutions settings.

The question arises - Why blended learning? Online learning has evolved and is now recognised at higher education levels as an essential module of the delivery of course content (Gurley, 2018; Katzin, 2020; Nortvig, Petersen & Balle, 2018). Although it provides flexible scheduling, connections to world-class programmes and student identity-paced education, blended learning does have drawbacks (Dziuban *et al.,* 2018; Spring & Graham, 2017). Thus, practical learning exercises such as fieldwork training, group collaboration sessions and observation and laboratory experiments are regarded as face-to-face activities. Traditional schools have been criticised for perpetuating passive instruction, a teacher-focused approach to transmitting information, overlooking the interests and desires of learners, and for lacking problem-solving abilities and analytical thought. Therefore, the adoption and integration of new technology in higher education centres promote constructive learning and analytical thinking abilities among learners. Horn and Staker (2014) explain that even though they appreciate the flexibility and features and functions of online learning, they are unable to completely separate themselves from face-to-face sessions. Researchers argue that face-to-face social relationships appear to influence student satisfaction, perseverance and engagement in ways that cannot be achieved online (Halverson *et al.,* 2017).

Consequently, adopting a blended education approach will harness the potential of both online and face-to-face classroom instructional delivery modes to achieve teaching and learning targets (Ananga & Biney, 2017; Vaughan *et al.,* 2017). Similarly, Osguthorpe and Graham (2003) acknowledge that both face-to-face and online modalities have positive aspects that blended learning creators can greatly increase by balancing the goals of pedagogical richness, availability of information, human engagement, self-confidence, cost effectiveness and ease of modification. It has been reported that educational institution administrators, inspired by the ability of blended learning to foster distinction, student preference, instructional efficacy and performance, have made significant investments in ensuring that technology is accessible to teacher educators and students (Vaughan *et al.,* 2017). Meanwhile, Vongkulluksn, Xie and Bowman (2018) have claimed that even though a vast sum has been invested in developing technological infrastructure to enable instructional teaching programmes such as blended learning, not enough effort has been made to increase teachers' understanding of the effectiveness of such innovations. It is therefore very important to investigate teacher educators' perceptions and practices with regard to their teaching in a blended learning mode.

Blended learning, as previously indicated, takes place for a minimum part of the phase in a brick-and-mortar setting and then it utilises educational innovations and technologies (Horn & Staker, 2011; Oliver, 2018). Hybrid learning approaches, such as blended learning, are a perfect way to facilitate an eLearning instruction (Nortvig *et al.,* 2018), which supports the learner, the teaching staff and the institutions of education to gain different innovative skills and experience.

Different models of blended education have been identified in higher education institutions (Moskal, Dziuban & Hartman, 2013). A study by Alammary, Sheard, and Carbone (2014:28) which focused on identifying blended learning design models in higher education institutions, identified three separate design methodologies to "be low-impact blend: adding extra activities to an existing course; medium-impact blend: replacing activities in an existing course; and high-impact blend: building the blended course from scratch". The type of model implemented depends on the institution's technology availability, design structure and their preparedness for blended learning implementation.

However, the simplest blended learning model is composed of a learning environment, media and instruction (Kaur, 2013; Oliver, 2018). The environment can either be synchronous (traditional classroom, virtual classroom, interactive or chat rooms) or asynchronous which could be instrumental to ensure the resources are optimally used to achieve the educational objectives (Holden & Westfall, 2006; Viberg, Frykedal & Hashemi, 2019). Blended learning media is the channel that delivers content of the instructions. While some media may be more appropriated to support particular synchronous or asynchronous, others cannot. Therefore, the environment depends on the choice of media made to transmit the content. However, Holden and Westfall (2006) are of the view that it is the instructional strategy employed in the blended learning environment that affects the learning outcome and not the specific media selected.

In the blended learning model, the teacher directs the instruction and boosts it with technology tools during the face-to-face mode. Students then timetable face-to-face classroom time via independent online analysis to ensure learning objectives are achieved. Several digital platforms such as the Learning Management System, Moodle, Zoom, Blackboard, Webinar, and Sakai and so on, allow teacher educators to present face-to-face, dialogue with students and offer assistance. Nearly every instructional delivery is done via a digital interface and, where possible, communications and interactions are made available face-to-face.

Blended learning's scope also includes the incorporation of live virtual classroom web-based teaching, self-paced teaching, immersive learning, video, audio and text sharing, pedagogical methods (constructivism, behaviourism, and cognitivism). Any combination of instructional technology such as video, CD Rom, web-based training, film and face-to-face instructor-led teaching accomplish the educational goal (Driscoll, 2002).

2.3 THE BENEFITS AND CHALLENGES OF USING THE BLENDED LEARNING APPROACH

This section presents some benefits and challenges of using a blended learning approach with regard to students and teacher educators and explained in the paragraphs below.

2.3.1 Students

The literature suggests that blended learning gives students who participate in hybrid classes many advantages relative to their colleagues who participate in fully virtual or face-to-face training courses (Martinez-Caro & Campuzano-Bolarin, 2011; Means, Toyama, Murphy & Bakia, 2013). For example, Pearcy (2009) conducted a study with about 741 undergraduate students, including online-only students and blended students only. The blended students attained an average of 7.09 points greater than their online-only colleagues on a 100-point scale. This indicates students' blended learning performance outcomes as evaluated by elements such as module grades, Grade Point Averages (GPAs) and examination notches, are higher than the online-only students. However, Drysdale, Graham, Spring and Halverson (2013) suggest that learner educational outcomes comprise more than scores and test grades. Therefore, teacher educators need training on best blended learning strategies and practices to achieve not only high student academic achievement but student engagement, enthusiasm, as well as student fulfilment.

In a survey conducted by Oeston, York and Murtha (2013) to find out how blended education supports and improves the learning goals of students in relation to their grades, it was found that the students who obtained high grades were more satisfied with the mixed learning courses than the students with low grade achievements in comparison to traditional face-to-face courses Thus, high-achieving students found blended learning courses more convenient, more engaging, and core concepts are learned better. The authors infer that low achieving students tend to not be able to cope with blended structures when combined with high achieving peers. Hence, in an effort to incorporate and introduce a blended learning process, institutions should consider providing students with choices where possible, to participate in blended learning or face-to-face. Additionally, strong academic support should be offered to low achievers.

Kember, McNaught and Fanny (2010) found that integrated learning experiences in blended surroundings successfully enable student learning outcomes to be achieved. Méndez and González (2010) found that blended learning is beneficial in terms of student learning and results. Blended learning is an extremely successful approach when implemented in large-scale classrooms due to its mutual engagement

(Delialioğlu, 2012; Halverson & Graham, 2019). Therefore, institutions and teachers ought to create a blended learning environment that assists learners in actively participating in blended learning programmes.

Blended learning allows students to enrol in distance education programmes, for instance, learning in a group (classroom), sharing ideas on the discussion forum with peers and collaborating with their tutors at a convenient time and space (Akgündüz & Akınoğlu, 2016). Students set the optimum pace and intensity of the learning process creating an independent disciplined working style. For example, Olson's (2003) review of 163 undergraduate students found that a greater number had a preference for blended learning in comparison to the face-to-face mode of learning. This was due to time convenience for students to complete course assignments and receive immediate feedback and their ability to interact with their colleagues and lecturers. Although students expressed positive preference towards blended learning, the teacher educators' position remains under researched. Hence, the gap identified calls for this study on teacher educators' perceptions and practices of teaching in a blended learning approach in HEIs.

Research has revealed that blended learning improves teamwork and coordination while also engaging learners (Aslan, Huh, Lee & Reigeluth, 2011). For instance, constructivists perceive that students, working in a blended learning setting, are more active than passive and engage in cooperative learning (Rajkoomar & Raju, 2016). According to researchers, the blended learning context holds great potential for improving student education and teacher pedagogy. (Delialioğlu, 2012; Wang, 2011), thus, providing advantages such as student engagement, personalised learning, collaboration and better communication and improved efficiency (Delialioğlu, 2012; Halverson *et al.,* 2012). Teacher educators therefore ought to rethink their instructional delivery approach and create a blended learning environment to offer students these opportunities for learning.

A blended delivery mode enables students to understand and retrieve material in a broad range of forms – an essential aspect because students may have many diverse learning styles. Nevertheless, research shows that integrated learning improves the likelihood of students achieving course results relative to entirely online and only face-to-face classes, by reducing dropout levels, growing test scores and raising student

engagement. A study by Carbonell, Dailey-Hebert and Gijselaers (2013) found that by encouraging academic participation through problem-based learning demonstrates that the main value of blended learning gives students an improved learning experience.

Magdy (2016) conducted a study which investigated and measured undergraduate students' attitudes in a blended learning setting. The study found that 71.5% of participants had positive attitudes, while only 17.2% of participants had negative attitudes towards blended learning settings. The study, therefore, recommended the practice of blended learning for undergraduate students in higher education institutions. The implication is that teacher educators, upon acceptance and implementation of blended teaching, offer their students the chance to accept a blended learning initiative in their learning processes. Thus, the researcher of the present study believes that an investigation into the blended learning approach is necessary as it can have a positive influence on both teacher educators and their students in Ghana and beyond.

Blended learning allows distance education students to first read selected teaching materials independently of digital tools, and then return to the classroom for face-to-face discussions on what they have read. There is a sharp change in what happens in the classroom where the teacher educator simply reads the lesson aloud, and, the students listen passively. Now with a blended teaching approach, two dynamic pedagogies are introduced — the teacher asking students to engage with the textual material, online resource links in advance of classroom discussions and presenting the textual material on a computer screen rather than a book.

Ally (2004) shares a different view by asserting that online learning allows for individual differences by assessing the interests of the learner and delivering suitable learning opportunities based on the student techniques. Ally and Fahy's (2002) study found that students with varying styles of learning had different expectations of help. Kolb and Fry (1975) and Kolb (2014) identified four learning styles as the accommodator, the assimilator, the diverger and the converger. Karuppan (2001) study found that assimilators were the predominant users and accommodators were the least users of online courses. For instance, assimilators prefer a high presence of an instructor while accommodators prefer low presence of instructors in an instruction delivery session.

This study highlights that adopting a blended learning teaching model could result in improved student satisfaction, student-centred learning, collaboration and engagement.

Although there are many benefits to a blended learning approach, students have noted challenges such as discipline, time management skills, technology skills and conflicts with preferred learning styles (Shand & Farrelly, 2018). Confirming the challenges students face with blended learning, Clayton *et al.* (2018) reported in their study that students prefer conventional classroom learning over hybrid and e-learning due to a lack of technical skills and experiences to utilise the system as a determining element. Garrison and Vaughan (2008) confirm that deep learning is difficult to accomplish using a blended learning model. In contrast, the researcher of this study argues that blended learning ensures deeper learning among students which compels them to foster their own personal understanding, concentrating on the meaning of the content, relating several ideas and connecting them to previous experiences. This is motivated by diverse online learning resources and website links made available to students in blended learning settings. Although students derive more benefit from the practice of the blended learning strategy, the challenges identified in this study and the suggested solutions to the problems are likely to help enhance effective blended learning practices in HEIs.

2.3.2 Teacher Educators

Teacher educators at all levels are becoming more aware of digital technological innovations and should be integrating them into their practice. Despite a lack of relevant training, teacher educators appear to acknowledge the significance of these innovations in 21st-century teaching and learning. Moskal *et al.* (2013) envisage blended learning to be the principle learning technology prospect for higher education institutions (HEIs). Hence, teacher educators in HEIs are tending to prefer a blended teaching approach, in contrast, to full face-to-face or online instruction delivery (Awidi, 2008; Oluniyi & Apena, 2016). However, McConnell and Zhao's (2006) qualitative study, which interviewed twenty-four participants, found that teachers preferred a face-to-face method of instruction delivery and they acknowledge the command of class discussion in the Chinese higher education system. Similarly, in Oh and Park's (2009) quantitative study, 133 teachers preferred a face-to-face instructional delivery

approach supplemented by a blend of an online instructional approach. This is supported by Nivens and Moran (2016) and Graham (2019) who posit that blended learning is considered to be effectual and cost-effective in the implementation of teaching and learning.

Numerous revisions of the approach have unleashed the benefits of blended learning education not only to the students but also to teacher educators as it creates an avenue for a careful rethinking of the design and integration of instructional technologies with face-to-face education (Drysdale *et al*., 2013; Graham, 2013; Garrison & Kanuka, 2004). Most teachers felt they could individualise their instruction and facilitate the learning experience as well as collaborating more effectively with their students.

Blended learning assists many teachers through formative evaluation that allows students to self-regulate learning. Many experts believe the blended or hybrid approach to be the most effective remote learning model (Oliver, 2018) and best for student assessment. It is however, a huge**,** innovative shift from a conventional classroom teacher to content and tutoring, based on the web with instructions being delivered online without time, space and media limitations. Blended learning has become increasingly popular, since it has demonstrated to be a successful solution to serving an overwhelmingly diverse community of students while bringing value to the learning experience by integrating online teaching tools.

Moreover, the blended learning method enhances educators' teaching practices and experiences, as reported by Galvis (2018). For instance, teacher educators may use blended learning platforms to deliver conventional instructions in different ways, such as a presentation in a structured setting to give out information (Benson *et al.* 2011; Rajkoomar & Raju, 2016; Yang 2020). In addition, teachers are able to guide and coordinate links to blogs, journals and current events related to the course, help bring learning materials alive and make them important to everyday life.

Teacher educators can use a blended learning approach to provide tasks and then study the experience and comprehension of distance education students before conventional classroom sessions, which means they are able to adjust the teaching in the classroom appropriately. The online test generator function in a blended learning

mode allows the teacher educator to develop, administer and automatically grade tests and examinations that immediately offer feedback to students on the correctness of their responses (Graham, 2019). The blended learning interactive content helps teacher educators build a strong degree of engagement, transparency and true assessment for students. It promotes individualisation, tailoring and significance, allowing teacher educators to adapt the instructional material to the specific desires of multiple groups of student audiences (Kaur, 2013).

Literature on blended learning has revealed the flexibility it offers to students and teacher educators alike (Halverson & Graham, 2019; Horn & Staker, 2015). For instance, teacher educators have the flexibility of scheduling teaching hours, designing instructional material, resource selection and distribution for successful blended learning activities. Thus, tutoring can be done at any time and from anywhere by the teacher educators as their diverse students on sandwich distance programmes may be at home until they return to campus for face-to-face sessions. Blended learning materials can be revised online and, unlike where printed learning material modules are provided, learners will see the improvements instantly. Teacher educators may find it easier to advise them on specific information based on their needs when learners are able to access online content. When correctly developed, blended learning platforms may be used to assess the needs of learners and the existing depth of experience, and to offer relevant resources from which learners may choose in order to attain the learning outcomes.

A researcher studied discrepancies in teaching effectiveness in blended education and concluded that blended education is successful for professional growth within the teaching population (Jonker, März & Voogt, 2018). In contrast, Bausmith and Barry (2011) examined professional learning groups and found that collaborative learning was ineffectual in educator's professional development. The researcher however argues that a well-planned professional development programme can situate teacher educators in a proper place to achieve successful blended learning practices. For example, they could be offered time to learn new blended learning technologies, dynamically shift their pedagogical practices and employ new instructional design and delivery methods.

Despite this increasing endorsement for the approach, continuing controversy occurs in describing the concept of blended learning (Gurley, 2018; Katzin, 2020; Riel, Lawless, & Brown, 2016). Consequently, teacher educators in HEIs have developed different interpretations of the word and innovative ways to improve the design. For instance, for teacher educators who are unfamiliar with the concept of blended learning, choosing the most appropriate training technique for a blended course is a huge task (Ananga & Biney, 2017; Alammary *et al.,* 2014). Hence, teacher motivation and best orientation to address their understanding is necessary for successful blended learning practices.

Although, blended learning is presumed to have major benefits to teacher educators, students and the teaching and learning processes, it has not been without challenges. Comas-Quinn (2011) confirms the existence of impediments to incorporating cooperative learning into teaching process. For example, there is lack of understanding about blended learning and how to implement technology effectively in instructional activities (Hsu, 2017; Jeffrey, Milne, Suddaby & Higgins*,* 2014; Sorbie, 2015). In addition, access to technology systems, system reliability and implementation sophistication are all listed as possible obstacles to blended learning acceptance and utilisation by the teacher educators (Benson *et al.,* 2011; Katzin, 2020). Therefore, the researcher argues that it is crucial to adequately train both teacher educators and students in technology skills to enable them achieve their goals. Without adequate training, the application of blended learning in higher education institutions will continue to be compromised because of their complex nature. Educational authorities ought to ensure technology system accessibility and reliability for potential use of the blended learning approach. In support of this notion, Ocak (2011) disclosed that the application of blended education in teaching involves a complexity of instruction which requires proper planning and organisation, effective communication, institutional support, adapting to new technologies and electronic means. Hence, teacher educators require assistance with course development through technology and how to utilise the system to manage time in teaching and learning.

Moreover, other pertinent challenges associated with blended learning practices are found to be limited professional development programmes, time constraints for training, lack of clear institutional policies, financial constraints, lack of

computer/internet literacy skills and educators misunderstanding of blended learning as well as their role change in blended learning settings (Vaughan *et al.,* 2017).

2.4 GENERAL PERCEPTIONS OF A BLENDED LEARNING APPROACH

In most cases, blended learning is assessed in terms of teacher educators and students' perceptions of teaching and learning practices. According to study findings by Spring and Graham (2017), focusing on content analysis patterns in intercontinental collaborative learning publications, scientific studies, practices and definitions of the most cited blended learning articles worldwide, 27.6% discussed dispositions including perceptions, experiences, intensions and preferences. A majority focused on students, with only 3.9% researching faculty perceptions. This was consistent with studies by Halverson *et al*. (2014) and Drysdale *et al.* (2013). Halverson *et al.* (2014) discovered that nearly one-third of the blended learning scientific publications' survey questions or purpose statements focused on perspectives, with perceptions being the most thoroughly investigated subtopic. Student perceptions (14.1%) gained significantly more recognition than academic staff (2.4%) or administration staff (1.2%). Drysdale *et al.* (2013) observed similar patterns in their study of blended learning dissertations and theses. Nonetheless, Wagman, Caputo Stoffregen, (2016) assert that not much work has been conducted to investigate attitudes, perceptions and obstacles to teacher educators' reasons for not accepting blended learning in their teaching practices. Similarly, Al-Busaidi and Al-Shihi (2012) attest that few researchers have studied the teacher educator's stance on the approval and execution of learning management systems, an educational technology to run blended learning programmes. Hence, the intention of the researcher to investigate and ascertain teacher educators' perceptions and blended learning practices in HEIs is deliberated in this study.

Many studies cite technology as a basic hindrance to teacher educators' acceptance of instructional technologies (Benson *et. al.,* 2011; Katzin, 2020; Kim *et al.,* 2013). However, the perception and approach of teacher educators to such innovation is more essential than the structural and technological stumbling blocks to using blended learning instructional technologies. In support, Agyei and Voogt (2014) assert that the importance of educators' perceptions recognised as teachers' attitudes, intentions and convictions, are the most significant determinants that have an impact on technology

integration. Teacher educators' personal factors such as perception, behaviour, attitude, belief, anxiety, experience and self-efficacy are the relevant external variables that have an effect on their approval of a blended learning method for teaching practices (Brown, 2016).

Moreover, teacher educators' personal attitudes influence the behaviour of students in a blended learning environment. Thus, Brown (2016) and Hsu (2017) have identified external factors such as technological access or availability, institutional support, and internal factors such as belief, attitude, self-efficacy, that could facilitate or hinder teacher educators' technology integration in their instructional delivery. Hsu (2017) states that internal and external influences lead to an educator's resolution to incorporate technology in the classroom, or not to introduce it. External considerations provide exposure to infrastructure and incentives for career advancement. Internal considerations include beliefs and attitudes, and the educator's willingness to allow the effective and efficient use of instructional technologies. These factors per this study, are explained and categorised as personal factors and are briefly discussed below.

Many experts believe the blended or hybrid approach to be the most effective remote learning model for teaching and learning (Oliver, 2018; Stefan, 2019). In research on teacher educators' preconceptions of operating with digitalisation, Madsen *et al.* (2018) argue that teachers' *attitudes* impacted more powerfully than digital competence depending on the magnitude of which digital tools are being used. The attitudes of teacher educators toward a proposed programme, such as blended learning innovations, need to be closely watched because it could influence educational programme delivery. For example, a teacher educator's confidence in their methodological skills and abilities in teaching may question the validity of a new technique and they may even have difficulty changing. Some may lose confidence in their ability to use a complex programme without getting humiliated in front of their students (Awidi, 2008). Likewise, teacher educators who might have had negative computer-based interactions would probably not readily accept using a new programme which could have a negative impact on their attitude towards blended teaching practices.

Perceptions of teacher educators' *beliefs* are mostly advocated as a key element in the use or non-use of technology to facilitate instructional change (Ertmer & Ottenbreit-Leftwich, 2010). Numerous strategies have been proposed to facilitate the improvement of teacher values such as assessment, training, review and significant structural provision (Ertmer, 2005; Kim & Baylor, 2008; Ma *et al.,* 2008). Thus, teacher educators' belief in blended learning is perceived usefulness and perceived usability which could change their perception either negatively or positively on its acceptance and further application. Thus, beliefs anticipate influence and assess teachers' actual classroom instruction (Kim *et al.,* 2013). Kagan (1992) suggests that most professional knowledge of teachers can be interpreted more accurately as a conviction and, thus, teachers' beliefs appear to be correlated with congruent teaching styles that are often apparent. Several researchers have discovered inconsistencies among both teacher educators' beliefs and classroom activities (Agyei & Voogt, 2014; Ertmer & Ottenbreit-Leftwich, 2010). Therefore, it will be necessary for institutional leaders wishing to use a blended education methodology to run an orientation programme and use assessment to prepare the minds of teacher educators, students and administrative staff on this new innovation.

Teachers usually have their own pre-conceived ideas about blended learning environments and the resulting technology integration and these views influence the decision to integrate emerging technologies into pedagogy (Brown, 2016; Galvis, 2018;). Archambault *et al.* (2016) suggest that there could be preconceptions about teachers that hinder their willingness to add blended teaching approaches to their strategies. Thus, teacher convictions hamper their use of new technology innovations and affect teaching practices (Comi *et al.,* 2017). Whether or not technology is available to a teacher educator, decision-making is likely to determine its implementation (Galvis, 2018). Edannur and Marie (2017) argue that providing an awareness of the teacher's experience is essential to the effective integration of pedagogical approaches while incorporating technologies in a conventional face-to-face classroom. Hence, appreciation of the reasons behind the teacher educator's decisions helps to provide the needed support for that system's implementation.

Teacher educators' *self-efficacy* such as confidence, technological competency, skills, knowledge, performance expectancy (perceived usefulness) and effort expectancy (perceived ease of technology use) influence the effective use of blended learning

modes (Bervell *et al.,* 2021). A review of digital skills teaching shows that behavioural modelling has an effect on educator self-efficacy and programme efficiency (Compeau & Higgins, 1995). Thus, teacher educators who believe they are capable of implementing blended learning and their perceptions of technology affect the application of blended learning in their instructional practice (Archambault *et al.,* 2016; González-Sanmamed, Sangrà & Muñoz-Carril, 2017; Gough *et al.,* 2017; Porter *et al.,* 2016). Ertmer (2015) claims that the importance of technology can shape perceptions regarding technology and influence teacher educators' ability to adopt it. Therefore, their confidence in teacher-centred pedagogy is expected to ignore technology rather than being inclined to use technology with confidence in student-centred pedagogy.

A study by Chan (2011) on the impact of teacher educators' *personalities* on their teaching efficacy in a Hong Kong-based distance learning institute found that teachers of high introversion were more effective in face-to-face classroom environments, while teachers of high extroversion characters preferred online interactions and were very effective in their teaching practices and activities. Meanwhile, there has been no statistically important disparity in terms of other personality groupings. Some concerns regarding teacher educators' views of online assignments, their technology or skills, and their creation of digital learning course materials need to be answered. The teacher educators' acceptance and application of technology in hybrid instructional delivery raises concerns that more time could be spent learning new innovations than encouraging and inspiring students teaching (Klein *et al.,* 2004). Consequently, such developing patterns that technology brings into the blended educational settings can dissuade teacher educators from embracing blended course adoption and implementation.

Teacher educators' recurring *expectations* in blended learning usefulness to achieve teaching and learning outcomes influence their acceptance and actual use of the application. Scherer and Siddiq (2015) state that the expected value of technology is the strongest indicator of teachers' willingness to utilise technology in classrooms and thus blended learning implementation. As a result, certain factors influence perceived usefulness, ease of use, attitude towards use, behavioural intention to use and actual blended learning usage.

In his study of 58 papers, Brown (2016) reported that there is a high correlation between the expectations of teachers and the *degree of anxiety* about the blended application of learning. He said that teachers who found blended learning technologies as a barrier to integration, were less willing to adopt blended learning, and had higher rates of anxiety. Edannur and Marie (2017) noted that teacher perceptions were sometimes the product of anxiety or were in line with past teaching practices, but that teacher planning and in-service technology training, especially in blended learning, may mitigate those perceptions. However, Van Twembeke and Goeman (2018) reported that teachers with training technology experience have a greater role to play in making informed decisions about the transition in pedagogy, keeping a positive outlook for change either now or in the long term, and the possibility of integrating classroom technology as planned.

Furthermore, teacher educators' perception of blended learning education is reported as an anxiety crisis (Bervell & Umar, 2018; Brown 2016). Technology anxiety is a detrimental affective response to online activities which have an immediate result on perceptions towards technology utilisation (Venkatesh *et al.,* 2003). Fears of a blended learning programme failing to achieve intended goals can arise if teacher educators are unsure about the efficiency and effectiveness of the new technology that provides blended learning education. Jon-Chao *et al.* (2012) established a correlation between technologies linked to nervousness and alleged utility close to the desired outcome. Other research has shown anxiety among teacher educators in teaching blended courses due to the dearth of technological experience and lack of self-efficacy (Brown, 2016; Perera & John**,** 2020; Vongkulluksn *et al.* 2018).

Research conducted by Bervell and Umar (2018) on teacher anxiety prevention using the importance-performance map analysis, confirmed that colleague influence was the most powerful determinant of LMS-related anxiety among teacher educators, while outcome expectations were the greatest performance determinant. Thus, to reduce (if not completely eliminate) anxiety about using LMS for blended education, issues such as colleague effect, performance expectancy and affirmation for use must be actively addressed (Bervell *et al.,* 2021). A positive or negative effect from colleagues in a blended learning setting is a determinant of whether individual members can or may not use technology. Venkatesh *et al.* (2003) claim that the influence of peers, referred to as the social standard or social inspiration, defines the level at which the opinion of

a referent or others affects persons who should or should not be using a relatively new technology. This study hence suggests that if frequent workshops on the use of blended learning technologies are organised for teachers and students, it could develop their skills, build confidence and address the anxiety problem.

The perceptions of teacher educators are recognised as obstacles that hinder the incorporation of *technology* even though technological instruments are available (Ertmer *et al.*2014; Prestridge, 2012; Scherer & Siddiq, 2015). Blended learning, however, makes supporting resources available such as learning management systems, automatic evaluation instrument, digital networks, podcasting, video and audio content, discussion boards, social media, and electronic learning platforms, all of which allow teacher educators with technology expertise and training to use them. However, Vongkulluksn *et al.* (2018) argue that teacher educators' access to technology does not guarantee its usage. Rather teacher educators' technology skills, knowledge, beliefs and perceptions can be an impediment. On a similar note, Brown (2016) affirms that unreliable technological infrastructure could affect the choice of practicing a blended education method, resulting in negative perceptions of education technologies. Teacher educators' perceptions of blended learning is a key force in how successful adoption takes place or whether technology is confined to the online workbook or, worse still, never utilised (Hsu, 2017). Past awareness, perceived gain and supposed assurance (Brown, 2016; Cheok *et al.,* 2017; Claro *et al.,* 2017; Edannur & Marie, 2017) are influences that have been found by studies to have the strongest effect on teachers' understanding of the usefulness of technology. Hence, external variables could impact heavily on teachers' perceived usefulness of blended learning and ease of use to alter their attitudes and behaviour towards its actual usage.

Through understanding the perceptions of teacher educators and what motivates their choice to execute blended learning, educational leaders and policymakers should develop procedures for adoption that optimise favourable teacher educators' expectations and blended learning pedagogy (Raymond, 2019).

2.5 DETERMINANTS OF BLENDED LEARNING RESISTANCE BY TEACHER EDUCATORS

The introduction of innovative technologies and teaching methods, such as a blended learning approach into educational settings, could cause resistance as teacher

educators prefer to stand by familiar methods of instruction. This reluctance may be as a result of their past experiences, perceptions and lack of belief in the potency, efficacy and usefulness of the new system to achieve teaching and learning objectives.

In an attempt to understand why teacher educators equipped with appropriate information and resources, do not incorporate technology into teaching practices, Kim *et al.* (2013) identified two frequently tackled obstacles. Barrier one concerns factors such as environmental readiness where computer systems, knowledge of teachers and technology gadgets are available, and barrier two concerns teachers' beliefs, perceptions and values. In addition**,** Brown (2016) and Cheok *et al.* (2017) have identified a lack of institutional and technological support as one of the challenges faced and perceived by teacher educators as a negative approach to accepting blended learning innovation in their work practice.

Sorbie (2015), in his study on exploring teacher educator perceptions of blended learning, purported that although there are many rewards, blended learning still raises difficulties. Challenges faced by teacher educators that affect their decision about how to incorporate technology include lack of support from higher education institution authorities, the IT department or fellow educators (Cochrane, 2014; Raymond, 2019). Therefore, the provision of technical and technological assistance to teacher educators could improve the success of blended learning in HEIs.

There is an indication of teacher educators' unwillingness to effectively integrate technology to enhance/substitute conventional face-to-face teaching (Arbaugh, 2008; Ooms, Burke & Heaton-Shrestha, 2008) which can influence the successful execution of the blended education approach. The confusion and misunderstanding of teacher educators on what blended learning entails are usual and different variables could impede the acceptance and use of mixed learning (Katzin, 2020; Ooms *et al.,* 2008). Oh and Park (2007) and Tabata and Johnson (2008) also see resistance as a combination of factors which stem from digital application and knowledge and skills, investment of time, teaching workflow, support mechanisms, motivation, arrangement with promotion and tenure expectations and perceived impact on learning and teaching standards, which are all factors to consider. This study however took a stance on factors such as time commitment, labour-intensive, teachers' change of role, availability of technology resources, complexity of instructional design and

institutional/technical support to explain teacher educators' resistance to blended learning approach. These factors are discussed below.

2.5.1 Time Commitment, Labour-Intensive and Change of Role

Time Commitment

According to researchers, blended learning innovations can improve student learning and help teacher educators develop teaching methods. (Delialioglu, 2012; Wang, 2011). However, the teacher educator will need to commit to spending an overwhelming amount of time to develop awareness of and familiarity with ever-improving technology (Gedik, Kiraz, & Ozden, 2012) found in blended learning systems.

Joebagio and Akhyar (2018) in their qualitative study on teachers' perceptions of social science digital teaching material development, found that though teachers had a positive perception of digital teaching material development, teacher educators' perceived time and access to technological equipment was a challenge. Similarly, studies on the perception of teacher educators and barriers to blended learning appear to be work capacity, time spent online and unsatisfactory disbursement of the period spent, inefficiency and inferiority of e-learning, lack of technical support, and availability of technology (Jeffery *et al.,* 2014).

Time seems to be a constraint to the successful use of technologies (Comas-Quinn, 2011). For instance, teachers perceive that much time is spent in designing and teaching blended courses, preparing students to have independent studying skills, and even motivating them to use the blended materials or participating in the blended activities. Developing blended learning course materials, and teaching and learning methods is time-consuming (Benson *et al.,* 2011; Bonk & Charles 2006) and could impede its adoption and use by teacher educators. Charles and Anthony (2007) also testify that educators view the design of online-based exercises as time-demanding, and are more likely to be hesitant in technology-assisted collaborations. Furthermore, in their review work of the acceptance of blended learning practices in a school of business at a university in the United Kingdom (UK), Benson *et al.,* (2011) noted that building blended learning study materials was perceived as time intensive and that supportive technology was likely to fail. In particular, the authors claim that, "barriers appeared to be related to the perception of developing the technology-based aspects

of blended learning as time-consuming, including difficulties in locating relevant resources as so many are now available on the web" (Benson *et al.,* 2011:148). As developing a blended education design demands time and involves some amount of work even with e-developers' assistance, novice teacher educators are likely to underestimate what is needed to be successful (Ooms *et al.,* 2008). As a consequence, institutions should support novice teachers and early adopters in the process of innovation, as well as formulate strategies for how blended learning can meet their needs in an evolving education system.

Teaching blended courses demands more time to be up-to-date with the technologies in order to create class activities, and focus on the overall curriculum structure (Edginton & Holbrook, 2010). Raymond (2019) citing Gough *et al.,* (2017) in a longitudinal analysis involving a survey of 42 teachers, established that teachers viewed flipped classrooms (a type of blended learning) as advantageous because of the belief that more time for student assistance would be available, as less time is required for specific instruction and module preparation. Blended teaching requires reference material and resource links to be available online, with teacher educators then following this up with face-to-face discussions. Porter *et al.* (2016) suggested that a teacher's choice to include blended learning into teaching and learning practice could be affected by student-teacher interaction consistency, time factors in scheduling online sessions and the difficulties involved in communicating with a student when online and while physically placed in the classroom.

The key findings of the study conducted with 44 teachers conducted by Gough *et al.* (2017) revealed an increase in engagement time with students as well as the capacity to develop a variation of active learning contexts as the strongest supporting factors for blended learning, due to the reduced amount of time required to teach or provide explicit instruction. To monitor, coach and respond to online discussion board posts in a blended learning context, teacher educators need to make a decision to build a community of inquiry (Asunka & Adjin-Kwabi, 2016; Gurley, 2018). Teacher educators can deliver pre-work online, provide online office hours for students to receive assistance when necessary. Decision-making of how to make learning more interactive and motivating is critical in a blended learning environment and an option teachers ought to make, particularly those on distance module programmes.

Teacher educators need to create a mediated conversation for learners to have access to topic questions. This structured conversation allows students to keep in contact with classmates and ask questions, share thoughts, and post resources. It is vital for non-resident students to meet their tutors face-to-face and develop an active service online. However, if teacher educators do not find time to monitor the discussions and make a final comment, the teacher becomes a passive participant rendering students inactive in a blended learning environment.

To sum up, teacher educators are encouraged to spend more time designing and implementing successful hybrid programmes (Dziuban & Moskal, 2011) ensuring that they develop hybrid technology-mediated teaching experiences (Howell *et al.,* 2004). Thus, higher education institution administrators should ensure that teacher educators are given ample time for the effective planning of blended learning courses (Vaughan, 2007).

Labour-Intensive

Higher education teaching has become a more difficult job than in previous years because of student diversity, gender, culture and personality (Okaz, 2005). Learning styles and expectations differ among students which puts greater pressure on how teacher educators organise their lessons. Hybrid courses must incorporate modern technology resources and new mindsets to develop and reinforce the positive outcomes (Brown, 2016; Leonard & DeLacey, 2002). With the teacher educator as the driver and the blended learner programmed as a vehicle, hybrid learning for distance learners focuses on traditional classroom interaction in the classroom while exploring how mobile technology alternatives enable students to learn and perform both on and off campus (Gurley, 2018). However, when teacher educators are hesitant and unwilling to accept the utilisation of blended learning systems effectively and efficiently, the advantages of hybrid learning cannot be attained. Therefore, teacher educators ought to strategise to effectively utilise the resources to enhance teaching and learning. Higher education institutions authorities ought to provide frequent professional development programmes to furnish teacher educators with the needed skills to utilize the blended learning model.

Research has found that blended learning's innovative features involving discussion boards, chat and email are underutilised by teacher educators and students alike

(Bervell & Umar, 2018; Garrote & Pettersson, 2007). Weaver *et al.* (2008) correlate this with the expectations of teachers about an increased workload through the use of the learning system. Graham (2019) reports that studies have identified that teacher educators' blended learning workloads may increase with online learning, especially for novice teachers, who require time to become acquainted with innovations and teaching strategies, as well as to design and implement online sources and connect with students via email and other digital media.

Research has been conducted which determined workload found with blended learning (Kennedy *et al.,* 2015; Ryan, Tynan & Lamont-Mills, 2015). A survey report presented by Ying and Yang (2017) revealed teacher educators' concern about a blended learning approach increasing their workload. The research, planning and implementation process takes significant effort and time. The adoption of a blended education approach requires the mastering of the use of technology, which demands a personal commitment to drive a process of change, particularly with evolving technology innovations. In many cases, the academic workload is negatively influenced by the time committed to instructional design. As a blended learning system or software changes, instructional activity is likely to be redesigned to adjust to the new system updates which require a time commitment and seen as time-consuming, intensive and arduous (Viberg *et al.,* 2019).

Teachers' Change of Role

Teacher educators function as role models and skills facilitators for students to build the capacity of the students to make informed autonomous decisions (Grasha & Yangarber-Hicks, 2000; Grasha, 1994). Teacher educators in a blended education milieu, move from teachers to facilitators of student-centred learning which demands new skills and competencies. Their social role involves creating a safe and social environment that is friendly to promote effective teaching and learning and their managerial roles consist of organisational, procedural and administrative aspects which entail an agenda and setting. The technology role ensures that technology is open and clear, managing, and integrating technology with proficiency and skilfulness that make students comfortable with the ease of use. These roles played by teacher educators have been confirmed by Liu *et al.* (2005) and Kanuka *et al*. (2007) as

necessary for the recognition and arrangement of attitudes, perceptions and behaviours of teacher educators in blended learning environments.

Teacher educators' roles have changed as many higher education centres increasingly adopt the implementation of blended teaching (Abaidoo & Arkorful 2016; Howell *et al.,* 2004). However, teacher educators are hesitant of accepting the new approach to instruction delivery due to perception of role change. Few teachers use the blended learning strategy in their teaching practices independently of their institution's interests. Even where institutions have invested to acquire blended learning resources, for example learning management systems, most teachers hesitate to use it because of the change of role, lack of technical support and lack of technological skills amongst others.

Teachers' perception of changing roles is supported by the findings in a study by Gerber, Grund and Grote (2008) which reported that blended teaching poses concerns about the role of teachers in developing and implementing training courses. Ocak (2011) also reports that teacher respondents believe blended teaching changes their role from teaching to coaching and monitoring which demands more time for the whole exercise. Holley and Oliver's (2010) findings clearly illustrated the evolving task of teachers and the value of managing the learning space in hybrid teaching. Garrison and Kanuka's (2004) findings confirm that issues that emerge in a changing education environment and the complex structures, affect the position of teachers. According to Ocak's (2011) research, teaching blended modules can be highly complicated and involve a variety of teaching models, which has an impact on the successful deployment of blended college courses. Therefore, teacher educators ought to make the decision to be equipped with the necessary knowledge and skills to enable them to plan and be prepared to take on the role of teaching in a blended education setting to achieve the needed learning outcomes.

2.5.2 Availability of Technology Resources

Blended learning has become one of the most well-known pedagogical strategies, but the lack of technological availability has hindered combining virtual learning settings with conventional classroom learning (Guzer & Caner, 2014; Shebansky, 2018). The introduction of new advanced technology innovations has filled the gap between conventional and remote learning communities which has given teacher educators the

opportunity to apply blended learning to their teaching methods; however, it raises questions about how it will be applied and used. This is partly due to difficulties such as professed ease of use by teacher educators, and the perceived utility of acceptance of technology in it adoption (Davis, 1989; Ma & Liu, 2005; Teo, 2011). For instance, according to the research of Yilmaz and Malone (2020), while teachers have positive attitudes toward the use of blended learning, technical requirements have hampered their instructional delivery activities. Van Twembeke and Goeman (2018) claimed that a teacher's expertise and skills explicitly affected their perception, and thus the decision to introduce new technologies into the classroom. They concluded that the additional experience the teacher has with modern technologies, together with the usability of the system and the ease of incorporating its pedagogy, the greater the likelihood that it would be effective.

Applying the technology acceptance model to ascertain teacher approval of blended learning adoption and implementation, has found that a very strong link exists among usefulness and acceptability, and between efficiency and ease of use (Ma & Liu, 2004). Likewise, Vongkulluksn *et al.* (2018) testified that teacher educators are more likely to apply technology such as blended learning technologies, into teaching practices when they perceive those technologies as useful to achieve instructional objectives. Ertmer *et al.* (2012) in support of teacher educators' perception of technology integration, classify value belief as a second-order barrier to technology application in their teaching activities. Thus, a teacher who has a positive perception of the benefits of the blended learning mode to teaching and learning outcomes is likely to accept its use. Therefore, teacher educators ought to participant in frequent professional training on the application of differentiated instruction systems and be aware of the benefits to their practices.

Noh *et al.* (2019) found teacher educators' attitudes towards technology acceptance influenced their use of blended learning technology. Davis *et al.* (1989) posit that individual attitude influences their behavioural intention to actually accept and use technology per its usefulness and ease of use. This influence is a result of expectations in the benefits that new learning technology brings, which includes being more user-friendly. A study by Fathema and Sutton (2013) found that teacher educators may refuse to acknowledge and employ a technology-mediated system such as a blended learning mode, if they are either not well-informed of its features, not interested or do

not know how to use it. Teacher educators should be sensitised to the potential benefits as well as the required skills needed for implementing blended technologies which could address the problem associated with a blended learning system application.

In contrast, Vongkulluksn *et al.* (2018) researched the role of value on the internalisation of social constraints by teachers and the externalisation of personal beliefs for the adoption of educational technologies. The authors explain that teacher educators' perception about a system's value is important for successful technology integration. For instance, teacher educators with higher value beliefs in a blended learning innovation, show how they are able to transform actual resource availability into access. As a result, such teacher educators may identify fewer infrastructure challenges as they confidently work around any access restrictions that may be in place. "Probably the teacher educator is one of the main players of the successful incorporation of teaching and learning technologies. The degree of their readiness to adopt innovative technologies such as blended learning approach therefore typically defines the efficacy of any wide-ranging institutional implementation programs, with no exception to hybrid education" (Teo, 2011: 2438).

Seasoned researchers attest that teacher educators' lack of technology competence, and skilfulness are associated with a lack of desire to incorporate technology in their lessons; these teacher educators find it most difficult to adopt and implement a blended learning approach (Noh *et al.,* 2019; Oh & Park, 2009; Raymond, 2019 Yang 2020). Blended teaching requires technical competence and complex new skills and thus failing to acquire these elements might slow a successful blended adoption and implementation (Klein *et al.,* 2004). Garrison and Vaughan (2008) defend institutions that require a phase of systemic transformations for blended courses rather than simply applying technology to the dominant teaching system. Teacher educators who encounter difficulty in implementing modern digital devices in hybrid instruction, might reject the adoption and its usage in their teaching practices (Davis & Fill 2007). For instance, Ocak (2011) indicated that academic staff were unwilling to incorporate digital devices into their teaching activities and practices because of their lack of technological skills. For this reason, teachers need technological assistance and training to successfully utilise technology in the blended learning platforms.

Moreover, limited resources such as remote internet connectivity, high cost of bandwidth, unstable internet connection, electricity power supply among others, are technological challenges encountered by teacher educators and hinder them from implementing blended learning methods in their teaching practices (Asunka & Kwabi-Adjin, 2017). Research has found that increased availability and accessibility alone does not guarantee greater or higher quality use of blended learning technologies such as LMS and Blackboard (Bervell & Umar, 2018; Ertmer & Ottenbreit-Leftwich, 2010; Yu, 2015). Rather, teacher educators' perceptions, beliefs and attitudes towards technology integration matter. Thus, it is more likely for educators to use a blended learning approach in delivering instructional content if they have more positive beliefs and attitudes. Notwithstanding this, making provisions for technology resources could well ease their problems. Hence, this study proposed to discover the challenges teacher educators encounter in blended learning applications. For teacher educators in HEIs to accept and adopt the use of technology, and thus a blended teaching approach, there ought to be a creation of awareness, frequent workshops to equip them with the required skills, uses and potential benefits they could derive from blended learning applications. Periodic evaluation of system performance has to be made by decision-makers to ascertain areas in which teacher educators as well as students face challenges in using the system, and how to solve the issues. The provision of technology resources for effective blended teaching and learning needs to be given serious consideration such as lower cost of internet resources, providing technological gadgets at a lower cost for members and effective internet connection, amongst others.

2.5.3 Complexity of Instructional Design

The instructional process poses a challenge to teacher educators when there is dearth of planning and coordination, lack of efficient communication and time commitment (Ocak, 2011). Teacher educators who are new to the concept of blended learning, need support and guidance in choosing the most suitable design for their blended programme (Alammary *et al.,* 2014).

A meta-analysis study by Drysdale *et al.* (2013) established that only 10% of research focuses on programme and instruction-level blending. The authors therefore recommended that comprehensive preparation and coordination is required for the

implementation of curriculum or instructional combinations. Hence, administrative stakeholders need to ensure that this is in place in order to accomplish success. A step-by-step guide for creating a blended course or programme in HEIs does not depend on the blended learning best practices. For example, Dziuban *et al.* (2011) state that institutions have gone through challenges arriving at a conclusion for the implementation of an ideal blend of face-to-face and online instruction. However, if institutional authorities and stakeholders create a policy outlining percentages for face-to-face and blended programmes or courses, instructions will be adaptable to the instructional needs of the system. For example, blended education programmes can have a suitable blend of, for instance, 60 percent of the course to be offered online while students will be required to complete the other 40 percent of campus-based courses and keystone programmes currently found in the traditional classroom environment for the teacher trainee students. Such a blend creates flexibility for teaching.

Yudko, Hirokawa and Chi (2008) expressed a concern which indicates that the importance of teacher educators in preparing and planning instructional activities in mixed teaching is demanding, and is not to be taken for granted. Ocak (2011) advises teachers to develop the requisite skills to prepare and organise blended teaching courses. Garrison and Kanuka (2004) laid out two main planning phases (strategic and operational) in mixed learning where the blended learning curriculum will rely on using the Internet for study and instructional technology. Templates may be given to assist instructors in the selection of suitable instructional methods, selection of course materials, production of course materials, explanation of the layout of the course regarding content and objectives, assessment methods and grading, and establishing the competencies students should acquire during a blended learning curriculum. However, in line with Drysdale *et al.* (2013) additional research is needed on blended learning instructional design with themes such as implementation, evaluation and environment.

2.5.4 Institutional and Technical Support

Hybrid teaching lacks institutional and technological support and is one of the challenges faced by teacher educators and perceived as a negative aspect to accepting blended learning innovation. Research carried out by Ocak (2011) found

that none of the four institutions chosen for his research offer growth assistance, support or preparation for members of the faculty who teach blended courses even though they are entirely online programmes within centres for distance education. Therefore, the participants reported the lack of technical assistance, curriculum design and technology issues.

External components identified to impede or expedite teacher integration of technology use in education settings relate to institutional support, technology access, and professional training workshops (Brown, 2016; Hsu, 2017; Woo, 2016). Institutional assistance influences how teacher educators implement blended courses. Support from institutions' technical staff assists teacher educators overcome their anxieties and improve delivery. Researchers argue that institutional support enables the implementation of a successful blended approach (Garrison & Kanuka, 2004; Moskal *et al.,* 2013; Porter & Graham, 2016; Taylor & Newton, 2013, 2018).

As blended learning activities tend to be demanding tasks, teacher educators need to be assisted with resources and support, especially if they are novice teachers of hybrid courses (Ocak, 2011; Garrison & Vaughan, 2008). To buttress this, Lawrence *et al's.* (2014) research explained that despite the fact that blended learning has been recognised and strongly liked as an English Second Language (ESL) e-learning delivery option by administrators (84%), instructors (63%), and learners (60%), institutional training and technical assistance have been indicated as key elements in the successful deployment of e-learning.

Technical support is required by teacher educators to effectively utilise technology in their blended teaching practice. However, teacher educators need to make informed decisions on how to equip themselves with the requisite skills to be able to use these new education technologies. This means that higher education institutions that wish to implement a blended learning strategy ought to provide the needed professional development, institutional and technical support for teacher educators.

This section discussed factors that determine teacher educators' resistance to blended learning mode on the themes such as time commitment, labour intensive (teacher workload), change in role shifting from face-to-face teaching to online instruction delivery, technology resource, the complexity of designing curriculum for blended

lesson and institutional and technical support. Further discussions on teacher blended learning practices follows.

2.6 TEACHER EDUCATORS' BLENDED LEARNING PRACTICES

Teacher educators' instructional practices constitute decisions translated into performances in accordance with the specific resources available and the challenges of the course (Galvis, 2018; Mozelius & Rydell, 2017). What is crucial, yet is most of the time overlooked by researchers who concentrate on the impact of blended teaching practices, are the decisions and performances that comprise instructional practice (Torrisi-Steele & Drew, 2013).

The teacher educator instructional practices in blended learning educational settings have been described as a 'modern type of pedagogy'. This is due to the modes, models and styles of organising teaching activities, giving feedback, promoting and improving the performance of students, which involves teaching methods other than traditional teaching delivery models (Benson *et al.,* 2011; Jensen *et al.,* 2020). Similarly, in a blended framework, teaching necessitates a more comprehensive, complicated and adaptable set of teaching schemes to improve student scholarship developments (Baran & Correia, 2013; Comas-Quinn, 2011). Wang (2009) argues that although educators are moving into new environments that pose different difficulties and concerns, less is known about the expectations and experiences of teacher educators when teaching using a blended learning approach in online environments. The authors recommend that more research work needs to be carried out and that serious consideration must be given to teaching and learning strategies. Hence, this study is envisaged to investigate and ascertain not only teacher educators' perceptions and challenges, but their practices of teaching in a blended learning mode in a higher education institution.

The teacher educators' perceived ideas, judgement and attitude towards technology acceptance affect their blended teaching practices (Benson *et al.,* 2011; Ibrahim, 2020; Yang 2020). Consequently, designing blended learning courses requires choosing teaching and learning strategies that perform best with the technological tools for students' ease and convenience. Polly *et al.* (2010) accept that the application of technology and the expertise of teacher educators do not always lead to the successful adoption of innovative tools. This means that teacher educators' persistent

perception about modern teaching methods often hinders the adoption of technology (Ertmer, 2005; Gil-Flores, Rodríguez-Santero & Torres-Gordillo, 2017). Guerra, Moreira and Vieira, (2017) have also indicated that the identified barriers to teacher educators' perception of blended learning applications in their teaching practices include the absence of technology apparatus, the anxiety of technology use among teachers and the absence of programmes available to teachers on technology application. Nonetheless, in their study in the physical role of the faculty in distance learning which looked at expertise, interest and encouragement for education technologies, Jones *et al.* (2002), explained that it is not the technology of distance education-blended learning technology that drives the teaching practice, it is rather, the predominant changes in instructional methods, technique and incentive that must occur in order for instruction to function properly. The suggested description of teaching style illustrated as expert, formal authority, demonstrator or personal model, facilitator and delegate (Grasha, 2002). The attempt to deliver learning instruction in blended learning settings presents a significant change in the teaching context. Hence, teacher educators ought to be equipped with new technological and instructional skills to make effective use of a blended learning model.

Teacher educators' perceptions about effective teaching practices in a blended learning mode are teaching conceptions correlated with teacher-centric and learner-centric methodologies to education (Jensen *et al.,* 2020; Kember, 1997; Mladenovici, Ilie, Maricuțoiu & Iancu, 2021). Jensen *et al.* (2020), looking from the perspective of teacher variations between perceptions of face-to-face and remote instruction, explain two approaches to teaching as a student-learning method and a teacher-content method. Approaches centred on teachers are aimed at illustrating the activities which are used by a teacher to facilitate learning. Access based on the students' aim to emphasise blended learning activities, including the students' participation in these two approaches, requires the transition to a structured, student-centred learning environment.

According to Owusu-Agyemang *et al.* (2017), teachers' perspectives on teaching and learning may be influenced by two key theories: constructivism (Anagün, 2018; Keating, 2015; Loureiro & Caria, 2013) and behaviourism (Rajkoomar & Raju. 2016). Several researchers attest that blended learning uses more of a constructivist emphasis on a student-centred approach (Christensen, Horn & Staker, 2013; Gemin

et al., 2015). This is done to educate the student as a facilitator of their own learning, taking on a new learning style. Furthermore, blended learning allows teachers to switch from teacher-centric, passive classrooms to a student-centric, vigorous teaching space (Anagün, 2018; Christensen *et al.,* 2013; Gemin *et al.,* 2015). Therefore, the new approach to learning can be achieved by ensuring that students acquire analytical, managerial and critical thinking as well as creative skills through a constructivist pedagogical approach.

Behaviourist, cognitive and constructivist theories have made a significant contribution to the design of online materials in a number of ways and could continue to be used to create blended learning materials (Picciano, 2017). Behavioural techniques could be applied to explain evidence (what), cognitive strategies can be utilised to teach concepts and procedures and constructivist approaches could be used for teaching real-life and personal applications and relational learning (Ally, 2004). Sharing Ally's (2004) view, in the application of distance education, the constructivist theory is at its core, in which the learning responsibility depends heavily on the student (Jensen, 2020). Therefore, the creation of these constructive teaching techniques by teacher educators leads the learner to build new information and understanding in a blended learning setting. For instance, Sze-Yeng and Hussain (2010) propose that online discussion forums for technology platforms such as Webinar, Schoology, Sakia, Google Docs., Blackboard and Moodle, Edmodo, Wiki Spaces, and Google classroom facilitate self-directed learning among students on blended learning programmes.

Recent research suggests that teacher educators' perception of teaching affects their use of blended learning technologies in teaching practice (Arancibia Herrera *et al.,* 2018). Specifically, teachers with a constructivist view of teaching would ensure greater incorporation of technology into their practices (Tsai & Tsai, 2019). Teacher educators who interpret teaching as growing learning freedom would use new technologies as resources for learning independence (Gebre, Saroyan & Aulls, 2015; Yang, 2020). These theories form the basis for improving teacher educator understanding of quality teaching and the potential use of blended learning in practice.

In 1987, the American Tertiary Education Association established standards for good practice in a conformist undergraduate education environment (Partridge, Ponting & McCay, 2011). It has, however, been indicated that the concepts of online

development instruction are viable guides for blended teaching (Tuiloma et al. 2022; Newlin & Wang, 2002). Thus, the activities of teacher educators using blended learning methods include principles such as encouraging interactions between teacher educators and students (Moore, 1986); promoting mutuality and collaboration between learners (Daniel, 2021); utilising constructive learning methods (Owusu-Agyemang *et al.,* 2017); providing timely constructive criticism; demonstrating effort and persistence; expressing high standards and acknowledging different skills and styles of learning (Chickering & Gamson, 1987). It is clear that the concepts established in 1987 are relevant and can be used as a reference point to direct future research in this area of blended learning (Graham *et al.,* 2011).

In an investigation of teaching context factors considered to significantly affect online vocational education and training (VET) teachers at a single institution in Australia, Cox (2021) discovered that responding teachers felt that both small (52.6%) and large class sizes (76.5%) influenced their practice positively and negatively. Teachers reported that the curriculum sometimes influences practice in two ways, either working to prevent the execution of a preferred practice or the teaching of meaningful content. The final teaching context influence on practice that teachers were asked to respond to was course duration and 51.4% of responding teachers indicated that course duration had no substantial effect. The author summarised that teachers' perceived workload, class size and curriculum design affect their enacted practice online. They did not believe that the length of the lesson or the availability/importance of career development had an impact on their practice.

While neither small nor large classes should affect teaching and learning in a blended learning mode, it could be perceived by educators as portraying poor student participation, engagement and satisfaction. Hence, students' preferences are required to ascertain which best teaching practice works for them; that is, whether they want more face-to-face teaching and less online meetings or vice-versa to ensure effective and potential use of the blended learning approach.

Yadav's (2018) study on reflective practices, exploring teacher educator's perceptions, explained that a blended learning method offers teacher educators a chance to reflect and make amendments to lessons yet to be delivered and even after delivery due to the availability of recorded sessions. A reflective teacher educator is exposed to the

possibility of creating modern education settings for students, learning from past experiences and collaborating with them to create new knowledge relevant to the cognitive abilities and benefits of the students (Gutiérrez, Adasme & Westmacott, 2019; Lubbe & Botha, 2020; Tlali, 2019; Yadav, 2018). The assumptions and perceptions of a teacher regarding the learner and the procedure of teaching or learning, make the act of reflection a critical aspect of teaching (Lubbe & Botha, 2020; Tlali, 2019; Yadav, 2018). Thus, reflection is the capacity of teacher educators to look back on what is already performed to analyse the way experiences are handled intelligently. Thus, reflective thinking is critical to ascertain and ensure the effectiveness of blended learning.

Teacher educators' aim is to maximise student performance using an expertise-based method that acknowledges teaching as a blend of knowledge, abilities and behaviours to increase the level of performance. As a result, the hybrid learning approach gives the teacher a chance to reflect and consider what has happened during the teaching process. For instance, replay of video recordings help teacher educators make corrections to improve on future occurrences as compared to situations in which teachers encourage peers to observe their teaching lessons and discuss their experiences. Blended learning thus promotes reflective practice as teacher educators become continuing learners themselves as they replay their pre-recorded lecture videos in an asynchronous manner before giving it to students or in a synchronous lecture recorded to review and make amendments to the shortfall. The main learning danger is how to do the teaching. Hence, engaging in a frequent reflective practice could improve teaching and ensure best blended learning practices in HEIs.

Education is intended for learning; but teaching is the tool for achieving learning objectives (Livingstone 2014; Lunenberg & Orustein 2012). A teacher-centred approach is to be changed to student-centred strategy to bring new digital technologies into education in HEIs to trigger pedagogical innovations (Laurillard *et al.,* 2009; Madsen *et al.,* 2018; Rajkoomar & Raju. 2016). Arguably, teacher practices in the traditional classroom are not implemented the same way in a blended environment. Equally, learning is not applied by merely moving electronic teaching materials but instead by redesigning delivery and pedagogy (Vaughan, 2007). In the same way, studies suggest skills required for university and career preparation are based on problem-solving, inquiry, coordination and partnership to render the

relevant learning practice (Darling-Hammond, Wilhoit & Pittenger, 2014). Technology may serve as a resource for reacting to these skills; for this purpose, investing in technology is vital for teacher educators to produce engaged learners. Nonetheless, an uncomplicated move from offline to online education will not contribute to effective teaching; rather, educators need to strive to adapt their teaching experiences (Galvis, 2018; Garrison, 2011). Although every student has a unique learning style, it is critical to provide a wide range of educational approaches, learning materials and activities to improve instructional delivery and learning in a blended learning mode.

Blended learning resources promote contact between teachers and learners, learner to learner, and learner to content and for teachers' good teaching practice (Anderson, 2008; Daniel, 2021; Moore, 1986). Thus, teaching in a blended learning mode allows for interaction to be teacher-student, student-student, and student-content. For instance, students are able to communicate directly with their teachers via electronic mail, chat lines, SMS messages, discussion forums, video links and teacher educators are able to respond directly to students. The benefit of blended learning, therefore, is the increase in student involvement. This is valid for blended learning students, as social interaction, together with student-teacher relationships, is established as a core aspect of online student involvement in their studies (Redmond *et al.,* 2018). In addition, teacher educators and students interact with the many resources and learning materials either prepared by the teacher or from other educational resource links on the blended learning platform (Daniel, 2021), which reinforce instructional delivery. The learning materials and hand-outs are distributed using electronic document files, which eliminates the need for additional clerical work. (Pittinsky & Shih, 2004).

Research by Jeffrey *et al.* (2014) established that blended education programmes would not achieve their potential if teacher educators do not adjust their perceptions, attitudes, behaviours and activities to establish mixed experiences. The adherence of teacher educators to good, blended learning design practices in their courses is relatively low and requires a moderately large survey to determine their prevalence. Given that teacher educators dislike the application of innovation in learning, blended education has steadily grown, motivated by proof of its benefits over teaching either digitally or in the classroom. Yet a differentiated instruction curriculum often struggles to optimise the advantages provided by this model. Much work has been done on

different facets of this issue, but in a blended course, only one other analysis has investigated the teaching practice of the teacher educators (Jeffrey *et al.,* 2014).

A blended learning approach for HEIs in Ghana can be an added advantage to competing in the global education space. A simple transition from teaching offline face-to-face to online is not good pedagogy; rather teacher educators should ensure that they are equipped to transform their practice to achieve learning objectives (Francis 2012; Garrison 2011). Blended learning promotes participation and teamwork that are central to effective teaching practices. Akyeampong (2003) indicates a number of teaching methods that teacher educators use in teaching various subjects. In this manner, teacher educators transfer knowledge to students through student-centred teaching in which learners engage in conversation and deliberations on up-to-date topics, with teachers serving as facilitators, using a question-and-answer method to stimulate discussion and debate. Other approaches applied by teacher educators in training trainee teachers are experimentation, the method of brainstorming and the mission and strategies for problem-solving (Asare & Nti, 2014). These approaches can be more enhanced when teacher educators blend their teaching with technology-mediated tools in a blended setting, which creates student-centred learning and a relationship between student-teacher, student-content and student-student (Daniel, 2021; Moore 1989).

In their teaching, teacher educators often use role-play and demonstration (simulation methods), educational visits and field experience, deductive and inductive methods (Ghana Education Service, Teacher Education Division, 2004). Trainee teachers use expository teaching methods, simulations, teacher-led discussions and case studies to teach their students. As teacher educators accept and adopt a blended approach, not only can it enhance their teaching practices but their students' own teaching practices is also influenced.

2.7 INSTITUTIONAL BLENDED LEARNING PRACTICES

Blended learning has been a characteristic of practice at HEIs for nearly two decades, having an impact on an institution's ability to achieve strategic objectives such as increasing student access, sustaining student successful outcomes and maintaining development (Dziuban *et al.,* 2011; Graham, 2019). However, not many research studies investigate its scale, implementation and adoption in higher educational

centres (Owston, 2013; Graham *et al.,* 2013) because such research pays attention to course level issues and learners to improve learning outcomes leading to the neglect of institutional adoption and implementation with regards to teacher educator issues. The push towards blended learning adoption and implementation is typically initiated at the institutional level, but assessing the effectiveness and teacher educators' struggles arise at the delivery level (Benson *et al.,* 2011). Therefore, as part of this study, institutional blended learning practices are critically discussed to ascertain in-depth understanding of teacher educators' views as well as challenges pertaining to blended learning practices in Ghana.

There are three main concerns defined by Porter *et al.* (2015) such as strategy, structure and support that HEIs need for the institutional introduction and application of blended learning. Graham et al. (2013) studied six higher education institutions and developed a three-stage architecture for institutional adoption, with 12 indicators extending the strategy, structure, and support classifications. This structure was used in two subsequent studies that looked at how universities transitioned from the recognition/exploration phase to the acceptance/execution phase (Porter *et al.,* 2014) and institutional options that facilitated or hampered academic staff acceptance of blended learning practices (Porter *et al.,* 2016). The strategy as explained, covers the design-related problems of blended learning, structure involves concerns relevant to the facilitation of the blended learning system and support requires the introduction and management of the blended learning architecture by academic personnel.

Research studies indicate that blended teaching courses distract and impose challenges across the institution at many stages (Graham, Woodfield & Harrison, 2013; Porter *et al.,* 2015; Shebansky, 2018; Zhang *et al.* 2022). Ocak's (2011) findings reveal that lack of institutional assistance obviously presents an obstacle for the delivery of blended courses. Conversely, successful acceptance and implementation of the hybrid learning approach partly depends on institutional support, clear direction and policy (Al-Hunaiyyan, Alhajri & Al-Sharhan, 2018; Garrison & Kanuka, 2004; Porter *et al.,* 2015). Ocak (2011) noted that teachers' interest in blended learning acceptance and implementation decrease once there is absence of well-defined institutional guidelines on a number of factors attributed to the blended teaching. For instance, individuals who have an interest in blended learning may use it instead of the general practice by the larger population in the higher education centres.

Teacher educators' perceptions and practices of blended learning challenges would normally be addressed once strategies and directives for institutions accepting that pedagogic approach are in place (Porter & Graham, 2016; Graham *et al.,* 2013; Moskal *et al.,* 2013; Taylor & Newton, 2013). Internal challenges to modern teaching and learning methods are typically institutionally focused and embedded in the institutional ethos. For example, some teachers and educational administrators embrace the conventional rather than the current teaching method and appear to find fault with any new programme being implemented. Therefore, managing change within an institution is one of the most identified challenges that higher education institutions encounter (Al-Hunaiyyan *et al.,* 2018). However, managing such change influences teacher educators, students, and other educational stakeholder's practices and activities towards achieving a goal (Al-Sharhan, 2016).

2.7.1 Blended Learning Strategy and Policy Support

Policymakers and institutional stakeholders have an obligation to enact laws where a blended learning teaching method customises and promotes teaching and learning (Al-Hunaiyyan *et al.* 2018; Greene & Hale 2017; Staker & Horn, 2011) and does not neglect teacher educators' concerns of perceptions and practices. Institutional policy and strategic adoption may be a uniting force between teachers and managers and their capacity to develop blended learning pedagogical practices is thus strengthened (Drysdale *et al.,* 2013). Research on institutional policy and adoption is directly linked to other fields. Studies in Ghana testify that although many higher education centres have accepted a blended learning method for instruction delivery and learning, few have a clearly defined policy guideline (Tanye, 2017). As a result, each individual institution implements the blended learning strategy differently bringing inconsistency in blended learning practices among teacher educators. There is the need therefore to examine teacher educators' perceptions and practices in accordance with the blueprint policies and strategies of HEIs, as this study has done.

The HEIs must, above all, have clearly defined strategic plans which articulate blended learning policies and strategies for implementation. It is very important to have an informed, institution-wide committee in charge of the implementation. Members of the committee must be visionaries with a passion for creativity in the delivery of education. Colleges, faculties and departments ought to also have specific strategies that

correspond to the university-wide strategic plan that directs their acceptance and employment of blended learning application.

Awidi (2008) states that effective application of e-learning programmes relies on appropriate policies. Hence, policies on modes of instruction delivery, teacher educator practices, and student and intellectual property issues must be clearly stated. Institutions daring to adopt and implement a blended learning approach need to create awareness and define the approach to stakeholders. Thus, what it stands for, the advantages and disadvantages especially citing examples of institutions that have benefited from its adoption and usage, and measures put in place to encounter the challenges it poses. Policies and strategies need to create awareness among stakeholders, especially teacher educators, to play an advocacy role by informing their colleagues. For instance, it is reported that teacher educators may refuse to accept and use a technology-mediated system if they are either not well aware of it, or not interested to utilise it or they have no idea to use it at all (Fathema & Sutton, 2013).

Administrative staff need to be well informed to understand how, why, what about teacher educators' blended learning perceptions, beliefs, practices and implementation, and to explain the institutional culture surrounding the approach. This could help to recognise the norms, values of the context within which blended learning is being practised. As the stakeholders start to accept blended learning concepts, the remaining two stages of adoption or early implementation and the mature implementation or development, described by Graham *et al.* (2013), will see fulfilment. According to Moskal *et al.* (2013), another strategic plan is for institutions to share responsibilities among stakeholders especially teacher educators to achieve the goals set for blended learning adoption and implementation. Appointing a team leader who involves other members by sharing responsibilities according to the vision or mission of the institution and agenda on the table, helps smooth adoption and implementation. A structured blend of a self-paced, technologically improved, integrated atmosphere designed to meet the teacher educators and students' needs is crucial in HEIs policy guideline (Cunningham, 2011).

2.7.2 Institutions Support Systems, Motivations and Staff Development.

Blended learning has been predicted by scholars to become the 'new normal' and 'new traditional model' (Graham, 2019; Dziuban *et al.* 2018; Norberg *et al.,* 2011; Ross &

Gage, 2006; Watson, 2008) in HE instruction delivery. Institutional support to users with the provision of appropriate resources might assist teacher educators in erasing negative perceptions and bad attitudes towards the blended learning mode of practice. There are suggestions that administrative support for effective blended teaching courses should be taken seriously (Brown, 2016). Thus, the lack of institutional support for technological problems associated with blended learning could have a major effect (Gerbic, 2009, 2011).

The teacher educators' perceived difficulty with implementing a blended learning approach is often the insufficient support of technical personnel and outdated university facilities. The effect is a direct interference to the widespread application of a new blended education programme. Research by Tondeur *et al.* (2017) identified institutional policy decisions, professional mentoring programmes and IT systems as critical structural fields for the adoption of educational technologies for the effective introduction of blended learning in higher education institutions. To maintain a successful virtual environment, technical personnel must be well motivated and adequately buttressed, as advised by Awidi (2008). Similarly, Noh *et al.* (2019) explain that higher education administrators can increase academic awareness for teacher educators through promotion, preparation of physical and technical facilities, continuous support and practice. In addition, there is the need for the creation of a blended learning culture and recognition for teacher educators who take responsibility for ensuring the successful application and enhancement of the blended learning programme.

The designing of blended or hybrid learning courses has been recommended for institutions adopting and implementing it to set explicit strategic goals to achieve the needed outcome. Higher education institutions ready to implement a blended learning mode, must have a shared vision and understanding of blended learning concepts, better data, technology infrastructure and exposure, strong stakeholders, leadership and strategic direction, good governance and support for teacher educators and students (Garrison & Vaughan, 2013; Graham *et al.,* 2013; Moskal *et al.,* 2013; Newton, 2013; Porter *et al.,* 2016). An important question to ask is: Do institutions have the infrastructure for blended learning adoption and implementation? Institutions need to enhance their technical infrastructure to facilitate blended learning by upgrading the bandwidth on campuses, the upgrade or purchase of new servers and

additional software. Institutions can as well expand their physical infrastructure to integrate and accommodate blended learning with the adoption of new technology.

Brown (2016) reported that as they view higher education administration as good supporters for the blended learning course, teacher educators become more inclined to incorporate blended learning methodology in their pedagogical practice. In contrast, claims of poor managerial leadership, or where there is no provision of rewards or logistical resources, teacher educators are reluctant to incorporate blended learning pedagogy. Vongkulluksn *et al.* (2018) concur that the actions of an institution's administrator to build an environment where instructional technology is viewed as advantageous, will have a significant effect on the teacher educator's perception of the technology's importance and utility. This in turn will improve the possibility of its adoption and full utility. It is therefore crucial for HEIs policymakers and stakeholders to create awareness, provide incentives, training and promotion packages for teacher educators to promote effective blended learning implementation in their centres.

2.7.3 Motivation and Staff Development

It is necessary to understand or identify the extent to which teacher educators use blended learning technologies (for example, learning management system) as most HE centres have acquired them; yet, it is reported that its usage by the teacher educators in their teaching practices is low (Bervell & Umar, 2018; Jeffery *et al.,* 2014; Sorbie, 2015). Identifying teachers' attitudinal patterns towards blended learning adoption and implementation influences their behaviour, and the strength and weaknesses of practice depends on how teachers are motivated to accept and use a blended learning mode.

The question is whether to use teacher-driven intrinsic motivation or extrinsic motivation driven by institution and performance (Noh *et al.,* 2019). The presence of motivation factors is key to the teacher educators' adoption and use of blended learning and its associated education technologies (Van Twembeke & Goeman, 2018). Achievement, reward, personal development, administrative support and personal fulfilment are among these motivational factors (Gautreau 2011; Lawler & King 2003). Influential factors such as time-release, technology software system quality, technical support and professional development assistance are considered a teacher motivation by Katzin (2020) Similarly, MacDonald, Yanchar and Osguthrope

(2005) identified adequate professional development for teacher educators, administrative support, reflective practice, time and access as supportive elements that can motivate educators on blended teaching practice.

Blended learning requires novel changes that could support teacher educators through professional development training (Gore, 2017; He, 2019; Moore, 2017). However, other study findings revealed that institutions' professional development mostly focused on technology and failed to connect pedagogical adjustments teachers need to make when transitioning to blended learning (Katzin, 2020; Parks, Oliver & Carson, 2016;). Similarly, a study by Katzin (2020) revealed that participants perceived previous professional development primarily emphasised the use of technology devoid of discussions of pedagogy and the application of blended learning to teachers' content area. Baran and Correia (2014) suggest that school officials provide teacher educators with assistance and career development programmes that address not only the latest technology but also pedagogies specific to their use. Meanwhile, Drysdale *et al.* (2013) found that less than seven percent of the theses and dissertation reviewed investigated professional development for blended learning instructors. The authors, therefore, recommend that more research should focus on teacher and staff needs, and on professional development, as it is readily recognised to improve instruction in a blended learning setting.

The expertise and competencies of teacher educators has a significant effect on the curriculum and the development of a blended learning pedagogical method for effective acceptance and application (Archambault *et al.,* 2016; González-Sanmamed *et al.,* 2017; Hsu, 2017; Osakwe, Dlodlo & Jere, 2017). However, Archambault *et al.* (2016) in a study of 427 learners including 363 separate teacher preparation services observed that just 4.1 percent of such initiatives provided practical experience in digital learning. The authors, therefore, testify that professional growth is one aspect that plays a role in establishing views of blended learning among teacher educators.

Van Twembeke and Goeman (2018) also assert that if teacher educators are comfortable regarding the expertise and information that they need to use the blended learning process successfully, an innovative management procedure is likely to be helpful. Tondeur *et al.* (2017) concluded that, in order to have successful professional development that favourably influences a teacher's understanding of instructional

technologies, the elements that make up the teacher's value structure must first be considered. Throughout the case of blended learning, Greene and Hale (2017) concede that offering another opportunity for the teacher educator to know how to use computer software is not sufficient, a conceptual change in how classroom training is received, is needed. Higher institution authorities thus ought to provide frequent professional training for teacher educators to address their perceptions and challenges faced in their blended learning practices.

When they receive frequent training, teacher educators will feel confident to approach, accept and use blended learning technology. This developing confidence is likely to address the issue of learning management system-associated anxiety, mentioned as one of the behavioural issues that inhibit teacher educators' use and acceptance of blended learning (Bervell & Umar, 2018). This aligns with research by Yen *et al.* (2011) which examined environmental effects of blended learning on the career development training of pre-service teachers in creativity instructions. It was found that the blended learning environment could boost the professional knowledge and personal creativity-related teaching effectiveness of the participants. For instance, when pre-service and in-service teachers participate in the appropriate type and amount of professional development training to prepare them to implement blended learning, there is a direct correlation to the success of blended programmes (Gurley, 2018).

Using the Technology Acceptance Model (TAM) (Davis *et al.,* 1989), Fathema and Sutton (2013) deduced that many teacher educators had difficulty working with the LMS and those who use the system, only select some features with which they feel comfortable, neglecting other important features. This problem is associated with the fact that teacher educators were either not familiar with the system or they were uncomfortable using it. Therefore, the authors recommended training sessions and workshops to help educators become acquainted and equipped with the application of the blackboard learning management programme to improve blended learning practices. The facilitation of professional development programmes assists teachers in remaining abreast with the system and easily accepting the blended learning method in their teaching practice. However, an analysis of professional development experiences of teacher participants indicated that most professional development was ineffective in supporting blended learning instruction (Katzin, 2020). As proposed by Wehbe (2019), previous professional development had not met teacher educators'

immediate individual blended learning needs. It implies therefore that performing a needs review is useful to understand the educator's specific training needs for a blended learning mode.

Training workshops for professional development are important in overcoming any challenges perceived by teacher educators regarding a successful blended learning programme and pedagogical methods which take advantage of the latest technology. Since having time for training can be a problem for teacher educators, it is crucial to prepare the training schedule to fit their plans. In that same manner, training teacher educators' need to acquire and develop basic computer literacy skills in a blended teaching mode is vital in higher education institutions. Although professional development is important for teacher educators, gaining definitional knowledge of the term 'blended learning' is important as its lack limits the effectiveness of previous professional development and the practice of blended learning (Dziuban *et al.,* 2018).

2.8 HIGHER EDUCATION

Access to higher education has improved in recent years and has experienced a significant change that involves increasing internationalisation and student flexibility, increasing online and blended learning provision combined with an increase in internet connectivity across all countries (UNESCO, 2019). Higher education covers both post-secondary schooling, preparation and academic instruction at educational establishments, such as universities, which are licensed by state agencies as higher education entities. Higher education institutions, especially universities, dominate with three critical roles: training, research and their input to society. Higher education was described in the 1998 World Declaration on Higher Education, adopted by the World Conference on Higher Education as "all types of studies, training or teaching for research at the post-secondary level, provided by universities or other educational establishments that are approved as institutions of higher learning by the competent state authorities" (UNESCO 2000:1). This same basic definition is used by UNESCO, the World Bank, and United Nations Development Projects (UNDP).

Effah (2018) reports that in 1962, the conference of Heads of University Institutions in Africa noted the seemingly lack of clarity of the term higher education which was used

to refer to post-high school education. This definition of higher education was used in Ghana until the late 1980s when the University Rationalization Committee (URC) set up in 1987 as part of a comprehensive review of the educational system introduced the term “tertiary education”. This term applies to universities and other post-secondary technical, vocational educational institutions such as polytechnics. A recommendation was made for the establishment of Regional Colleges of Applied Science, Arts, and Technology (RECAAST) to comprise the nursing, teacher training, and agricultural colleges. This recommendation was not implemented, but tertiary education has now been expanded to encompass all these institutions (Effah, 2018).

Higher education has seen a major increase in its core position in the 21st century, despite the world's downturn in the 1980s as a result of capital redirection away from universities to primary education. In the past, the African tertiary education system attracted stakeholders both internally and externally, primarily because of this knowledge of the important position of university education in the transition of Africa (Bloom, Canning & Chan, 2005). Nonetheless, many challenges in terms of cost funding, the disparity in access, quality issues, gender disparity, institutional capability, poor research base and governance are still being faced by Africa’s HEIs (Davis *et al.* 2017).

However, over the years, the world has struggled with resource constraints, insufficient resources, and a history of failure in reacting to growing demands including capability gaps. Some of the world's most critical concerns are the potential for research and invention and, ultimately, the opportunity to make use of these to change the continent. HEIs in Sub-Saharan Africa (SSA) face challenges of not being able to meet the demand of the growing young population, demonstrated by the large gap between secondary gross enrolment ratio (42.64%) and tertiary gross enrolment ratio (8.79%) (World Bank, 2017). Thus, HEIs are not able to provide access thereby creating a large gap between the Gross Enrolment Ratio (GER) for secondary and tertiary education for African nations. For instance, the GER of students in secondary and higher education in Botswana, and Namibia South Africa and Ghana in 2017, is recorded in the following table: -

Table 2.1: GER of secondary and tertiary education

	Secondary Education		Tertiary Education	
	Males	**Females**	**Males**	**Females**
Botswana	84%	100%	23%	32%
Namibia	60%	76%	8%	10%
South Africa	84%	100%	16%	23%
Ghana	70%	68%	18%	13%

Source: UNESCO Institute for Statistics Data Center (2017)

Because of the disparity of numbers between secondary and tertiary education, there is a crucial need to increase access by accepting the application of a blended learning mode to embrace all in the higher education system. Institutions are implanting innovative solutions such as blended learning to provide selections for high-quality education with greater flexibility and lower costs (Betts, Hartman, & Oxholm 2009) as well as admission.

According to Darvas *et al.* (2017), Sub-Saharan Africa's labour force is expected to nearly double to 1 billion by 2040, and this highlights the size of the demographic challenge ahead and brings the need to broaden access to quality tertiary education to a sharp focus. Notwithstanding the wider access of the SSA's higher education market in general, demand has struggled to cope with supply, and the field tends to lag behind all the others in accessibility to tertiary education. This is largely a consequence of deeply ingrained trends of inequality in admission to tertiary education and the propagation of what scholars refer to as 'elite structures' (Darvas *et al.,* 2017). Meanwhile, there is the need for equitable admittance to higher education to all worthy

citizens leading to a fair distribution of wealth and resources. Therefore, combining digital education, interactive e-learning and/or blended learning with distance education could probably help to counter these inequalities that provide access to higher education for the wider African community.

The abundance of modern educational tools has given rise to new demands on higher education structures in the continent. This includes the creation of advanced curricula, research programmes, alternate learning paths and higher learning strategies enabled by internet, distance learning, accessible schooling, blended learning delivery models and quick training courses such as large internet open courses. The promise of online learning in general, and in particular in the context of Massive Open Online Courses (MOOCs), is immense and provides new avenues to higher education as well as incentives for lifelong learning (UNESCO, 2019). A blended learning strategy is an innovation advocated for individual and HEIs as it offers cost flexibility alternatives.

UNESCO (2019) established that higher education is constantly advancing in terms of meeting the rapidly changing expectations of global and regional employment opportunities, particularly, with the use of technology offering several prospects for access to quality education. The expectation is that higher levels of the education system and institutions need to offer learners the opportunity to develop understanding, expertise and experience essential to have a share in the objectives of sustainable development. However, this can only be possible with a concentration on effective implementation of blended learning by teacher educators in HEIs settings.

2.9 HIGHER EDUCATION IN THE GHANAIAN SETTING

Ghana, a West African nation, with a population of about 33.5 million has seen a growing demand for higher education with the nation's young population. At the end of 2018 the school year, the GER for male was 71.83% and 70.79% for female in comparison to 17.7% male and 13.6% female in tertiary education (UNESCO, 2020). The challenges faced by HEIs for quality education to develop human capacity calls for a new trend in instructional delivery and learning as technology-enhanced innovation offer a cost-effective way of increasing admittance to affordable higher education in Ghana.

The Ghana Education Reform Document (MOE, 2007) recommends the need for teaching strategies to promote critical and scientific thinking. The administration continuously offers incentives to develop intelligence, experience and expertise in the areas of creativity, research and discovery appropriate for a learning society. The administration is to institute curricula and pedagogy, within the context of learner-centred and problem-based learning techniques that promote critical and independent thinking (Public University Bill, 2020). The mandate of educators in higher institutions, therefore, requires new knowledge and skills on technology-mediated resources to train competent graduates fit for today's world. These methods include participating in learning and instruction, knowledge based on inquiry and constructive learning (MOE, 2008). The significance of technology-enabled training and learning environments and the task of teacher educators as a driving force, is consequently of great attention and interest to the government of Ghana (Ghana ICT for Accelerated Development Policy [ICT4AD] 2003). Hence, teacher educators' acceptance of blended learning methods as an innovative way of instructional delivery and learning in HEIs, promotes the plans envisaged by the Ghanaian government.

Ghana's higher education has three regulatory bodies responsible for tertiary education policies. These are the National Accreditation Board (NAB), the National Council for Tertiary Education (NCTE), and the National Board for Professional and Technician Examinations (NABPTEX). However, the NCTE and NAB were joined together under the new Education Regulatory Bodies Act, 2020 (Act 1023) to form the Ghana Tertiary Education Commission (GTEC). The GTEC by Act 1023 is a corporate body mandated to regulate higher education in all its forms to ensure the promotion of efficient and effective management and accreditation of tertiary education institutions; the principles of tertiary education institutions providing consistent quality of service; the development and knowledge application through teaching, scholarly research, and teamwork with industries and the general public sector; and the development of appropriate human capital for the sustainable advancement of the national economy (https://gtec.edu.gh/).

Prior to the merger of NCTE and NAB, the National Accreditation Board was responsible for institutional authorisation and programme accreditation. A recent study of how the NAB operates in Ghana includes its capacity-building role, particularly when advising on the professional functions in the bodies of academic programmes.

Furthermore, NAB performs an assessment of the equivalence of diplomas, certificates, and other qualifications issued by institutions in Ghana or elsewhere.

The higher education system and programme accreditations in Ghana are authorised by the National Accreditation Board (NAB). According to NAB's report, two major public universities (University of Cape Coast and University of Education Winneba), forty-six public education colleges, and four private educational colleges are currently mandated to train teachers to teach either at basic school, junior high school, senior high school, or tertiary levels, depending on the programme being offered (www.nab.gov.gh).

"A tertiary institution is a higher or further schooling, or technical, post-secondary institution. It is required to provide advanced academic and/or professional instruction and conduct research programs especially in universities" (nab.gov.gh). A tertiary institution's main goal, according to the National Accreditation Board is to educate people to be able to think critically, to learn expertise and skills. Public universities aim at developing, disseminating and maintaining information and understanding through teaching, skills development and study, scientific publications, technology transfer and extension and community service (Public University Bill, 2020). In order for this to occur, a sufficient number of well-qualified personnel, a well-equipped and well-stocked library and a large range of classes, lecture halls, laboratories and workshops (www.nab.gov.gh) should enable any tertiary institution to perform its core functions.

The NCTE is entrusted by statute of Ghana with advising the Minister of Education on the tertiary education institutions and with formulating policies. The body has a strategic plan for rating tertiary institutions based on their programmes' importance to national growth and revenue generation, in addition to formulating a specific policy framework on applied research in priority sectors for national growth in institutions of tertiary education. The NCTE's job is not only to track quality but also to help organisations build on quality. In June 2019, in collaboration with the NCTE, Ghana's government launched the latest tertiary education sector overhaul to enhance student success and governance of tertiary education institutions. The aim was to include a consistent basis for the final arrangement, strategy, growth, legislation, activities, overall governance and transparency of the tertiary education sector.

NABPTEX is responsible for formulating and administering examination, assessment and certification schemes for professional bodies, non-university tertiary institutions and personal institutions.

Owusu-Agyemang (2016) reported that higher education in Ghana has undergone several transformations that were aimed towards creating the proper conditions for the training of skilled personnel needed for the event of the economy of the country. One of these interventions was the Tertiary Education Project (TEP), planned by the government to improve the country's tertiary education performance. This project “aimed at reversing the degradation of the system, decreasing grades, and deteriorating the quality of education. It again increases and expands access to tertiary education: to create institutional capacities for quality monitoring and policy evaluation in the tertiary education sector, as well as to establish a stable and sustainable foundation for tertiary education financing” (Girdwood, 1999:20).

The majority of enrolments of students registered for Ghanaian tertiary education are at the large institutions, which really heavily on government subventions for their operations. Tertiary education institutions are faced with a lack of funding and infrastructure, gender inequality and uncontrolled enrolment challenges. The government's new tertiary policy seeks to centralise applications and placement processes to encourage merit-based acceptance, fairness and easy access to universities and other tertiary education institutions that will be guided by specific requirements. These requirements include supporting positive discrimination for minority groups and disabled people, recommended quota (five percent) for poor and marginalised students, including but not restricted to disabled persons and other marginalised groups. However, blended learning education is able to create cost-effective, flexible and unconditional space or time for diverse learners which is the reason for higher education institutions to consider blended learning adoption and full implementation.

Higher education institutions today are more diversified with greater portions of the population attending. Delivery modes have also grown considerably. Nonetheless, the traditional model of full-time and on-campus attendance is inadequate for adults who frequently study while working and supporting a family. Changes in teaching methods have also resulted from technological advances, particularly at the undergraduate

level, with organized courses now being delivered digitally, allowing for a different use of classroom time with smaller training and engaging forums, and more hours spent with students on their individual projects. The advent of more open modes of delivery, such as distance learning and online educational, has increased access to a broader range of student populations while also assisting in meeting increasingly diverse demands (OECD, 2005). These are also regarded as less costly alternatives to traditional modes of delivery. HEIs have also begun to broaden their offerings for lifelong learning. Prior learning evaluation, a broader range of projects, part-time learning, module-based curricula and credit systems, competency-oriented, student-centred study organisation, and non-degree and continuing education provision are all part of the evolution of learning organisations. Hence, blended learning adoption and effective implementation in the higher learning centres be a serious option for the government, institutions authorities, stakeholders and teacher educators to consider.

2.10 TEACHER EDUCATION IN GHANA

Practices in teacher education go back to pre-independence in Ghana where European merchants helped train citizens to acquire knowledge and develop skills so that they could help translate the language to promote their business in the Gold Coast, now Ghana (Antwi, 1992; McWilliam & Kwamena-Poh, 1975). Missionaries trained teachers to be catechists to further spread the word of God. Teachers were conformists and eventually instructed their students to adapt to what was instructed.

The government in Ghana continues to follow teacher recruitment programmes in an attempt to improve the quality of the education in the country. Prior to 2004, teacher training was offered at training colleges providing a three-year Post-secondary Teachers Certificate ‘A.’ The pre-service teachers were paid allowances by the government as a form of motivation to entice more people to enrol in the system to increase the teacher population in the country. Teachers receiving education training programmes are still being paid allowances by the Ghana government. However, in 2004, the teacher training colleges were upgraded to offer diploma courses as part of a national enhancement plan to increase the entry of teachers into the teacher colleges.

> “Trainee teachers study theory at the campus for two years and, in the third year, they are assigned to a classroom to be supervised by their tutors to pursue a one-year professional placement while continuing to study through the distance mode. The Ghana Education Service (GES) exercises supervisory roles over the duties of teacher training colleges, and trained teachers with diploma qualifications are eligible for primary and junior high school education” (Agbenyega & Deku, 2011:12).

Teacher education in Ghana is conducted in two-level initial teacher training colleges to provide Primary and Junior High School (JHS) teacher training, and second level universities to provide high school teacher training (Kuyini & Mangope, 2011). The universities are the University of Education, Winneba (UEW) and the University of Cape Coast (UCC) which offer professional teacher education undergraduate and postgraduate courses. The initial teacher training colleges were part of the second tier of education until 2007 when they were redesigned as tertiary institutions. In 2018, Ghana's president, His Excellency Nana Addo Danquah Akuffo-Addo, upgraded teacher training colleges to educational colleges to award teacher diplomas and graduate certificates. The University of Education Winneba and the University of Cape Coast were and are still offering diploma and degree awards to teachers either through the regular residential or distance education modes. Currently, the Colleges of Education, UEW and UCC all offer diploma and degree awards to teacher educators to deliver quality and professional training for the Ghanaian population.

2.11 A BLENDED LEARNING MODE IN GHANA

Various challenges face HEIs globally with Ghana not an exception, due to student body diversity, cost-effectiveness, attaining positive benefits and the prospects of new and advanced technologies to deliver personalised learning while still adhering to the traditional ideas of educational purpose. The application of emerging innovative technologies demands a transformation of the instructional delivery and learning in higher institution settings, which can be encouraged by an appropriate combination of different delivery strategies, teaching models and learning styles accomplished by efficient communication.

Ananga and Biney’s (2017) study comparing conventional face-to-face and electronically higher education teaching and learning, reports that the University of

Cape Coast and several other universities in Ghana use a blend of face-to-face and online learning to provide instruction to distance education teacher training learners. In support, internet research and 'real-time' off-campus tutoring are now becoming an agreed mode of delivery in most study programmes at Ghanaian HE institutions. However, Bervell and Umar (2018) recount that the underlying usage of the Learning Management System (LMS), a technology that facilitates online connectivity and content sharing (Siemens, Gašević & Dawson, 2015; Yueh & Hsu, 2008), has not been utilised effectively by teacher educators. Most institutions have implemented various kinds of LMS within the African context and use it to facilitate conventional face-to-face approaches. Given the high rate of adoption at universities, there is a lack of use on the part of teachers (Caravias, 2015), which poses concerns about the effectiveness of the LMS in the improvement of the blended learning approach. Anxiety concerning development has been a potential cause for loss of recognition and usage in the literature (Yueh & Hsu, 2008).

In an information and communication technology education survey conducted in Ghana, Mangesi (2007) reports that the ICT agenda for the education sector aimed at ensuring that students have the relevant information technology literacy skills prior to graduating from each phase of learning. Therefore, educational administrators are required to provide guidance for incorporating ICT resources at all stages of education and afford ways for regulating ICT services for all schools. Higher education institutions are also required to promote the training of teachers and students in ICT and decide how to incorporate ICT tools at all levels of education. Nevertheless, the country's tertiary institutions have a separate ICT policy which guides their performance. Hence, a clear and standard policy guiding all the colleges of education and higher education institutions in Ghana could bring uniformity and improvement in blended learning practices in general.

Tanye (2017) reports that an agency known as the Centre for National Distance Learning and Open Schooling (CENDLOS) was established in Ghana by the Ministry of Education to strengthen Open and Distance Learning (ODL) at the university level and make it a reality at the pre-university stage. CENDLOS as its role demands, has produced and distributed content on various subjects run in Junior High Schools and Senior High Schools. However, there is no clear institutional policy on the adoption of eLearning or blended learning at the tertiary education level. This requires individual

institutions to follow their design to suit the concept of e-learning or blended learning. Nevertheless, there is disparity in the national policy with the introduction of eLearning in Ghana's higher learning institutions resulting in non-standard and ineffective implementation by teacher educators. Similarly, in an online interview to find out what online policies are in place in Ghanaian colleges of education, Gyampoh *et al.* (2020), in a study on teacher perception on personal and institutional preparedness for virtual teaching-learning during the Covid-19 emergency in the situation of Ghanaian colleges of education, found that there is no policy for online teaching, despite the fact that colleges have at least 16 policies, which include, among other things, a fiscal policies, an assessment policy, an user agreement, a teaching - learning policy, a code of conduct, and a student engagement policy. Policymakers and education stakeholders have a responsibility to implement policies where blended education truly customises learning and strengthen teaching and learning (Horn & Staker, 2011). The promotion of blended teaching or learning practice calls for a strategic plan and clear standard policy for all the HEIs in Ghana.

Larkai, Ankomah-Asare and Nsowah-Nuamah (2016) initiated a study of distance education development and patterns in enrolment in Ghanaian public universities and private distance learning institutions. It was revealed that both public and private higher institutions in Ghana enrol students in distance education programmes which follow the blended learning model. However, in public institutions, teaching and learning depend primarily on the print media while the private institutions are mostly dependent on the ICTs. It is time for HEIs, in general, to adopt and effectively use the blended learning approach by their teacher educators to explore the potential it brings.

A study by Awidi (2008) on designing an e-learning action plan for government universities in Ghana, identifies the recommendations of interested stakeholders suggesting that blended learning is preferable and far more acceptable than total online education because real-time online interaction at this stage is not realistic. For instance, teachers want to meet with and get to know their students, and vice visa. Lack of widespread student technology literacy and frustration regarding technology-based teaching methods has resulted in teacher educators arguing in favour of blended learning as Ghana's public universities continue to implement e-learning systems. However, the researcher has noted that attitudes towards proposed programmes should be carefully observed because teacher educators will need to

change their practice to incorporate blended learning. This means that teacher educators, trusting in their pedagogical skills and teaching effectiveness, often doubt the validity of a new method and have a problem incorporating a new approach. The new blended learning method may be resisted by teachers who have already had adverse experiences in technology use (Awidi, 2008; Vaughan, 2007). Therefore, there is the need to ascertain an understanding of teacher educators' perceptions and blended learning practices from the context of Ghana to ensure its acceptance and potential usage in HEIs in general.

2.12 THEORETICAL FRAMEWORK

A theory is a logical system of interconnected statements which attempts to explain some phenomenon (Picciano, 2017). Hence, the researcher adopted the Technology Acceptance Model (TAM), an information system theory to ascertain teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana. This model is useful for designing meaningful research questions, interpreting findings, and identifying themes and conceptual frameworks in a variety of cases and examples (Mishra & Kohler, 2006). Thus, the researcher upon investigation to ascertain understanding of teacher educators' views and challenges regarding blended learning practices, employed TAM to explain and make a significant contribution to the field.

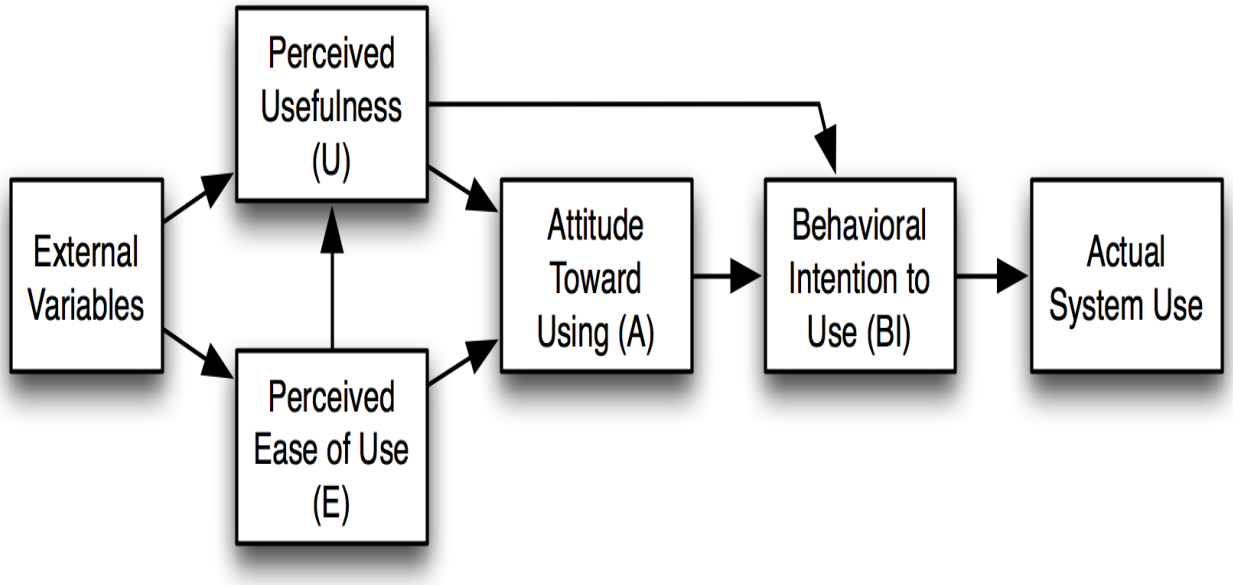
Teacher educators are one of the main stakeholders that could ensure that the blended learning approach is widely used in Higher Education Institutions (HEIs) to enhance effective training and learning. However, there is unwillingness and hesitation in the acceptance and application of the blended learning system request for an understanding of teacher educators' perceptions, attitudes, beliefs, behaviours and practices of blended learning. The study applies key TAM constructs; that is, perceived ease of usage, perceived usefulness, behavioural intention, attitude towards use and actual usage to find an explanation to the research questions under investigation.

2.12.1 Technology Acceptance Model as an Information System Model

The Technology Acceptance Model (TAM), an information system theory, developed by Davis (1989), is one of the most commonly applied models in information system

acceptance. It can be used to explain user perception, belief, behaviour and attitude towards acceptance of technology innovations. This model is based on the philosophy of cognitive science and the Theory of Reasoned Action (TRA) (Fishbein & Azjen, 1977). The Theory of Reasoned Action argues that beliefs influence behaviours that contribute to actions and thus produce activity. Davis (1986, 1989) similarly developed definitions in the original TAM as perceived utility (PU) and perceived ease of usage (PEOU) which are variables that decide attitudes, Behavioural expectations and the real application of technology. Within the structures, PU and PEOU shape an end-user's perception and expectation of a technology practice and thus forecast their disposition towards the technology, which in effect, predicts its acceptance or rejection. TAM indicates that PU and PEOU are determined by external factors in addition to the application of the relevant information system. Looking at the nature of the current study, which focuses on teacher educators' perceptions and practices of delivering instructions in a blended learning mode, the use of TAM paves the way for a better understanding of educators' practices. This could help to find solutions to teacher and students' plight regarding their use of blended learning, and HEIs authorities could through this study and the use of TAM, find a potential standard for blended learning practices.

Since its inception, TAM has been validated for several applications in more research studies and has been the most widely used framework of user acceptance and usage of information systems (Ibrahim, 2020; Khoa *et al.,* 2020; Ma & Lui, 2005; Teo, 2011). For instance, to validate TAM, Davis (1989) conducted several studies using PEOU and PU as two independent variables and a system with a dependent variable. He found that PU was strongly correlated with the actual usage of self-reported and future self-predicted usage. PEOU has also significantly correlated with the present application and the potential usage. Overall, Davis (1989) discovered that PU had a far stronger connection to system use than PEOU. Further regression analysis showed that PEOU was a predictor of PU rather than a basic system determinant. That is, PEOU indirectly influences the technology adoption (TA) by PU. TAM seems more concerned with technology and less user-focused and did not consider the critical concerns of users' psychological issues, despite all the improvements made. The approved TAM is seen in Figure 2.1 and explained below.



Source: Davis et al. (1989:988)

Figure 2.1: Technology Acceptance Model (TAM)

External variables: TAM suggests that external variables have influence on one's perceived utility and perceived ease of usage (Davis *et al.,* 1989). As a consequence, the effectiveness and ease of usage mediates the impact of external factors on the attitude and behavioural judgement of the teacher educator and thus the overall blended learning programme. The connection amongst the several variables has been confirmed by different studies on technology usage (Cheok *et al.,* 2017; Khoa *et al.,* 2020). Hence, the connections among perceived ease of use, perceived usefulness, attitude towards using and intention to use blended learning systems, are explained below.

Perceived ease of use: the perceived ease of use is characterised as the extent to which a teacher educator agrees that learning to use blended learning applications necessitates a significant amount of work. Thus, perceived ease of use is crucial as a teacher educator's skills, knowledge and competence are needed to use the blended learning applications and technologies. Consequently, teacher educator experience could have an influence on perceived ease of use and affect others' acceptance and usage. For instance, a teacher educator's capacity to execute a task skilfully in a blended learning platform could allow for frequent usage. Thompson, Compeau &

Higgins, (2006) describe the user experience as an individual participation with or access to a specific programme, where the participant acquires accumulative skills in the application of the system. However, a teacher educator's negative experience of the blended learning model could affect future use and other colleagues as they might intend to inform them about it. It implies then that a technical and technology support system is needed to succour teacher educators' use of the blended learning system effectively. Therefore, as Information Technology practitioners create, test or implement new blended learning systems and programmes, they should keep in mind that the simplicity of use of the approach has a direct effect on academic staff, students and administrators as end-users. A positive perception of blended learning ease of use is likely to enable teacher educators to find an easy way to navigate the site and quickly find the needed information to prepare learning materials that enhance their delivery. Teachers' skilfulness in interacting with the system and students will enhance blended learning/teaching practices such as instructor-student interaction, engagement, satisfaction and the overall delivery of instruction.

Perceived usefulness: perceived usefulness is specifically affected by perceived ease of use. Within this study, perceived usefulness is explained as the level to which a teacher educator is certain that applying a blended learning approach would improve their instructional practices and achieve learning outcomes. TAM's construct of perceived usefulness is important for blended learning acceptance or rejection based on the teacher educators' perception and experience. An individual's assessment of the extent to which the target system is applicable and beneficial to their task is a factor for rejection or acceptance of that system (Venkatesh & Davis, 2000). For example, if teacher educators perceive that the blended learning approach does not help learners to accomplish teaching and learning objectives, they may hesitate to accept that innovation in their teaching practice. It implies that teacher educators need to attend educational seminars that present evidence from diverse blended learning research being informed of its benefits to students, teachers, and the HEI at large. However, teacher educators' positive perception of blended learning usefulness could allow them to work more quickly and achieve high job performance to increase teaching and learning productivity, enhance effectiveness and probably accept the system. Perceived usefulness could allow them to use the model effectively to accomplish learning results as teachers will be able to navigate and search for

materials and information that improve their practices. Perceived usefulness predicts teacher educators' attitude and behaviour towards blended learning usage and allows them to be effective and efficient in decision making.

Attitude toward using: The attitude towards use is positively affected by perceived usefulness and perceived ease of use. The attitude towards blended learning use could positively affect an individual's behavioural intention and actual usage. It has been reported that attitudes affect the behavioural intentions of users, which impact the practical application of technology by users (Cheok *et al.,* 2017). This is triggered by prior experience of usefulness, skills and expertise in ease of use and the person's attitude towards use. Once a teacher educator expresses a positive perception of blended learning usefulness, their belief, experience and skills will ensure ease of use and a positive intention for actual participation. The opposite is true, which implies that perceived benefit and effectiveness of blended learning support to teaching and learning positively affects teacher educators' ability of performance, thus, impacting the pedagogical approach to the educators' time commitment, workload, complex curriculum design, changes in responsibility, and in effect, it prompts their behavioural intention for actual use.

Behavioural intention to use: Behavioural intention is significantly influenced by perceived ease of use, usefulness and attitude towards use which in the end, affects actual usage. Chau and Hu (2001) explained that the behavioural intent or desire to use technology has long been seen as a predictor element rather than an actual use. Behavioural intention refers to whether a person plans to use a technology. For example, a teacher educator could make a decision to use a blended learning application when they perceive that it provides quick task performance, increases productivity and the system is flexible to be navigated through wide sites for information.

Actual system use: Actual use could as well be triggered by the availability of blended learning resources which includes low cost of internet data, bandwidth, constant power supply, access to the internet, among others. While teachers' perceived ease of use, usefulness, attitude towards use, behavioural intention are important constructs to consider in blended learning practices, actual usage is influenced by such constructs. In addition, individuals' perceptions or expectations of the technology system have a

huge consequence on their actual usage of information systems (Agarwal, Sambamurthy & Stair, 2000). Self-efficacy, the assumption that one has the potential to conduct a specific action, has also been studied as a building block in technology acceptance research (Compeau & Higgins, 1995) and actual usage.

Behavioural purpose describes the practical application of the technological programme and thereby decides the acceptance of the technology. Attitude to usage and perceived utility affect behavioural purpose. Behavioural choices are often fundamentally influenced by presumed ease of usage. Attitude to usage is directly influenced by both utility and ease of use, whereas usability is directly affected by ease of use.

2.12.2 Justification of TAM Application

TAM, introduced by Davis (1989), is commonly utilised and empirically verified. Several empirical studies have been performed on TAM since its introduction. Comparable to its contending models, TAM is claimed to be extra sparing, analytical, and vigorous (Admiral *et al.,* 2017; Lazim *et al.,* 2021; Venkatesh & Davis, 2000). TAM has the potential for theoretical contributions and significance to blended learning practices in higher education institutions (HEIs). By understanding the substantive antecedents to teacher educators' acceptance or rejection of a blended learning mode to teaching and learning, HEI policymakers could take more effective measures to gain better adoption or use of blended learning. For instance, Ma and Lui (2005) reported that research has expanded TAM by adding additional predictors including gender, culture, experience and self-efficacy. Researchers usually seem to believe TAM is real, circumspect and durable (Admiral *et al.,* 2017; Cheok *et al.,* 2017; Venkatesh & Davis, 2000). Therefore, applying TAM in this study helps to understand both technological and psychological factors affecting teacher educators as well as student acceptance and practices of the blended learning approach

The technology acceptance model (TAM) is also most commonly applied in the field of Information Communication Technology (ICT) for determining technology acceptance (Al-Busaidi & Al-Shihi, 2010; Ibrahim, 2020; Ma & Liu, 2004; Teo, 2011) and has shown to be extremely applicable in several studies (Admiral *et. al.,* 2017; Khoa *et al.,* 2020; Lazim *et. al.,* 2021; Venkatesh & Davis, 2000). The most common factors that could probably affect blended learning acceptance are teacher educators'

behaviours, expectations, values and practical application of the programme (Alharbi & Drew, 2014). Frameworks such as the Theory of Planned Behaviour (TPB) (Fishbein & Ajzen, 1977), Diffusion Innovation (Everett, 1995), Unified Theory of Adoption and Use of Technology Theory (UTAUT) (Venkatesh *et al.,* 2003) are common frameworks used in technology acceptance with several models relying exclusively on technological considerations (Al-Busaidi & Al-Shihi, 2010). The Technology Acceptance Model (TAM), however, is a popular information system theory intended to describe the actions of technology users with the constructions correlating with technology acceptance. This study, however, uses TAM to ascertain an in-depth understanding of teacher educators' unwillingness and hesitation in the effective application of a blended learning model in their instructional delivery in higher education institutions.

Blended learning technologies cannot improve teaching and learning if teacher educators as facilitators, are not ready to accept its use creatively and effectively. TAM is used to address technology users' intent and willingness to justify goals in terms of their behaviour, perceived ease of use, perceived usefulness, behavioural intention and actual usage. Davis *et al.* (1989) found that technology users' perceived usefulness strongly influences people's intentions of technology usage. Per TAM's suggestions, this study looks at explaining external variables such as teacher educators' perceptions, practices, determinant factors to blended learning resistance and institutional factors that determine PU and PEOU relative to the use of the blended learning system.

2.12.3 Implications of the Technology Acceptance Model for the Study

The use of Technology Acceptance Model in this study can aid in determining potential benefits and understanding of teacher educators' perceptions, practices and even problems with the blended learning approach. That is, there are numerous ways in which TAM can be used to benefit teacher educators, students and higher education institutions. As a result, TAM, as the guiding framework in this study, is useful in explaining teachers' behaviour and attitudes toward the blended learning approach. According to TAM, external variables such as PEOU, PU, attitude toward use and behavioural intention to use, represent beliefs that will eventually lead to actual use. In their study, Cheok *et al*. (2017; 29) discovered that more than half of the teachers

did not find the learning management technology easy to use, and 11 teachers did not find it useful in the subjects that they taught. The conclusion reached is that the potential of virtual learning environments was not sufficiently communicated to teachers, and there was no follow-up to the one-day interaction training.

The TAM framework was used in this study to ascertain issues that influence teacher educators' perceptions of blended teaching and learning practices. The theory is useful in explaining the technological acceptance behaviour of teacher educators in a blended education environment. For example, in educators blended learning activities in higher education institutions, personal factors such as attitude, behaviour, belief, and perceptions are explained and with deeper understanding.

The application of the Technology Acceptance Model construct has aided practice by providing valuable information that can be used to increase the intention and utilisation of the teacher blended learning practices under investigation. These measures could also be used by researchers who want to learn more about the issues that impact the success of blended teaching and learning activities in general. As a result, they could be used in studies conducted within and across educational institutions by researchers interested in understanding the practices of teacher educators and the determinants of blended learning practices.

Davis (1989) discusses how usability and ease of use are considered to be potentially critical elements of system use. This is also consistent with Bervell *et al'* general views on the adoption of innovations. Acceptance is determined by a number of factors, including the facilitating conditions and ease of use of the innovation, according to Bervell *et. al.,* (2021).TAM could be expanded to include the benefits of blended learning technologies to users as a parameter that has a direct impact on perceived usefulness (Venkatesh & Davis, 2000). As per the higher education body, TAM constructs such as perceived ease of use and perceived usefulness may be used by system designers in a blended learning application setting to obtain user response on diverse system structures or design approaches. They can also be used after the implementation of a blended learning system to diagnose issues with educator and student acceptance. Similarly, these metrics could be used in institutions to choose between competing software packages. Furthermore, by examining ratings from different types of users for the same software, the scales can be used to identify the

key issues in acceptance or training deficiencies (Adams *et al.,* 1992). It may also assist higher education administrators in becoming aware of issues with blended learning systems, allowing them to better understand the needs of teacher educators and students by directing training workshops and other initiatives to increase blended learning use.

12.4 A PROPOSED CONCEPTUAL FRAMEWORK FOR A BLENDED LEARNING APPROACH

This study adopts Hegarty's (2011) nine dimensions of reflective practice, as explained by Lubbe and Botha (2020) to propose how teacher educators' perceptions, practices, and challenges of teaching in a blended mode in higher education institutions could be addressed.

Reflection requires higher education instructors to intentionally reconsider in addition to identifying successful strategies, they should examine their perceptions and experiences, reflect on challenges and how they come to terms with them, and make adjustments and develop their practice, allowing for a series of continuous learning and improvement (Cirocki & Widodo, 2019; Gutiérrez *et al.,* 2019; Kovacks & Corrie, 2017; Lubbe & Botha, 2020; Tlali, 2019). Reflective practice embraces professional practice's epistemology and thus through thoughtful examination of preconceptions, beliefs, assumptions, experiences, and practices, facilitates the formation of local knowledge from individual and lived experiences. Hegarty's (2011) nine dimensions of reflective practice are illustrated in Figure 2.2 below and thereafter the dimensions are discussed in subsequent sections:

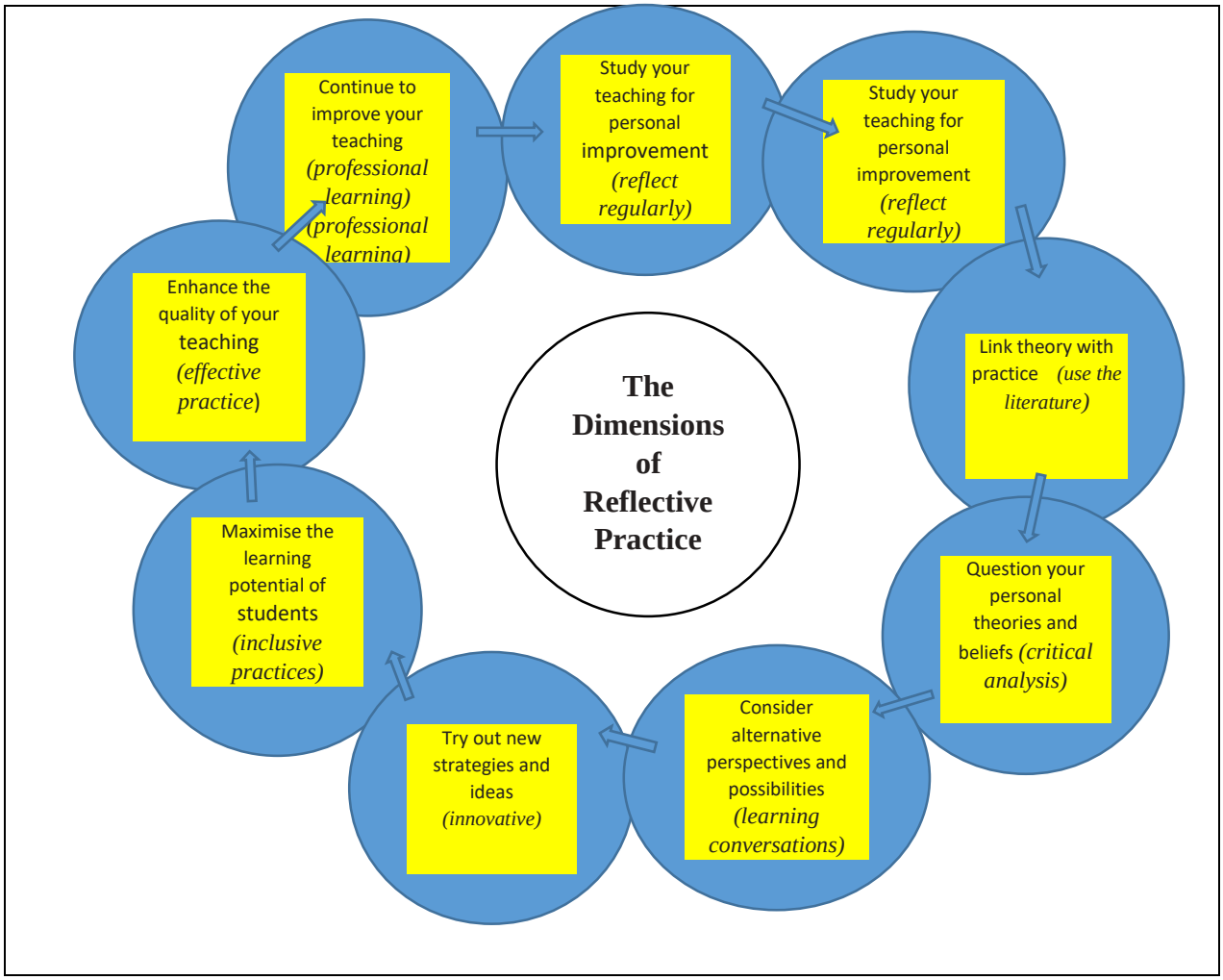


Figure 2.2: Hegarty's nine dimensions of reflection practice.

Teacher educators' teaching in a blended learning setting in higher education institutions could develop positive perceptions and practices towards a blended learning approach per the discussions below. Thus, teacher educators' ought to:

Reflect on their teaching personally on a regular bases to identify any shortcomings that need a change which could build on their personal growth. A personal and professional development is assured when teacher educators critically examine and reflect on their blended teaching practice. The chance for reflection enables educators to examine their past experience while finding new ways of improving on their teaching

practice in a blended learning mode in higher education. In order to reflect, teachers must be introspective, transparent, and prepared to accept responsibility for their decisions and actions. Reflection in this context promotes learning and ongoing professional development, and it is an essential aspect in teachers' ability to maintain effectiveness throughout their career opportunities.

Assess their teaching practice using research in order to be abreast with the new blended teaching strategies that can help students' blended learning achievements. Through in-depth research, an effective teacher educator not only knows what to teach, how to deliver instruction, but also how to provide a conducive environment that supports students' learning. Being acquainted with current research findings and theories on the best blended learning strategies, educators are likely to have a strong command of the subject matter they are assigned to deliver to students. In addition, teachers could have a large collection of blended teaching strategies that they can draw on to maximise students' learning achievements and to create a positive learning community for their students.

Pragmatically practise the findings or theories from what they research to enhance their hybrid teaching activities. For example, teachers' research findings on constructivist approach to teaching might practically seek and value students' opinions during blended teaching meetings. Thus, teaching activities will be geared towards student centeredness, posing problem-solving questions or projects in order to build on the learners' critical and analytical skills. When blended instructional strategies are constructivist, student-to-student and student-to-instructor interaction should improve individual and cooperative knowledge development in a continual process at both the conceptual and methodological levels.

Critically analyse the perceptions, beliefs, expectations, experiences which they hold about blended learning mode to create room for self-improvement. Through decision making, teacher educators could analyse their perceptions, beliefs, assumptions and experiences about blended learning practices in higher education institutions. Educators need to analyse their own beliefs, attitudes and behaviours in connection to events that happen in blended learning contexts. Teachers could find out from students what they perceived happened during their meetings. This act may enable teacher educators to assess themselves; that is, whether they have positive or

negative perceptions about blended learning mode and to improve on their practices. Educators can also analyse their blended learning perceptions and practices by engaging in reflective practice. This is accomplished by examining procedures, processes and other facets of the educational environment in order to improve self-practice. For instance, teachers could use supervisors and peers to observe their teaching, revisit lesson recordings of their teaching to identify their strengths/weaknesses and analyse related documents to facilitate reflection in a blended learning practice.

Learn to consider other teaching alternatives that suit best for blended learning practice. Educators could take the position of a facilitator during the online section of the blended learning approach in teaching to facilitate online discussions either in a synchronous or asynchronous session. Thus, according to Luetzelschwab (2007:1)

> "in synchronous discussions, all participants log on at the same time and submit their thoughts (in a form of chat) in a shared space (ie. Chat room) for a fixed period of time. Whiles during asynchronous discussions, all participants post their ideas (i.e., threads) in a shared space without necessarily being active at the same time".

In an asynchronous discussion session, the facilitator sets time and controls the discussions, selects the appropriate technology to use, such as blog posts, threads, emails, and so on, grading requirements and student alliance. Educational and interpersonal responsibility include choosing the discussion's topic, the aspirations for student involvement, the tonality and degree of interaction, and the prerequisites for the detail and level of student contributions which are sought. However, this may demand time commitment and heavy workload from teacher educators hence, proper planning and implementation is critical to achieve the needed outcome and students' learning and participants' satisfaction. Online conversations lack non-verbal cues, such as posture and nodding, but they do have their own cues, such as emoticons, ALL CAPS, and writing style. In a facial expression group meeting, the facilitator is able to read participants' gestures and correct their personality mistakes, if any are found. Therefore, educators need to make a decision to balance and blend the two where appropriate, to achieve the benefits both could offer to learners.

Adopt and practice new innovative ways to boost blended teaching and learning strategies. Adoption of the social network sites used in social platform-supported practices in blended learning contexts is likely to increase students' success and reinforce their learning. Thus, social media platforms can be used as a supplement to improve knowledge and improve student engagement. For instance, it is stated that innovative technologies such as blogs, wikis, podcasts and social networks boost student morale and performance in the classroom (Akgündüz & Akınoğlu, 2017). However, it requires students to be self-disciplined in the use of the social media-supported technologies in their learning so as not to deviate from the purpose it is meant for.

Create room for student engagement and participation in blended learning sessions. Differentiating training for different learners, student motivation and developing strategies to promote student knowledge of the lessons are all characteristics of a teacher educator. It also involves managing lesson delivery time for either online or face-to-face sessions, classroom management or discipline in a blended learning environment. For instance, while instructional materials and resource links could be given to students via a different digital learning space before the face-to-face meeting for discussions, others could decide otherwise. What is most important is for teacher educators to ensure that students are well engaged, and that they participate actively in the blended learning context to achieve learning outcomes. For example, regular checks on students by calling individual names to answer questions or offer contributions to lesson discussions could ensure learners are alert and are ready to participate actively. This will help to achieve blended learning student centeredness strategies.

Make potential use of the blended learning approach to guarantee effective practice. Effective practice dwells on identifying teachers' responsibilities, characteristics and perceptions about blended teaching. Basically, teachers plan, implement and assess students. Hence, teaching in a blended learning mode requires teacher educators to take up that responsibility. Since blended teaching demands time commitment and heavy workload, teacher educators ought to plan properly taking into account student expectations, one of most appropriate mission and targets, as well as the content, lessons delivery in the face-to-face mode and online mode, suitable instructional

media, classroom or the online environment (virtual learning environment), and student assessment. Planning in a blended learning concept is essential for teacher educators to be able to organise the smooth functioning and pattern of curriculum content and situations. As in planning, implementing in a blended teaching mode includes the actual execution of educators' instructional plans for teaching sessions and curriculum and assessment. This happens once teacher educators interact and engage with students which requires special skills partly from the teacher and the students. Teaching skills such as introducing and clarifying, inquiring, listening, monitoring, providing feedback and illustrating all contribute to the successful execution of blended teaching/learning. For instance, teacher educators need additional skills to supervise students' performance, enforce rules and regulations, utilise interactive tools, demonstrate caring and respect, and foster a positive blended learning environment for students. Determining students' level of learning through assessment is one of the fundamentals of teaching in a blended learning mode after instructional planning and implementation. Different ways teacher educators could measure student learning in a blended learning mode encompass paper-and-pencil assessments, portfolios, written assignments, projects, reports, journal evaluations, modelling techniques, presentations and demonstrations, as well as other performance assessments. These all require educators to make a decision to ensure effective blended teaching practices to achieve learning goals.

Improve their knowledge, skills, and competencies of teaching by attending conferences, workshops, and professional development programs on blended learning practice. Computer or technology literacy skills acquired through professional development possibly improves teachers' blended teaching knowledge and competencies for potential benefits. It is required of teacher educators applying a blended teaching approach to have general knowledge of teaching as a profession and more importantly, in their specific areas. Thus, for effective teaching and learning, teachers' pedagogical knowledge and pedagogical content knowledge are required. As a result, teachers must be well-versed in the subject matter, as well as in fundamental information about teaching and learning, teaching methods in general, and teaching techniques specific to specific subjects and also in blended learning settings. In addition, educators ought to possess skills required to apply knowledge effectively in teaching in a blended learning context. Technology literacy skills enhance

teacher educators' performance as they are able to navigate through diverse learning environments. Hence, higher education authorities need to make provision to train and develop to address teacher educators' technology literacy skill challenges.

12.5 CONCLUSION

This chapter focused on empirical and theoretical knowledge and insight for teacher educators' perceptions and blended learning practices in higher education institutions.

Considering the high demand in higher education, the blended mode of instruction, the effective and potential use, successful application and blended instruction knowledge base by teacher educators is still of concern. Thus, teacher educators' resistance due to perceptions, challenges in its practices requires critical attention and this was discussed. Literature dedicated to blended learning definitions and concepts, benefits, challenges, general blended learning perceptions, determinants of resistance to blended learning and practices was reviewed and incorporated a discussion on institutional blended learning practices including institutional support system, motivation and professional development. An overview of higher education, teacher education in Ghana and blended learning mode in Ghana is presented in the chapter, a discussion on the theoretical framework supporting the study and the conceptual frameworks which supports teacher educator's implemented blended learning.

Chapter Three presents the methodology for the study with a brief overview of the problem, purpose of the study and a review of the research questions. An examination of the mixed methods research design is also provided. The population and sample, the instruments used, data collection and analysis are described, and ethical considerations are presented in the next chapter.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discusses the research methodology adopted for the study. It discusses the research paradigm deemed most appropriate, the study method, research architecture, participants and sampling. In addition, the data collection techniques with the relevant data instruments are discussed as well as the data processing techniques. The chapter concludes with a discussion on validity and reliability, as well as ethical issues used in conducting this study.

The option of study design and data collection and interpretation methods are explained in the light of research into perceptions of teacher educators and teaching activities in a blended learning mode in HEIs. The theoretical lens explicitly guides the study, although the write-up began in the previous chapter with a theoretical framework to explain the implications on the teacher educators' perceptions and practices of teaching in a blended learning mode (Creswell, 2009).

3.2 RESEARCH PARADIGM

The researcher employed a mixed-methods research approach, and philosophically used a pragmatic paradigm and theory to ascertain teacher educators' perceptions and practices of teaching in a blended learning model in HEI. Thus, it uncovers and relies on the significant set of justifications to understand the research outcomes on teacher educators' perceptions and practices of teaching in a blended learning mode (Johnson & Onwuegbuzie, 2004).

In order to investigate the numerous, plural perspectives of the problem and the research objectives and questions, both inductive and deductive reasoning was required, following Creswell and Plano Clark's (2017) concept of pragmatism. Pragmatism assumes that 'what happens' to address study questions is the most effective solution to the inquiry, whether it be a mixture of practice, case reports or surveys, because these variations increase the consistency of analysis. Therefore, the study examined teacher educators' perceptions and practices of blended learning in Ghana's HEIs, precisely the Colleges of Education in the institution to find answers to

the main question: *What are the perceptions and practices of teacher educators' teaching in a blended learning mode in Ghana?* And the following sub-questions:

1. What are the perceptions of teacher educators teaching in a blended learning approach in Ghana?
2. What are the practices of teacher educators in the use of a blended learning mode in teaching in Ghana?
3. What are the challenges of teacher educators in the use of a blended learning mode in teaching in Ghana?

3.3 RESEARCH APPROACH

The study employed a mixed-methods research approach (Cohen *et al.,* 2018; Creswell & Creswell, 2018; Creswell & Plano Clark 2017; Greene, 2007; Tashakkori & Teddlie, 1998). "A mixed-methods study involves the collection or analysis of both quantitative and or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority and involve the integration of the data at one or more stages in the process of research" (Creswell & Creswell, 2018:28) and reinforces the binary positioning of qualitative and quantitative methods (Symonds & Gorard, 2010). However, the difficulties it raises include the requirement for comprehensive data gathering, the time-demanding complexity of the study of both text and numeric results and the necessity for the researcher to be acquainted with both quantitative and qualitative methods of testing (Creswell, 2009).

This study chose mixed-methods as a research approach to allow the researcher to obtain various data utilising specific approaches, techniques and methods in a manner that the subsequent combination or blend was likely to result in comparable strengths with no competing limitations (Hunter & Brewer, 2015). According to Creswell and Creswell (2018), the integration of data collected through mixed-methods research provides a more in-depth insight into a problem than would otherwise be found by only using quantitative or qualitative research methods. Hence, this allowed an investigation of teacher educators' unwillingness to apply, or their hesitation in applying a blended learning teaching approach effectively into their instructional

practices and sought answers utilising a mixed-methods rather than a solely quantitative or a solely qualitative methodology.

Mixed-methods research (MMR) was selected because Creswell and Plano Clark (2018) noted that MMR incorporates quantitative and qualitative evidence in a single research study or a sequence of research studies. In this case, the intention was to gain greater understanding of teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana. This chosen approach also helped to clarify and illustrate both quantitative and qualitative objectives, techniques of data gathering, research approaches, data analysis and data interpretation (Creswell & Creswell, 2018; Johnson & Onwuegbuzie, 2004). Hence, the study took an explicitly ideological approach (Creswell, 2009).

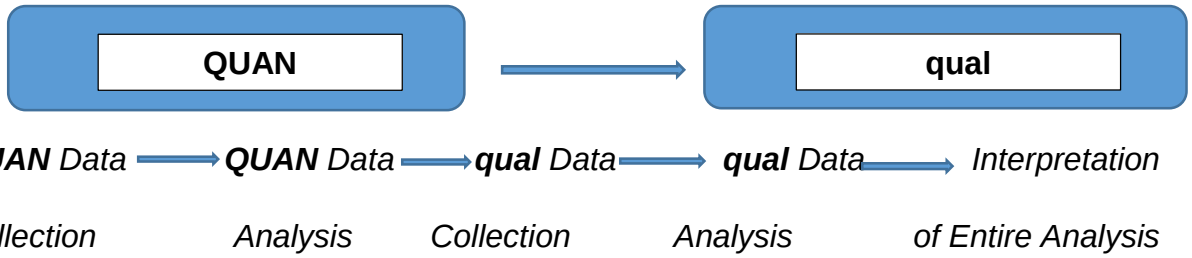
The study's theoretical framework of the Technology Acceptance Model (TAM) (Davis *et al.,* 1989) was made explicit since the theory was presented as an orientation lens that explained implications for the study. "An explicit theory may or may not inform the overall procedure" (Creswell, 2009:211).

3.4 RESEARCH DESIGN

A mixed-methods research design type selected for the study was an explanatory sequential strategy (Cohen *et al.,* 2018; Creswell & Creswell, 2018; Creswell & Plano Clark, 2018). An explanatory sequential strategy was chosen because it is simple to execute as the measures break into straightforward, distinct phases (Creswell, 2009:211). In addition, this design method made it easier to define and present the results over the duration of the data collection process.

An explanatory sequential mixed-methods approach used in this study included a two-stage development process of data gathering and analysis (Creswell & Plano Clark, 2017; Mills & Gay, 2018). The first stage involved quantitative data gathering, while the second phase involved qualitative data collection (Creswell & Creswell, 2018). Quantitative data were collected using an online survey in Phase one to find responses for the research questions one and two to ascertain teacher educators' perceptions and dominant practices of teaching in a blended learning mode. The quantitative data gathered during the Phase one was used to inform the creation of the interview questions for Phase two of the study and answered the third research question on the

challenges teacher educators experienced in teaching in a blended learning mode (Creswell, 2009; Creswell & Creswell, 2018). By relying on data from Phase one to inform the interview questions in Phase two, a deeper exploration of the responses provided by respondents in Phase one was achieved (Creswell & Creswell, 2018; Creswell & Plano Clark, 2017). Figure 4.1 illustrates the sequential explanatory design used in this study.



Source: Adapted from Creswell *et al.* (2003:209)

Figure 3.1: Sequential explanatory design

Although quantitative data were given a priority in terms of weight, the mixing of data arose as the primary quantitative findings which informed the qualitative data set. Therefore, the two types of data were distinct but intertwined. The combination between quantitative findings and qualitative results takes place in the final discussion, where the researcher explains the quantitative results (in accordance with research questions and objectives one and two) and the significance of the qualitative findings (based on research question and objective 3).

3.4.1 Target Population and Sampling Selection

The target population selected to participate in this study was teacher educators who were currently teaching education programmes in the Colleges of Education Studies and Distance Education at the University of Cape Coast in Ghana. The target population was considered by using the criterion to classify the most eligible prospective participants (Asiamah, Mensah & Oteng-Abayie, 2017). Prior to conducting this study, the university employed the use of a blended learning approach for teaching and learning. Teachers were basically required to upload instructional materials onto the university LMS, lead discussions, and perform other teaching activities when online for students' learning. The target population consists of teaching

faculty who make the most of blended learning as an instructional methodology and who use the school's educational technologies in their classrooms. These groups were teaching education programs on a regular, distance/sandwich, or both, using a blended learning approach, during the 2020/2021 academic year, and are members of the institution only from the main campus. Out of the 500-target population, 100 teacher educators were randomly sampled to respond to the quantitative survey questionnaire online. However, only 71 responded to the survey. Quantitative statistics require random selection so that each person has a fair likelihood of being chosen, and the study may then be generalised to the wider population. The sampling logic used to determine the number of respondents was based on the researcher's caution in ensuring that the list of teacher educators obtained from college administrators was representative of that group (Cohen et al. 2018). However, the use of a mathematical formula in determining sample size was not warranted in this procedure.

Purposive sampling was used to select 10 participants from the population for the qualitative section of the study but only eight participated in the interview session. A purposive sample was selected for this study since the sample could logically be assumed to represent the population (Sharma, 2017); thus, the eight individuals from the target group were chosen as they had encountered the core phenomenon. The specific purposive sample used in this study was homogeneous since all of the participants perform the same teaching activities (Sharma, 2017). Demographic data were collected from the participants to ensure that the sample was representative of the population.

3.4.2 Data Collection Instruments

Two different instruments were used for data collection: the questionnaire and interview. The data collection instruments were a survey and a structured open-ended interview guide developed by the researcher. Questionnaires were used to assess teacher educators' perceptions and dominant practices regarding the degree to which they utilise a blended learning approach in their instructional activities. The constructs of usefulness/ease of use of blended learning environment**,** blended learning perception, determinants of blended learning resistance, blended learning practices and institutional blended learning practices were used to design the questionnaire and the open-ended questions for the interview guide. Interview data were collected on

how the challenges teacher educators face could affect their perceptions and practice of blended learning in HEIs, and on how they can be understood and/or explained. Interview data were collected to provide in-depth elaboration on data collected through the questionnaire.

An online survey was created by the researcher to obtain quantitative data during the first stage of the process (*cf.* Appendix G). A survey was selected for the first phase so that data collected using the survey could be described, compared or explained in terms of individual and societal knowledge, feelings, values, preferences and behaviour (Fink, 2017).

Hence, the first section of the online survey was developed by the researcher to answer research questions one and two. The five-point Likert scale required the participants to indicate strongly disagree, disagree, neutral, agree, and strongly agree to a set of statements to address teacher educators' perceptions and dominant practices of teaching in a blended learning mode. The sections (Part B-F) developed to represent all four constructs of the survey, were used to address concerns regarding the research questions and the objectives.

A pilot study of the survey was conducted on fifteen teacher educators to ascertain their blended learning perceptions and practices, and to also identify problems with the administration, organisation and content of the survey (Fink, 2017). This allowed for modifications in the survey instrument and opportunity to test data processing procedures including coding and analysis (Fink, 2017; Ngozwana, 2018). Secondly, the pilot study of the modified survey instrument allowed the stability of the survey scale to be demonstrated as reliable over multiple applications of the survey (Creswell & Creswell, 2018).

During the second phase of the study, open-ended questions were created by the researcher for the interview guide. This was to acquire in-depth knowledge of the challenges teachers encounter in their delivery of instruction in a blended learning mode in higher education institutions. The interview questions were created from survey responses that were provided in phase one of the study (Mills & Gay, 2018). An interview guide (*cf.* Appendix F) was created to guarantee that each open-ended question asked during the interview allied to a research question, and each participant

answered the same questions and in consistent order (Mills & Gay, 2018; Ngozwana, 2018).

Both instruments passed through several revisions and finally underwent reliability and validity testing. For the survey questions, the researcher conducted content and face validity, and later on reliability testing using Cronbach's alpha (Heale & Twycross, 2015). Having followed an expert review, a pilot test was undertaken to verify the reliability of the instrument in evaluating the perceived instructional activities of teachers in a blended learning environment. The pilot study allowed the researcher to check for instrument reliability, and for weaknesses such as ambiguous or disordered statements and questions, unclear instructions, or excessively long responses to be minimised (Mohajan, 2017).

3.4.3 Data Collection Procedures

The researcher used a survey and an interview guide for data gathering. To ensure the security and anonymity of the data, online survey questions were administered through the Microsoft research platform using Google Form. There was no personal information gathered.

The data gathering began with a request via email to the Provost of the two Colleges (that is, the College of Distance Education and the College of Education Studies) at the University of Cape Coast targeted for the study. Once approval to conduct the study was obtained, invitations were then sent to 100 teacher educator respondents for participation through the administrators in the two colleges. The administrators distributed the survey invitation to the teacher educators randomly selected from their college's faculty email list during the first phase of the study. The survey remained open for one month. Informed consent for first stage of the study was shared with participants through the initial invitation to indicate their consent to participate in the study. The descriptive data generated from phase one were used to direct the questions that were asked during the interview session of the study (Creswell & Creswell, 2018).

Emails to participants also contained an invitation to participate in the interview portion of the study. Thereafter, ten respondents, purposively selected from the same population, were sent an invitation via email during the second phase of the study to

gather the qualitative data. Informed consent for the interview portion of the study was then shared with participants as an attachment to the interview appointment email. Informed consent was reviewed with each interview participant before they began answering the open-ended interview questions in both telephonic and face-to-face mode. Even though the researcher wanted to hold telephonic interviews because of the Covid-19 protocols (such as wearing of a face mask, washing of hands, and social distances being observed), some respondents opted for a face-to-face interview, which was done accordingly guided by all the Covid-19 protocols.

A maximum of two weeks was set to give the participants time to arrange convenient appointment times for interviews. By making it a more productive mode of data collection compared to face-to-face mode, telephonic interviewing can deliver high-quality data under appropriate conditions (Burke & Miller, 2001; Kee & Schrock, 2020). Hence, all interviews were conducted either via phone calls or face-to-face, audiotaped and transcribed for further analysis of participant responses (Mills & Gay, 2018).

3.4.4 Data Analysis

Data analysis allowed the researcher to give meaning to the data, as well as to reduce and organise the data. The process of data analysis as the systematic organisation and production of research findings allowed the researcher to give meaning to the results (Fisher & Marshall, 2009).

In an explanatory sequential mixed-methods study, the quantitative and qualitative data were analysed independently (Creswell & Creswell, 2018; Mills & Gay, 2018). After independent analysis, the two data sets were then combined through integration (Creswell & Plano Clark, 2018), discussed and reported. Creswell and Creswell (2018:58) suggest that the integration of databases in mixed-methods studies is the process of “connecting the quantitative results to the qualitative data collection”.

Descriptive statistics were used to analyse the quantitative data collected (that is, mean and standard deviation) in SPSS, precisely Holm Bonferroni routine from R-package, version 0.88, (2021) to describe the raw data. Descriptive statistics is a method for summarising, organising and simplifying data for presentation using graphs, tables and charts that include frequency distribution and percentage of

response statistics (Bluman, 2017; Creswell & Creswell, 2018; Fraenkel, Wallen, & Hyun, 2018).

To facilitate interpretation, qualitative data analysis entailed the creation of themes and patterns. The audio-recorded interviews were transcribed and thematic analysis was used to analyse interview responses from the second phase of the study (Creswell & Plano Clark, 2017; Frankel *et al.,* 2018). Interview responses were coded manually to identify significant themes and trends (Ngozwana, 2018).

Finally, the quantitative results were presented, followed by a discussion of the findings. In the interpretation stage, the quantitative results were merged with the qualitative findings to develop an empirically-based explanation of teacher educators' perceptions and practices of teaching in a blended learning mode in a higher education institution.

3.5 VALIDITY AND RELIABILITY

The quality of the study was guaranteed by ensuring that data were valid and reliable. This was achieved by way of estimation techniques and a measurement instrument of appropriate standards of precision and validity. Construct validity is the extent to which the testing instrument (or tool) determines the expected construction (Heale & Twycross, 2015). Validity is characterised as the degree to which the instrument tests what it is meant to quantify or how valid the findings of the analysis are (Golafshani, 2003).

Scholars on mixed-methods approaches support the usage of validity techniques for both the quantitative and qualitative phases of the analysis (Tashakkori & Teddlie, 1998). This might involve triangulation of data points, participant searches, comprehensive explanations or other methods. Therefore, for the quantitative survey, the researcher conducted content and face validity testing, and later on reliability testing using Cronbach's alpha (Heale & Twycross, 2015). The interview guide underwent validity testing by faculty members with varying degrees of blended learning technology expertise. Their independent feedback was incorporated and used to confirm the final version of the interview questions that were used for the collection of qualitative data.

Reliability relates to the consistency of a measure. Golafshani (2003) points to reliability as the degree to which the outcomes remain stable over time and are a correct reflection of the entire population. If the findings are able to be replicated using a specific technique, the testing tool must be deemed accurate. Reliability issues of internal accuracy between multiple variable measures were quantified using Cronbach's alpha (Hair *et al.,* 2006).

3.6 ETHICAL CONSIDERATIONS

Approval of the General/Human Research Ethics Committee was obtained from the Ethics Committee (GHREC) of the Faculty of Education, University of the Free State (*cf.* Appendix A) and permission from the selected institution in Ghana (*cf*. Appendix B-C) where the data were collected. All respondents and participants in the study gave informed consent before completing the questionnaire and participating in the interviews (*cf.* Appendix D). Participants were informed before starting with the questionnaire that by completing the questionnaire, they were willing to participate in the research but would be allowed to withdraw from the study at any given time (*cf*. Appendix E). No form of compensation was offered for participation in the study. Participants were guaranteed that no identities or personal information would appear on any data sheet that might be submitted for statistical review. Every detail was handled in a strictly ethical and secure way.

3.7 ISSUES OF TRUSTWORTHINESS

Selecting groups with experience of the subject for discussion may increase depth of the study. In order to enhance this, participants were chosen on the basis of their familiarity of blended learning in the conventional classroom and the choices taken to execute it successfully (Rubin & Rubin, 2012). There is a degree of practicability in adhering to good science standards and planning a study in specific research topics, which could be extended to different scenarios. Using peer evaluation and university managers to verify correct procedure and methodological guidance, the outcomes of the study were consistent with the appropriate codes of ethics of the institution and, thus, constant and accurate. Defending against observer bias and other undermining circumstances, precautions were put in order to guarantee that the results reported

are a reflection of the data gathered and not the views or conclusions of the researcher.

3.8 CONCLUSION

In this chapter, an overview was provided of the research methodology employed in the study, as well as the procedures that the research followed. The research paradigm, the approach, the design gave details to the target population and sample size for the study. The data collection procedure adopted was discussed with the specific instruments used in each of the two phases. In addition, the chapter discussed how both quantitative and qualitative data were analysed. An explanation of validity and reliability checks was done and finally the ethical and trustworthiness issues were discussed.

The next chapter, Chapter four presents the analysed data from both quantitative and qualitative data procedures. Results and findings reveal teacher educators' perceptions and practices of teaching in a bended learning mode in Ghana.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 INTRODUCTION

The use of blended learning has seen a rapid increase in higher education, especially as a result of the Covid-19 disease outbreak, which was first reported in the Wuhan city of China on 31 December 2019. The practice and experience have manifested widely with earlier projections that it would become the “new conventional approach” (Ross & Gage, 2006) or the “new normal” (Ross & Gage, 2006) in the delivery of instruction (Graham, 2019; Norberg *et al.,* 2011; Watson, 2008). However, teacher educators are often hesitant to accept the potential and effective use of a blended learning approach in their teaching practice (Brown, 2016; Katzin, 2020). One reason is that constructing a technology-based blended learning programme is perceived as time-demanding and an increase in workload (Benson *et al.,* 2011), and the internal and external influences affect educators’ acceptance of blended learning practices.

Few studies have addressed the current trends in teacher educators’ perceptions of blended learning and their practice in higher education centres in Ghana. This presents a gap in literature resulting in the limited knowledge to support a successful blended learning establishment and implementation in colleges and universities, especially in the Ghanaian context. Consequently, the investigation into perceptions of teacher educators’ blended learning practices could provide understanding and direction to educators who are transitioning from traditional instructional experiences to blended learning programmes.

The study investigated the perceptions and practices of teacher educators teaching in a blended learning mode in Ghana. It also examined the challenges of teacher educators in using a composite learning mode in teaching and learning in Ghana. As a result, the researcher gathered and analysed quantitative as well as qualitative data. The study investigated three research questions stated in Chapter 1. Research Questions 1 and 2 were analysed quantitatively, while Research Question 3 was analysed using a qualitative method.

4.2 QUANTITATIVE DATA ANALYSIS

The study sought to understand teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana. Hence the following perimeters of usefulness and ease of the blended learning approach, personal factors (beliefs, attitude, self-efficacy etc), time commitment, changing role of the teacher and workload were engaged to address Research Objective 1, as stated in Chapter 1, and sought to ascertain the perceptions of teacher educators in using blended learning mode in teaching in Ghana. Instructional mode (style and strategy) and policy structure, support, motivation and professional development were employed to address Research Objective 2, as stated in Chapter 1, and sought to identify the practices of teacher educators in the use of blended learning mode in teaching in Ghana. The engagement of the above perimeters was scheduled to unlock the teacher educators' perceptions and practices aligned with the blended learning approach.

4.2.1 Data Analysis

The perimeters associated with the blended learning model in terms of the null and alternative hypothesis, mean, standard deviation, minimum values and maximum values were diagnosed from the numerical responses (Tables 4.1, 4.2, 4.3, 4.4 and 4.5).

Due to multiple contrasting of the hypothesis emanating from the blended learning approach, the Holm Bonferroni method was engaged. The Holm Bonferroni routine from R-package, version 0.88, (2021) was used to model the perimeters of the blended learning approach (Figures 4.1, 4.2, 4,3, 4.4, and 4.5), as well as sieve any family wise error (FWER), emanating from the multiple hypotheses testing.

Further, the null hypothesis was reprobated in affection to the alternative hypothesis, for all the five numerical responses of the blended learning approach (Tables 4.1, 4.2, 4.3, 4.4, and 4.5). It was perceived by the T-test, that the adjusted p- values in each table were relatively smaller than the chosen significance level of 0.05. This implies that the blended learning approach enhances effectiveness and efficiency of the teaching and learning experiences. The average responses from the tables emerged to be protracted from the neutral response, indicating that the perceptions formulated by teacher educators on the blended learning approach

were invalid. Hence, the blended learning approach model has a direct impact on the teaching and learning process, when used effectively and creatively. Additionally, the researcher engaged with the percentage frequency of responses, which is a chi-square test. The percentage frequency of responses was based on the assumption that the expected number of responses from the blended learning approach either agrees or disagrees with the perceptions of teacher educators on the blended learning approach (Tables 4.6, 4.7, 4.8, 4.9 and 4.10). It was observed that the perceptions of teacher educators have a positive influence on the blended learning approach; hence, the blended learning approach should be practiced for effective and creative teaching.

Table 4.1: Numerical responses for usefulness and ease of the blended learning approach

QID	Mean	Std. Dev	Min	Max	P value	P adjusted	Alternative HYP.
B1	4.10	0.91	1	5	0.00	0.12	The learning management system is useful for blended learning instructional delivery.
B2	3.97	1.12	1	5	0.00	0.00	Blended learning environment allows me to post all course materials online, using digital textbooks
B3	3.99	0.98	1	5	0.00	0.00	Blended learning enhances the effectiveness and efficiency of the teaching and learning experiences.
B4	3.92	0.94	1	5	0.000	0.000	Blended learning environment allows me to communicate critical dates and time frames for learning activities.

Table 4.1 displays the numerical responses for usefulness and ease of use of the blended learning approach and the results show that the learning management system was not useful for blended learning instructional delivery under 5% significance level. However, under 1% significance level, a blended learning environment allowed respondents to post all course materials online, using digital textbooks. It also enhanced the effectiveness and efficiency of the teaching and learning experience. A blended learning environment allowed respondents to communicate critical dates and time frames for learning activities. In general, the blended learning approach was found to be useful and easy to use.

Table 4.2: Numerical response for personal factors (belief, anxiety, attitude, self-efficacy)

QID	Mean	Std. Dev	Min	Max	P value	P adjusted	Alternative HYP.
C1	3.99	0.90	1	5	0.00	0.00	I believe in the potency, efficacy, and usefulness of blended learning to achieve teaching and learning objectives
C2	2.39	1.11	1	5	0.00	0.00	I feel nervous using the blended learning approach in teaching.
C3	2.38	1.05	1	23	0.00	0.00	I fear the blended learning program fails to achieve the intended learning goals.

C4	3.06	1.26	1	5	0.00	0.00	Choosing the best design approach for a blended course is a significant challenge.

Table 4.2 displays the numerical response of the perception teacher educators hold about personal factors such as belief, anxiety, attitude, and self-efficacy that influence blended learning. The result of the study concludes that at a 1% significance level, respondents believe in the potency, efficacy, and usefulness of blended learning to achieve teaching and learning objectives. Conversely, under the 5% significance level, respondents do not feel nervous about using the blended learning approach in teaching. Neither do they fear the blended learning programme will fail to achieve the intended learning goals nor did they find choosing the best design approach for a blended course a significant challenge. Overall, teacher educators' personal factors have an impact on the blended learning approach to instructional delivery practices. For instance, they believe in the effectiveness and significance of blended learning to achieve teaching and learning goals.

Table 4.3: Numerical response for time commitment, workload capacity, instructional design and unavailability of resources

QID	Mean	Std. Dev	Min	Max	P value	P adjusted	Alternative HYP.
D1	3.86	1.053	1	5	0.000	0.000	Designing a blended learning course module is time- consuming.

D2	4.21	1.203	1	5	0.000	0.000	There are insufficient technology resources such as the internet, high cost of bandwidth, low power supply etc.
D3	3.69	1.161	1	5	0.033	0.01	Using a blended learning approach increases the workload
D4	3.63	1.132	1	5	0.000	0.01	It changes my teaching roles and adds more responsibilities.

Table 4.3 shows the numerical response of the perceptions teacher educators have about the time commitment, workload capacity, instructional design, and unavailability of resources for blended learning practices. The result of the study concludes that under the 5% significance level, respondents perceive that designing a blended learning course or module is time-consuming. Using the approach increases workload and changes their teaching roles while adding more responsibility. However, there are insufficient technological resources such as the internet, high cost of bandwidth, and low electrical power supply. In general, the blended learning approach was found to be resisted by teacher educators due increased time demands, workload capacity, instructional design, and unavailable facilities.

Table 4.4: Numerical response for instructional model, style and strategy

QID	Mean	Std. Dev	Min	Max	P value	P adjusted	Alternative HYP.
E1	3.03	1.12	1	5	0.83	1.00	I find blended learning mode of preparation, time-demanding and supporting technology susceptible to failure.

E2	3.61	1.13	1	5	0.00	0.01	The blended learning approach to teaching is practical.
E3	3.83	1.07	1	5	0.00	0.00	Innovations are implemented in my teaching when using blended learning.
E4	3.68	1.08	1	5	0.00	0.00	I can see improvement in my teaching skills using blended learning.

Table 4.4 presents numerical responses for teacher educators' practices such as instructional mode, teaching style, and strategy used in a blended learning programme. From the study's result, under 1% significance level, respondents do not find blended learning mode of preparation, time-demanding, and supporting technology susceptible to failure. However, under 5% significance level, they find blended learning approach to teaching practical, innovations are implemented and that there is improvement seen in their teaching skills using blended learning approach. Overall, the blended learning approach has a direct impact on teaching and learning. Hence, it must be used effectively and creatively to achieve the intended educational objectives.

Table 4.5: Numerical response for policy structure, motivation and professional development

QID	Mean	Std. Dev	Min	Max	P value	P adjusted	Alternative HYP.
F1	2.79	1.25	1	5	0.16	1.00	Institutional measures motivate me to use blended learning technology.

F2	2.86	1.25	1	5	0.34	1.00	There is a general policy framework in my university that guides the use of blended learning methods.
F3	2.66	1.07	1	5	0.01	0.09	Clear direction motivates me to apply a blended learning approach in my teaching activities.
F4	3.06	1.09	1	5	0.67	1.00	Institution and the college rather demotivate my use of a blended learning system.

Table 4.5 displays numerical responses for institutional blended learning practices such as policy structure and support, motivation, and professional development. The study's findings concluded that, at the 5% significance level, respondents perceived institutional measures, a general policy framework, or clear direction and motivation is crucial for blended learning instructional delivery in a higher education institution. Therefore, these measures must be highly endorsed by education managers as the implementation of blended learning initiatives depends on institutional support and clear policy direction.

4.2.2 Descriptive Results

The diagnostic analysis is presented in Figures 4.1, 4.2, 4.3, 4.4 and 4.5 and is indicative of the heterogeneous perceptions teacher educators have on the blended learning approach or model.

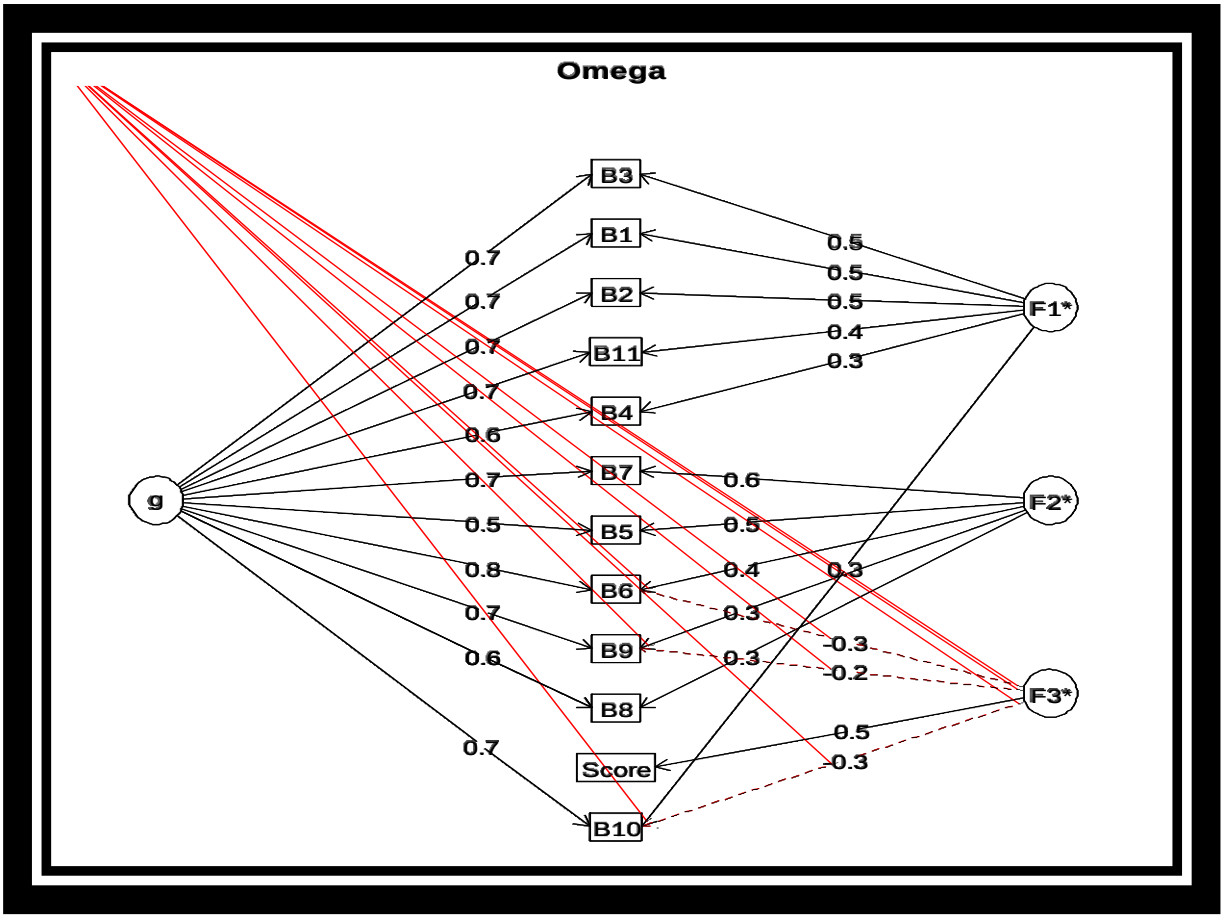


Figure 4.1: Structural model for usefulness and ease of the blended learning approach at p< 0.05

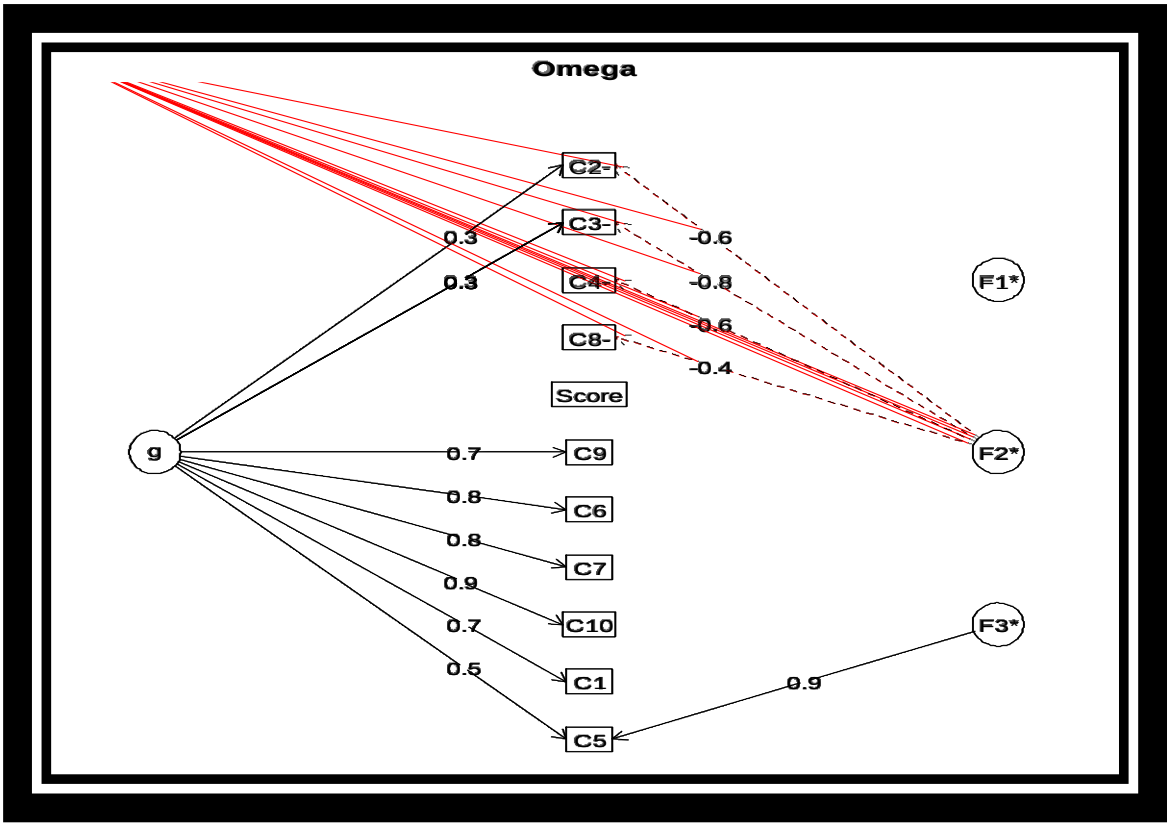


Figure 4.2: Structural model for personal factors aligned with the blended learning approach at p <0.05

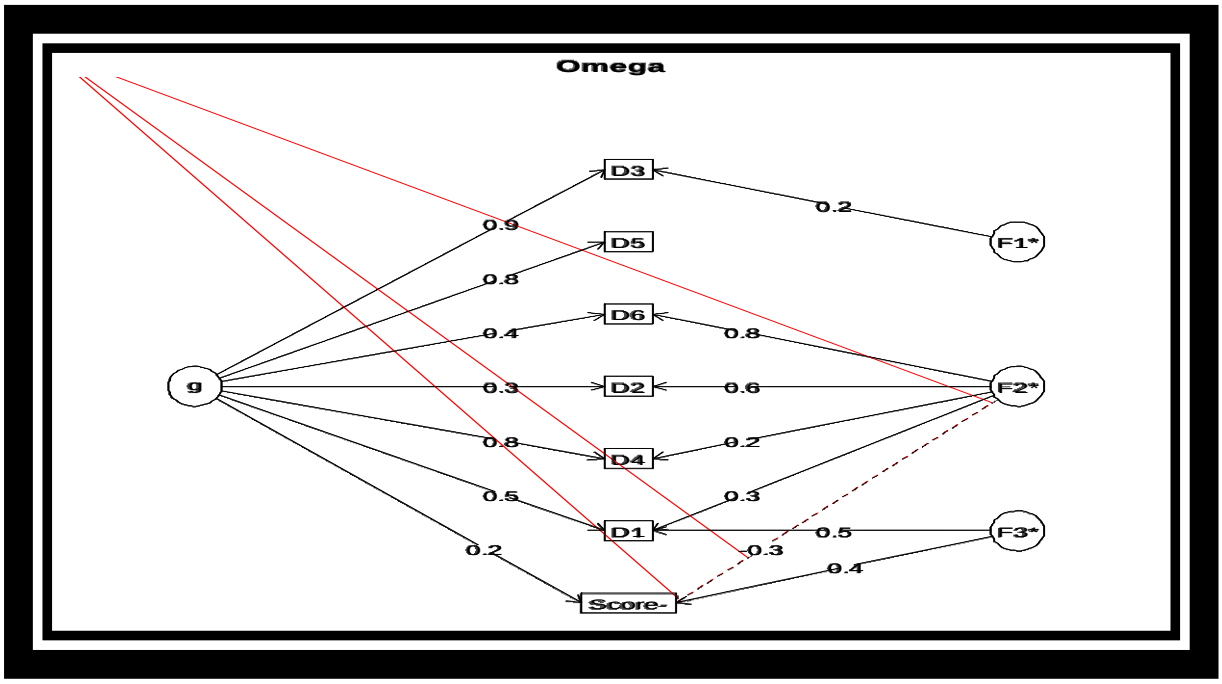


Figure 4.3: structural model for time commitment, workload capacity and change role at p<0.05

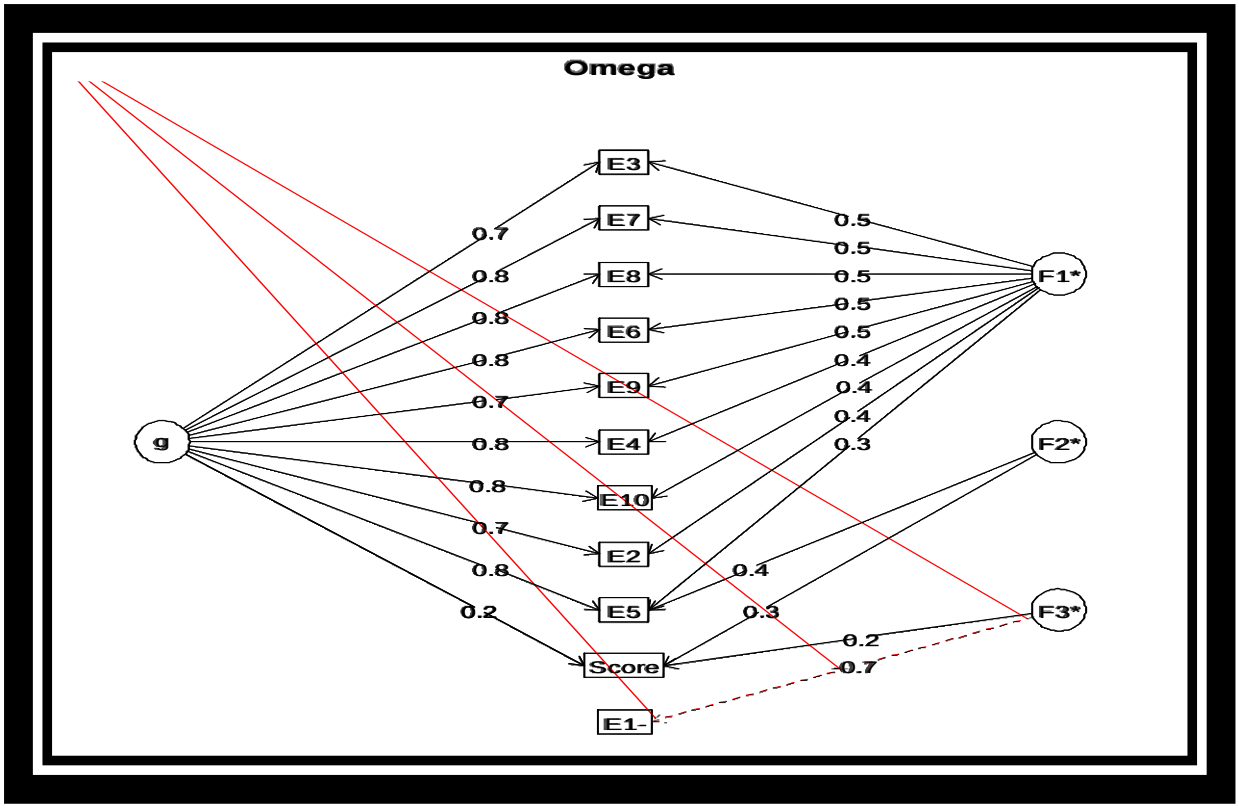


Figure 4.4: Structural model for instructional mode, style and strategy at p < 0.05

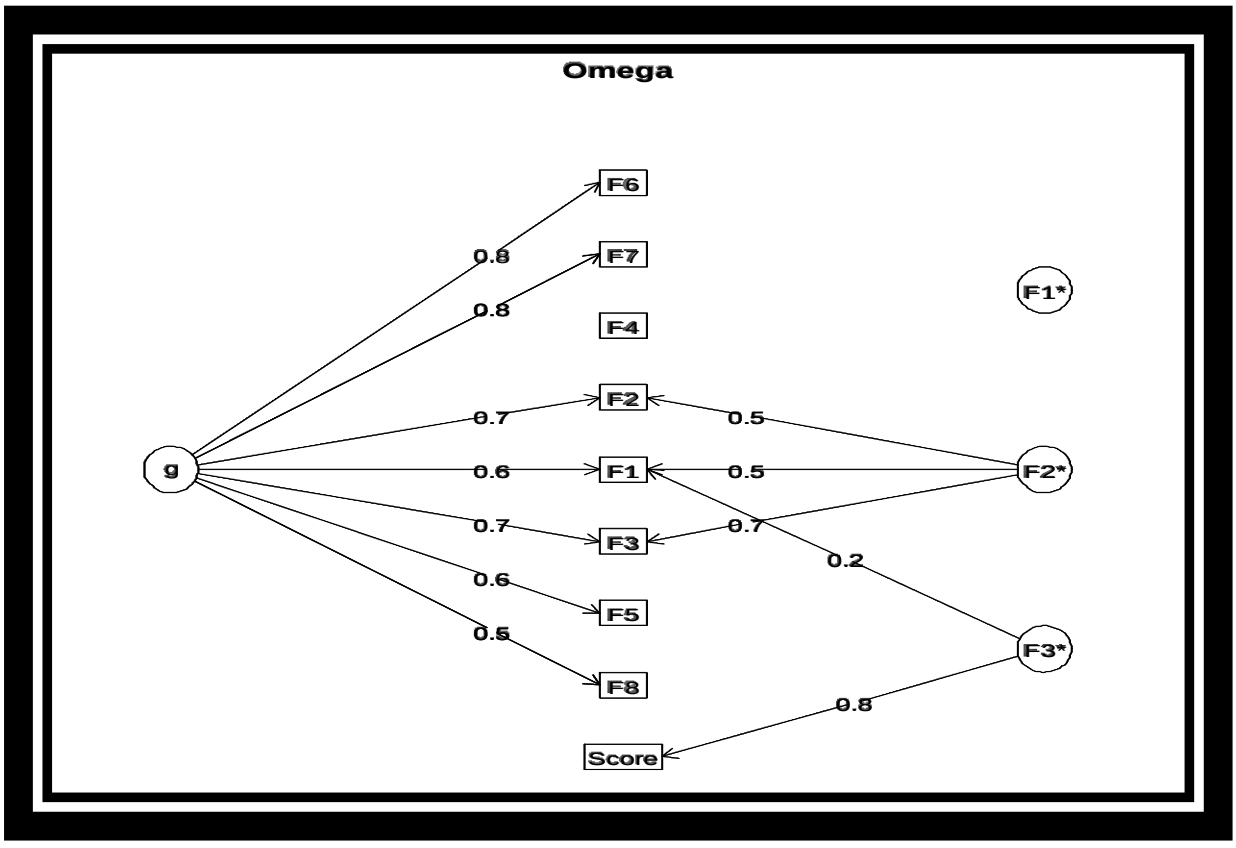


Figure 4.5: Structural model for policy structure, motivation and professional development at p< 0.05

Respondents in the study were asked to rate their perceptions of blended learning utilisation, specifically on its usefulness and ease of use. Analysis of the survey response data reveals the results as shown in the table 4.6 below.

Table 4.6: Frequency of response for usefulness and ease of use of the blended learning approach

Response	Frequency	Relative Frequency	Percentage (%)
Strongly Agree	23	0.32	32
Agree	39	0.55	55
Neutral	5	0.07	7
Disagree	1	0.01	1
Strongly Disagree	3	0.04	4

In accordance with Table 4.6, 55% and 32% of teacher educators, strongly agreed or agreed to the usefulness and ease of the blended learning approach whilst 1% and 4% disagreed or strongly disagreed to the usefulness and ease of the blended learning approach (Figure 4.6).

Respondents in the study were again asked to rate their perceptions of personal factors such as belief, attitude, experience, anxiety, behaviour, and self-efficacy and

whether they had any impact on blended learning initiatives in higher education institutions. Analysis of the survey response data is revealed in the table below.

Table 4.7: Frequency of response for personal factors

Response	Frequency	Relative Frequency	Percentage
Strongly Agree	18	0.25	25
Agree	41	0.58	58
Neutral	8	0.11	11
Disagree	1	0.01	1
Strongly Disagree	3	0.04	4

Table 4.7 shows that 58% and 25% of teacher educators agreed or strongly agreed to personal factors having effects on the blended learning approach, whereas 4% and 1% of teacher educators disagreed or strongly disagreed to personal factors having effects on the blended learning approach. 11% of the respondents remained in the neutral position (Figure 4.7).

Respondents in the study were also asked to rate their perceptions about the determinants of blended learning resistance, such as time commitment, change role, workload capacity, and availability of resources, instructional design, and technical support. Analysis of the survey response data reveals the results as shown in the table below.

Table 4.8: Frequency of response for time commitment, workload capacity and change role

Response	Frequency	Relative Frequency	Percentage
Strongly Agree	21	0.30	30
Agree	32	0.45	45
Neutral	7	0.10	10
Disagree	9	0.13	13
Strongly Disagree	2	0.03	3

Table 4.8 indicates that 45% and 30% of teacher educators agreed or strongly agreed that time commitment and workload capacity have influence on the blended learning approach, whilst 13% and 3% disagreed or strongly disagreed to that perception. However, 10% of the respondents remained neutral (Figure 4.8).

Responses were summarized in both tables 4.9 and 4.10 in response to the research question and objective two about the practices of teacher educators in the use of a blended learning mode in teaching in Ghana. Respondents in the study were asked to rate their perceptions of blended learning practices such as instructional design, style/mode, and strategy. The results of the survey response data analysis are shown in the table below.

Table 4.9: Frequency of response for instructional design, style and strategy

Response	Frequency	Relative Frequency	Percentage
Strongly Agree	7	0.10	10
Agree	19	0.27	27
Neutral	19	0.27	27
Disagree	21	0.30	30
Strongly Disagree	5	0.07	7

Table 4.9 illustrates that 27% and 10% of teacher educators agreed or strongly agreed that instructional mode, style and strategy have influence on the blended learning approach, whilst 30% and 7% disagreed or strongly disagreed to such perception. However, 27% of the respondents remained neutral (Figure 4.9).

Respondents in the study were again asked to rate their perceptions of institutional blended learning practices such as policy structure/support, motivation, and professional development. Analysis of the survey response data reveals the results as shown in the table below.

Table 4.10: Frequency of response for policy structure, motivation and professional development

Response	Frequency	Relative Frequency	Percentage

Strongly Agree	6	0.8	8
Agree	23	0.32	32
Neutral	17	0.24	24
Disagree	15	0.14	21
Strongly Disagree	10	0.21	14

Finally, 32% and 8% of teacher educators agreed or strongly agreed to the perception of policy and professional development having impact on the blended learning approach, whereas 21% and 14% of teacher educators disagreed and strongly disagreed with that perception. Meanwhile, 24% of the respondents remained neutral (Figure 4.10).

4.2.3 Analytical results

As per the ongoing analysis on the perceptions of the teacher educator on the blended learning approach, the factor loading is contracted to ascertain the convergent conclusiveness of the blended learning approach in teaching and learning. Therefore, the higher the factor loading, for the blended learning approach, the more convergent and conclusive the blended learning approaches.

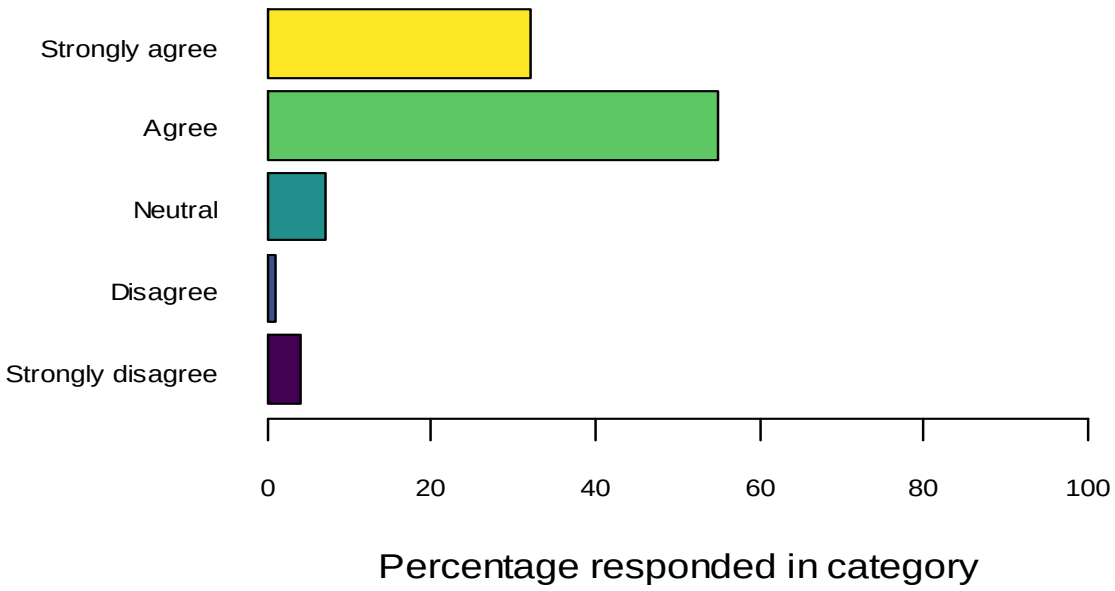


Figure 4.6: Percentage of response for usefulness and ease of use of blended learning approach.

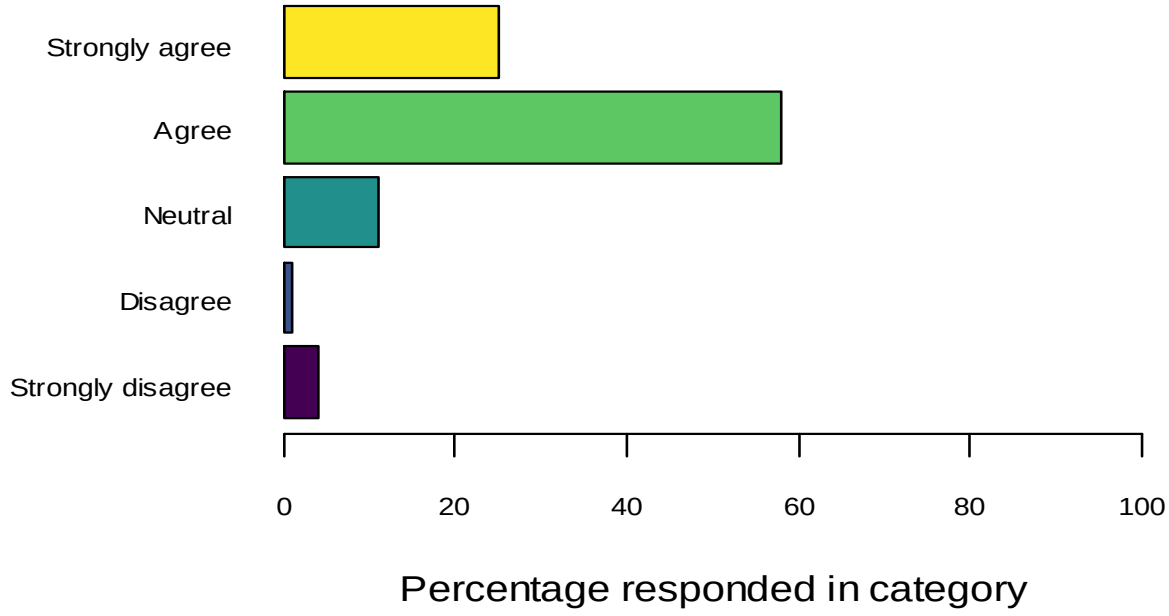


Figure 4.7: Percentage of response for personal factors.

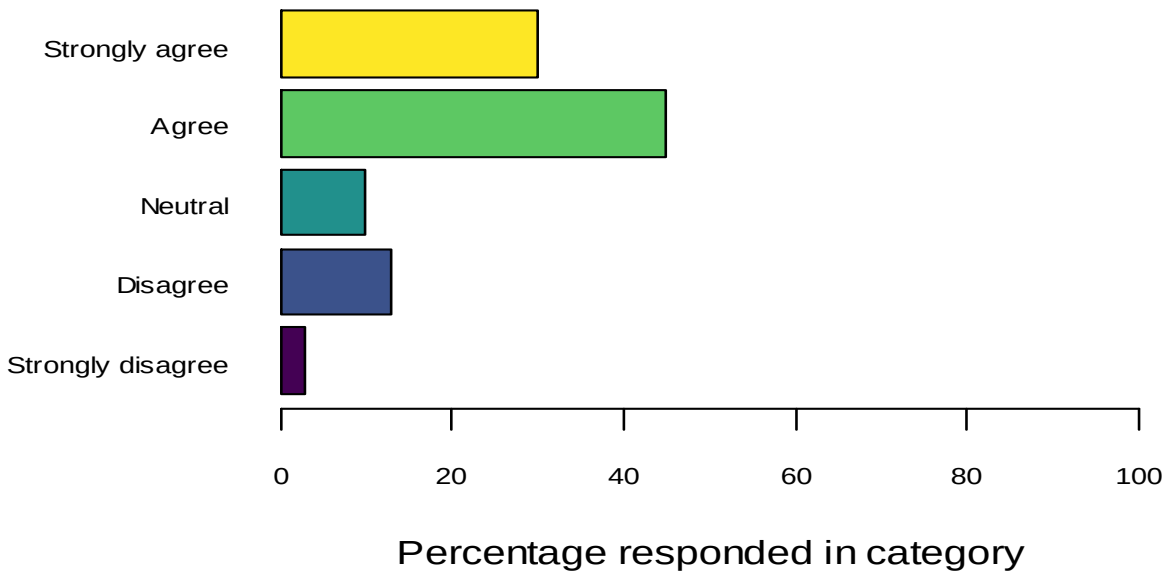


Figure 4.8: Percentage of response for time commitment, workload capacity and change role.

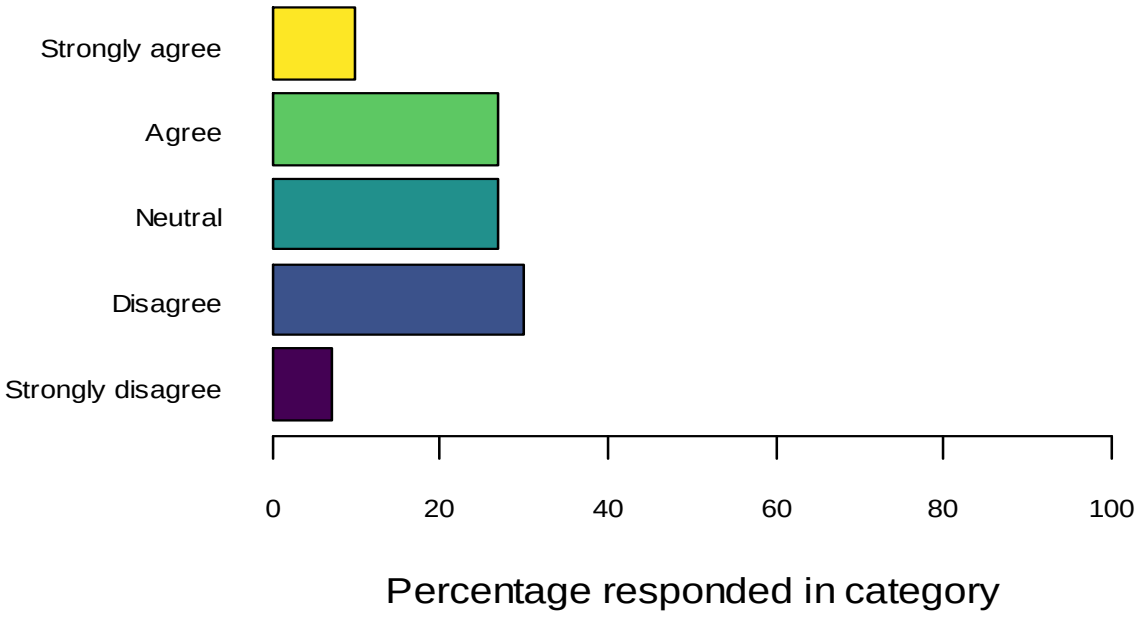


Figure 4.9: Percentage of response for instructional mode, style and strategy

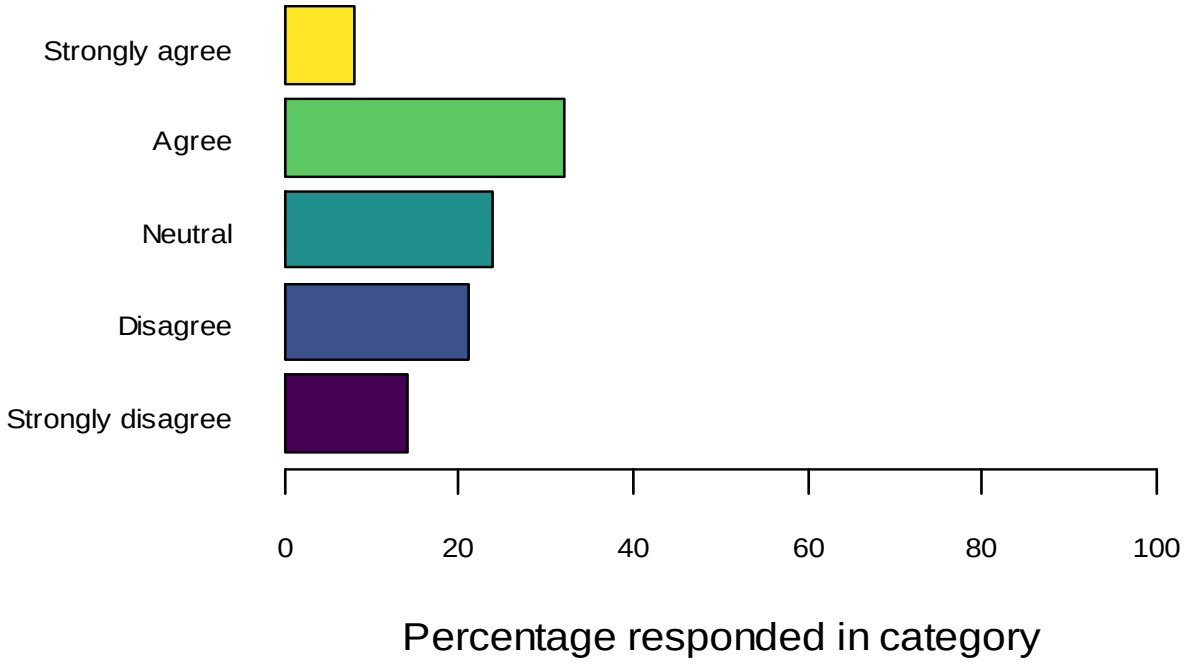


Figure 4.10: Percentage response in category.

Table 4.11 is aligned with the Schimd Leiman factor loadings, with variables such as the factor loadings, composite reliability and the Average Variance Extraction (AVE). At 5% level of significance, it was perceived that usefulness and ease as well as personal factors have a factor loading of around 5%, whilst the factor loadings for time commitment, policy structure and instructional mode were approximately 6%.

In addition, the convergent conclusiveness for all the perceptions on the blended learning approach were tolerable and averaged at a composite reliability of (>0.62). Therefore, a cross examination of all the AVE domain values on the perceptions of the blended learning approach, were comparatively higher than the minimum conjectured value of 0.50, predicted by Fornell and Larcker, (1981) on convergent conclusiveness. It can hence be echoed that the corollary of all the factor loadings, composite reliability and AVE for the blended learning approach in teaching and learning have high internal compactness. Hence teacher educators' perception on the blended learning approach has no impact on the learning process. The blended

learning approach to the teaching and learning process has high internal compactness and a composite reliability.

Table 4.11: Schmid Leiman Factor Loadings

Perceptions on the blended learning approach	Indicators	Outer loading	Composite Reliability	Average variance Extracted (AVE)
Usefulness and ease of the blended learning approach	B1	0.65	0.82	0.65
	B2	0.65		
	B3	0.72		
	B4	0.56		
Personal factors	C1	0.67	0.80	0.59
	C2	0.26		
	C3	0.27		
	C4	0.50		
Time commitment, change role and workload	D1	0.42	0.79	0.58
	D2	0.31		
	D3	0.89		
	D4	0.79		
Instructional mode, style and strategy	E1	0.66	0.85	0.64
	E2	0.72		
	E3	0.77		
	E4	0.78		
Policy structure, support, motivation and professional development	F1	0.58	0.82	0.63
	F2	0.66		
	F3	0.68		
	F4	0.57		

4.3 QUALITATIVE DATA ANALYSIS

The analytical method employed by the researcher for the data analysis is the inductive thematic analysis. The researcher used this method because its narrative characteristics reflect on the reality and experiences of data collected. The process allowed the researcher to identify themes and elaborate on them to understand data properly. Guest *et al*. (2012:15-16) describe this method of analysis as:

> "a rigorous, inductive set of procedures designed to identify and examine themes from textual data in a way that is transparent and credible. Its methods are drawn from a broad range of several theoretical and methodological perspectives, but in the end, its primary concern is with presenting the stories and experiences voiced by the study participants as accurately and comprehensively as possible."

The principle above highlights the researcher's role by describing how data were coded into appropriate themes to make the interpretation and analysis logical and adaptable. Therefore, the researcher made sure that the data collected were consistent and were carefully coded, analysed and interpreted in accordance with the research questions and objectives of the study. In this regard, the following codes were applied to represent the respondents, thus: AA, AB and AC to represent Teacher Educator (TE) 1, 2 and 3 respectively;

4.4 DATA PRESENTATION AND ANALYSIS FROM IN-DEPTH INDIVIDUAL INTERVIEWS

Blended learning is a popular teaching approach in many higher education institutions and teacher educators view it as an important feature of classroom teaching that can enhance effective instructional delivery and learning. Research has revealed the various benefits of blended learning and its increased implementation in education centres. For instance, it has been acknowledged for its richness in pedagogy, adjustability and cost-effectiveness (Graham, 2006). However, teacher educators encounter difficulties as they move from the conventional classroom-based instruction to blended training (Garrison & Kanuka, 2004; Oh & Park, 2009).

Research Objective 3, as stated in Chapter 1, sought to investigate the challenges of teacher educators in using a blended learning mode in teaching in HEIs in Ghana. This objective was achieved using semi-structured in-depth interviews as a data collection technique.

Interviews were conducted with eight purposively selected participants. Interviews are data collection techniques used for enhancing understanding of perceptions and experiences among participants in higher education (Lincoln & Guba, 1985) and expanding on information gleaned from other sources (Seidman, 2013).

The eight participants included in the study were considered to be information-rich and were intentionally chosen on the basis of their experience and use of blended learning. Interview questions were developed to elicit in-depth information from the participants (n=8) during the study's second phase. The open-ended interview questions were created to stimulate deeper discussions about the blended learning challenges experienced by participants. The interviews were conducted with the aid of the interview guide to confirm that each of the open-ended questions posed during the interview related to Research Question three. Participants were asked the same questions and in the same order. After thematic analysis and coding of the interview transcripts, several themes about the participants' challenges with blended learning usage emerged.

From the data analysis, the researcher formulated themes based on the Research Question 3: *What are the challenges of teacher educators in the use of a blended learning mode in teaching in Ghana?*

The emergent findings from the question were based on the responses from the participants. These are presented and analysed under specific themes elaborated upon in the sections below.

4.4.1 Inadequate Internet Connectivity

A significant finding from the study is inadequate internet connectivity, which seems to be a problem to most participants. The lack of internet connectivity means that teacher educators do not achieve their teaching goals. The students, too, face similar challenges as they struggle for an internet connection, which has negatively impacted

their studies. One participant expressed his feelings regarding poor internet connectivity in teaching and learning. He said:

> *AB: I remember one time I was teaching and a student had to go and sit somewhere under a tree because that was where he could get reception/ internet connection and this is negatively impacting on their studies.*

Another participant said:

> *AC: The main problem has to do with the internet. I think also that even on campus if you have to go to a particular place, it is a problem but if the whole university is wired it won't be a problem using zoom. If the internet issues are solved BL approach shouldn't be a problem. So, the internet is an asset.*

Yet, another participant said:

> *AA: In fact, internet connectivity, at times the internet is not stable. So, you find it difficult to be connected to your students. So, you need strong internet connectivity so at times you see in the university we have certain places that have internet; a strong and a stable internet connectivity.*

The responses above indicated that internet connection is a major problem in using the blended approach in teaching and learning. Without good internet connectivity at higher institutions, efforts to improve teaching and learning activities are futile. Therefore, institutions' officials responsible for wireless internet access must ensure that internet instruments work correctly to achieve teaching and learning goals.

In addition to poor internet connectivity, some participants complained about high data costs and the difficulty in procuring technological gadgets like laptops and projectors, which aid the blended teaching method. Most of these gadgets are broken and do not work correctly. A participant lamented:

> *Sometimes eerrr the barriers are many. It has to do with the cost of data, you have to buy data and even on campus the internet system cannot guarantee you sustained internet service (internet connection); you see breakages and the rest and those things affect even your moral.*

Another participant also said:

The basic challenge is the internet infrastructure. Internet connectivity is a problem Technological gadgets like projectors and others are an issue for us. Also, training is required for one to use the BL approach. This is because majority of teachers find it difficult using the system as they are not young like us and belong to the "BBC" (born before computer) group. So, internet/computer literacy skills are lacking with most elderly teacher educators.

From these responses, for teacher educators to embrace the blended learning method wholeheartedly, they must be equipped with computer gadgets that should be periodically maintained for continuous functionality. Furthermore, the responses indicated that the participants also want to be trained on using these technologies as some lack computer literacy skills. The researcher believes that when higher institutions provide appropriate user-friendly computer gadgets, ensure adequate connectivity and continuous training, teacher educators will be able to achieve their teaching goals by applying a blended learning methodology. The ability to connect to the Internet is critical in achieving the aim of advancing the quality of education, especially in Africa. Hence, high internet data charges are of concern to the education authorities since it can deprive teacher educators and students of access to blended learning technologies for successful use.

A participant however indicated that students are disadvantaged because they have to provide learning aids like laptops, internet data and accessing efficient internet connectivity. The result is poor attendance at school lectures. One member expressed his feelings by saying:

The problem has to do with the students because they don't have access to internet; if you have to teach like 150 students and you go online to meet only 20/30 students, you see it's a big challenge.

A different member emphasised this challenge by saying:

But the challenge has to do with the students who complain of poor internet connection/network and heavy data charges.

To sum up, internet connections are not reliable, and the cost of data is overwhelming for students; but if students are given the necessary assistance, they will be able to fully participate in blended education programmes.

4.4.2 Disturbance during Teaching Sessions

A different challenge emerging from the interviews was disturbance during teaching sessions due to the sharing of offices. For teaching to be effective, it requires maximum attention and a conducive teaching environment. However, this is not the case with teacher educators' experiences using the blended mode of teaching. When asked about the challenges they face using this teaching approach, most teacher educators were not happy about their teaching environment. This challenge is revealed by a participant who said:

> *The interaction is a problem; we share offices as you can see, we are three in a room so you can imagine when you are delivering your lecture and students will be knocking and coming in here and there, other lecturers will be coming in, your colleagues will be coming in; that is a challenge, I wish we had a special studio where we could do recordings.*

From this response, it emerged that teacher educators share office space. Thus, there is no privacy to prepare for their lectures, such as recording audio-visual tutorials for students. A state of commotion arises when teacher educators have to attend to their students at the same time. A different participant emphasised the same problem. He said thus:

> *The office is one, but in our situations, we share the offices so if you want to have the lecture in the office your colleague is also may be engaged in supervising project work or any other equally important activity then it becomes some sort of distraction and disturbances so that had been a major challenge.*

Besides the disturbances and the lack of a favourable teaching environment, teacher educators have background noises to contend with in using a programme like Zoom. These noises result from technical glitches in using the software or Zoom App and

students fidgeting with computer gadgets. The evidence of this is revealed in the response below:

> *… And at times the noise level, the background noise at times when you are teaching you hear a lot of background noise. Although at times you mute all the participants yet others will just keep quiet themselves and you hear so much noise in the background. At times the environment will be noisy where the students are having lectures and the feedback will be sent to you the lecturer.*

4.4.3 Lack of Adequate and Continuous Training in Blended Learning Mode of Teaching

Quality assurance in teaching requires that teacher educators or lecturers are trained and continuously developed. Unfortunately, the study revealed that teacher educators lack continuous professional development, particularly as technology keeps on evolving. This challenge is indicated by a participant who said:

> *In fact, we have had I think one or two training sessions, and that was even last year I think when the University decided we should go by the use of online/blended mode of teaching. They offered a one-time training programme for us. And I think apart from that we haven't had any official training programme. So, it's now about consultation with colleagues if you find any challenge.*

The above revelation indicates that teacher educators might find applying new developments in teaching using the blended approach challenging. It is, therefore, crucial that they attend continuous professional growth and training to remain abreast of new inventions in technology and teaching software. Meanwhile, most participants have taken it upon themselves to learn how to use these computer gadgets and teaching programmes by learning from others and their colleagues. Of course, it is better to do something for oneself than to depend on or wait for help from others. One contributor to the study indicated thus:

> *I learnt to use it through one of my PhD students from the UK who had far better knowledge.*

Another information provider to the study reiterated:

> *Errrrr, honestly some of us are inquisitive when it comes to technology and other things I was learning it myself. Also, one of my PhD students from outside the country in the UK helped to organise to train me and a few colleagues on how to use the zoom before this whole thing started.*

The responses indicated that teacher educators have gone the extra mile to train themselves because they are not getting the needed help. Although some form of training is provided to faculty members, teacher educators feels that they are not adequately equipped to use the blended learning approach efficiently and effectively. A respondent made this evident in the following words:

> *Also, the office of the pro-vice chancellor in collaboration with the same centre also organises some training for faculty members. But if you should ask me if those training sessions are enough to put me in a place to use the approach I will say no but personally, I also learn on my own.*

4.4.4 Poor Attendance and Participation of Students in Teaching Sessions

For lectures to be enjoyable and teaching and learning goals achieved, students must attend and participate fully in the sessions. However, the study revealed that there is poor attendance and participation of students in teaching sessions. Undoubtedly, no lecturer will be happy with such a situation. Thus, one respondent noted:

> *Some people will be cooking while they are learning so I make sure I mention their names randomly in order to ensure everybody is on track if not, they will only show their presence online yet will be doing their own thing without necessarily learning.*

The response of this participant showed that some students connect to join lectures but do not attend and participate in class. It explains why the teacher educators call out students' names randomly to ascertain their presence. Without proper measures to address this challenge, lecturers will have fewer students attending class and participating in them. Because few learners attend classes, lessons must be repeated

by teacher educators which increases their workload. These revelations are made clear in the response below:

> *Sometimes you don't get full participation from the students like you will get in the face-to-face class session. For instance, if you have a class of about 100 students you end up meeting quite a small number of them. This makes you repeat the lesson you have finished online again during the face-to-face session making you do double work. And this puts you the lecturer off from using BL approach as the students themselves prefer the face-to-face mode of teaching.*

The answer of the participant indicates that some of the participants prefer a face-to-face teaching approach in comparison to the blended learning method. However, due to the current situation of the Covid-19 pandemic, teacher educators have no choice but to adopt blended learning and advancement in technology to keep academic programmes alive. Yet, still, one participant revealed that having eye contact during teaching is mainly preferred by educators. A respondent indicated the benefits of face-to-face teaching thus:

> *……and then at a point in time, face-to-face teaching is beneficial because you can give and take questions and answers in the classroom. You can assess and correct students immediately they say something wrong. But here you are just facing the computer listening to a pre-recorded teaching video. You don't have the time to communicate to the students, and so you wouldn't have the opportunity to see all the students and how they even react, so it even affects your mood of delivery.*

From the above responses, most teacher educators give preference to face-to-face teaching rather than the blended teaching approach. To increase teacher educators' desire and the need for blended education in Ghana, all forms of hindrances towards using this method must be removed to promote blended teaching and learning in the country.

4.4.5 Poor Functionality of Technological Gadgets

Most teacher educators frown upon the blended learning approach because technological gadgets that aid teaching and learning are poorly maintained, resulting in poor functionality. Affirming this notion, a participant said:

> *Does the university provide out internet facilities? Yes, there is data given but I remember we are given mile fi (a kind of WiFi), which does not work. Colleges, departments, and even faculties have internet facilities on campus but they do not work correctly. The internet facilities do not work and are not secured too.*

Another individual complained:

> *We have also been given a nice WiFi but it is a white elephant because you cannot use it at home; it is only in the office that you can use it because of internet connection so most of the time we use our own credit (internet data) when there is power.*

The responses of the participants indicate the serious challenges that teacher educators face during lessons delivery. Without the proper functionality of technological gadgets, both lecturers and students will not achieve their goals in teaching and learning. Therefore, computer gadgets that aid teaching and learning must be continuously serviced and maintained by the Internet Service Providers (ISPs) to promote effective education. In addition, the university authorities ought to supply both teacher educators and students with technological gadgets such as laptops, modems, fixed data bundles and so forth, at a subsidised rate to ensure effective and efficient use of the blended learning approach.

4.5 CHAPTER SUMMARY

Chapter four provided an analysis of the data. While the quantitative data were examined to answer Research Questions and Research Objectives one and two, qualitative data was used to answer Research Question and Research Objective three. Respondents' perceptions and practices of blended learning collected through the blended learning survey were coded, analysed and displayed through descriptive statistics (R-package) in themes such as usefulness and ease of the blended learning approach; personal factors; time commitment, workload capacity, and change role;

instructional mode, style, and strategy; and policy structure/support, motivation and professional development.

Participants' reactions to the challenges experienced in the use of blended learning approach revealed themes namely inadequate internet connectivity, disturbances during teaching sessions, continuous professional training needs, poor students' attendance and participation, and poor functionality of technological gadgets.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

This chapter presents discussions of findings, contributions to blended learning practices and conclusions of the study. The chapter concludes with limitations and recommendations for future study on blended learning practices in higher education institutions.

Emerging technologies and digital resources such as mobile devices, web-based digital devices, and applications of virtual/blended learning and internet resources play a significant role in academic pursuits at higher education institutions, especially with the occurrence of the Covid-19 pandemic. Blended learning usage has had a major influence in schools, colleges and universities across board. Teacher educators are the main catalysts for change in quality education, and they need to be helped to facilitate activity in their school systems, communities and campuses. However, as well-respected role models for professional growth, teacher educators are hesitant about applying a blended education programme into their instructional delivery and learning practices.

This study therefore proposed to first ascertain their perceptions of using a blended learning mode in Ghana. The second purpose was to identify teacher educators' practices of using blended learning mode in higher education institutions, and the third aim was to investigate the challenges that teacher educators experience in their use of the blended learning approach in Ghanaian higher education institutions.

The first section of this final chapter presents a discussion of the findings emerging from the data analysed in Chapter four. The chapter concludes with contributions to blended learning practice and conclusions, as well as recommendations and suggestions for further research.

5.2 DISCUSSION OF FINDINGS

To investigate teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana, a mixed-methods design was employed for the study.

Quantitative data were collected and analysed guided by research questions one and two, while qualitative data were collected which led to the analysis of research question three on the challenges teacher educators face in their use of blended learning approach in higher education institutions.

A research study assessing teacher educators' perceptions and acceptance of blended learning is critical to further investigate, particularly when teaching staff, institutions, and students were unprepared for such rapid change in teaching mode, such as experienced with the Covid-19 pandemic. Hence, the purpose of this study was to ascertain teacher educators' perceptions and practices of teaching in a blended learning model in higher education institutions in Ghana.

Perception of classroom instruction includes beliefs about instruction as well as knowledge of teaching (Westbrook *et al.,* 2013). Perceptions of technology integration in education settings have been identified to be resisted by teacher educators even when there is availability of technological resources (Ertmer *et al.,* 2014; Scherer & Siddiq, 2015). Enacted practice represents the instruction activities and collaborations actually presented (Gibbons *et al.,* 2018).

The findings and discussions focused on usefulness and ease of use; personal factors such as belief, attitude, behavior, experience, anxiety, and self-efficacy; and determinants of blended learning resistance such as time commitment, change role, workload capacity, availability of resources, and instructional design in response to research question one: what are the perceptions of teacher educators teaching in a blended learning approach in Ghana?

The study found that the perceptions of teacher educators have a positive influence on the blended learning approach; hence, the blended learning method should be practiced for effective and creative teaching. The findings of this study align with other studies which found that teacher educators blended teaching approaches are affected by the formation of their own philosophies, concepts and conclusions concerning the application of technology in teaching (Cheng & Xie, 2018; Cope & Ward, 2002; Joo *et al.* 2018; Jedeskog & Nissen, 2004).

In order to ascertain teachers' perceptions of blended learning effectiveness and efficiency in their teaching activities, Technology Acceptance Model (TAM) constructs such as usefulness and ease of use were employed. The analysis of participants' responses on blended learning usefulness and ease of use revealed (Table 4.6) that whilst 55% and 32% of teacher educators agreed or strongly agreed to the usefulness and ease of use of the blended learning approach, 1% and 4%, respectively, disagreed or strongly disagreed. It, therefore, implies that in order for blended learning technology to be useful and usable, teacher educators need to accept and effectively utilise the system by being equipped with the relevant knowledge and skills. Otherwise, this confirms Mozelius and Rydell (2017) findings that the key responsibilities or skills in order to use the appropriate educational design for blended learning environments such as learning management systems are a challenge for teachers. For instance, the flexibility and user-friendliness of the blended learning instructional technologies allow teachers to navigate their way through the system easily and improve their work productivity once they have the necessary skills and competencies. This could also result in addressing the time spent and ease workload challenges teachers face in using blended learning. Hence, institutional authorities ought to provide instructional coaches and technical assistance to support teacher instructional needs corresponding to blended learning practice.

According to Davis (1989), the perceived utility and ease of use of a system influence people's attitude toward technology. This is in agreement with Antwi-Boampong's (2019) report that a blended learning approach makes teaching easier, tasks simpler and learning management system platforms more useful. Teacher educators testified in this study that blended learning does not only increase job performance, but the platform, that is, learning management system such as Modular Object-Oriented Dynamic Learning Environment (MOODLE), renders it useful for instructional delivery. Caravias (2015) supports this viewpoint, stating that a learning management system provides a platform for teachers to share course materials and syllabus, thoughts and online assessments, as well as use e-mail, discussion boards, calendars, blogs, and journals, in addition to traditional face-to-face activities such as lectures and tutorials. For instance, the study respondents revealed that the blended learning environment

allows teacher educators to post course material online, use digital textbooks, and have students write in Google Docs.

The majority of teacher educators have positive perceptions of the usefulness and ease of use of the blended learning system. As discovered, blended learning enhances the effectiveness and efficiency of meaningful teaching and learning experiences. It facilitates communication of critical due dates or time frames for students' learning activities while helping teacher educators monitor learner activities in the online classroom. Blended learning facilitates communication and collaboration among teachers and students through its digital and technological platforms (Caravias, 2015; Moorhouse & Wong, 2022; Wai & Seng, 2015).

Respondents also expressed the view that blended learning applications help them to maintain course participants' desire to partake and actively participate in productive dialogue. Blended learning is a positive solution to promoting student engagement on the basis that teacher educators are able to accept transition, are skilful, competent, and knowledgeable, and adhere to implementation approaches. Blended learning engages students, thereby building on learner-centred pedagogy rather than teacher-focused activities. New concepts are explored by teacher educators in a blended learning systems rendering the approach useful and effective.

These benefits, which educators assert they derive from the use of blended learning imply that they believe in the usefulness and efficacy of the blended learning approach. Hence, the perceived usefulness and perceived ease of use have an influence on educators' acceptance and implementation of the blended learning approach. Technology use is accepted and even increased if users believe that using the system helps to improve their work performance, they may have no trouble using it (Cheok *et al.,* 2017). Teachers' perceptions towards blended learning's usefulness and ease of use are predicted to be relevant in the technology acceptance model.

Again, in a quest to address the research question and objective one of this study about the perceptions of teacher educators teaching in a blended learning approach in Ghana, the responses of the participants were revealed and discussed. Thus, the analysis of participants' responses on personal factors revealed that the majority of the respondents (58%) and (25%) agreed or strongly agreed that personal factors

have an effect on the blended learning approach, while only 1% and 4% of teacher educators disagreed or strongly disagreed with that assumption. This implies that teacher educators' beliefs have an effect on the blended learning approach to instructional delivery. For example, the majority believed in the effectiveness, value and usefulness of blended learning to achieve teaching and learning objectives. The findings of this study are consistent with other study results indicating that teacher educators' beliefs about the efficacy of blended learning influence their decisions to incorporate technological innovations into their teaching practices (Galvis, 2018). Comi *et al.* (2017) confirm that teacher beliefs impede their use of new technological innovations and affect teaching practices. It becomes important to understand the reasons behind teacher educators' decisions and to offer the needed assistance in supporting them for the enactment of blended learning initiatives.

On the other hand, personal factors like anxiety have no influence on their teaching approach in a blended learning mode, as revealed by the majority of the respondents that they are not nervous or anxious about using the blended learning approach in teaching, nor are they afraid that blended learning programmes will fail to achieve intended learning goals. Rather, respondents indicated that they feel comfortable participating in the course discussions and activities among students and believe that the blended learning strategy brings a greater level of effectiveness into teaching and learning.

Meanwhile, other research has found teacher educators to be anxious about teaching blended courses due to a lack of technological experience and self-efficacy (Brown, 2016; Perera & John, 2020; Vongkulluksn et al. 2018). Other opposing views to this study's findings is that the presence of teacher educators' technology anxiety has a negative influence on their attitude and behaviour towards the use of blended learning supporting technologies like the learning management system (Bervell, Umar, Kumar, Somuah & Arkorful, 2021; Oye, Iahad & Rahim, 2012; Olatubosun, Olusoga & Shemi, 2014; Venkatesh, 2000). However, Brown (2016) and Hsu (2017) confirm that teacher educators' personal factors such as behaviour, attitude, beliefs, anxiety, experience, and self-efficacy are external variables that could have an effect on their motivation for implementing a blended learning method in their teaching practices.

Although Farjon *et al.* (2019) report that teacher educators' personal beliefs and past experiences influence their attitude and behaviour towards an activity in a particular blended learning environment, the teacher educators in this study disagree that their previous experiences of blended learning usage have prevented them from implementing it in their teaching. Whatever the case, it is important, however, to develop teachers' blended teaching skills to improve on their experience in blended learning settings. This can be done through the provision of the needed technological support, training programmes and evaluation/assessment techniques.

Technology self-efficacy is built using a blended learning mode as the majority of the respondents concurred with this study's findings. This finding is corroborated by Lavidas, Komis and Achriani (2021), who confirm that teachers' perceived self-efficacy, among other external factors such as perceived utility, perceived approachability, technological complexity, attitudes toward use, and subjective norms, are the main contributing elements of their behavioural intention to use learning management systems to support blended learning activities. However, Arbaugh (2008) argues that faculty members face the challenge of integrating technology effectively into their instructional strategies and practices due to their inability to use it. It is important that teacher educators make informed decisions on how to employ a variety of technologies such as multimedia, communications devices, Internet services and infrastructure, and social networking sites in their blended teaching practice (Benson *et al.,* 2011; Lavidas *et. al*., 2021). The willingness of teacher educators to accept emerging technologies may have a significant impact on the success of blended learning experiences. Repeated training and workshops could build on teacher blended learning self-efficacy.

In identifying factors that determine teacher educators' resistance to the blended learning approach in their teaching activities, the results on educators' perceptions of time commitment, role change and workload capacity were discussed. The analysis of respondents' responses on teachers' time commitment, change role, and workload capacity from Table 4.8 revealed that whilst 45% and 30% of teacher educators agreed or strongly agreed that time commitment, change-role and workload capacity have an influence on teacher educators' blended learning approach, 13% and 3%

disagreed or strongly disagreed to that perception. This result is in relation to the findings of Edginton and Holbrook (2010), Gedik *et al.* (2013) and Napier, Dekhane and Smith (2011) that teaching blended learning courses increases teacher time commitment and workload. The reason is that the teacher educator is required to invest more time to become familiarised with available technology, create in-class activities and reflect on course structure, which demands more time. For instance, teacher educators expressed the view that designing a blended learning course module is time-consuming. Ooms *et al.* (2008) confirm that blended learning course development takes time and involves a large amount of work even with e-developers' assistance, and novice teacher educators are likely to frequently underestimate it. Hence, a strategy on time management skills and proper planning to balance the time factor is required to ensure a successful blended learning practice. While educators require enough time to engage learners in online discussions in a blended learning context, teachers could create a mediated conversation for learners to have access to topic questions. This structured conversation allows students to keep in contact with classmates and ask questions, share thoughts, and post resources, particularly those on distance learning programmes. As students are non-residents and only get the chance to meet their tutors face-to-face for a period of weeks, students at home could have an active service online. However, if teacher educators do not find time to monitor the discussions and make a final comment, students may become passive and inactive. To monitor, coach, and respond to online discussion board posts in a blended learning context, teacher educators need to make a decision to build a community of inquiry (Asunka & Adjin-Kwabi, 2016; Gurley, 2018). A community of inquiry pedagogy presents collaboration as a central feature required for students' blended learning practices (Brenya & Wireko, 2021). Garrison (2016) emphasised that the central role collaboration plays in the communities of inquiry pedagogy is keeping students motivated in a blended learning setting, which requires educators to foster a sense of community by making immediate connection with as many students as possible via email messages, text messaging, and video, designed to allow them to see how invested they are in their learning. Teacher educators can also deliver pre-work online and hold online office hours for students to receive assistance when needed. Decision-making on how to make learning more interactive and motivating is critical in a blended

learning environment and an option which the teacher ought to choose, particularly for those on distance module programmes.

The majority of the respondents agreed that using a blended learning approach does not only increase time commitment but teacher workload capacity. This result contradicts Garrison and Vaughan's (2008) argument which says a blended learning environment is able to ease the workload. Teacher educators struggle to balance their different roles with the propagation of the internet and diverse computer-based technologies in blended learning surroundings. In addition to their teacher-focused courses, teacher educators are beginning to teach students how to use emerging innovations. However, researchers have so far not recorded academics' preconceptions of how their various roles influence student teaching (Stacey & Gerbic, 2008). Hence, this study's outcome revealed that teacher educators perceived a blended learning approach changes their teaching roles and adds more responsibilities. To enhance students' education and skill capacity requires teacher educators to meet learners partly online (either synchronous or asynchronous) and partly in face-to-face contexts in a blended learning setting (Moorhouse & Wong, 2022). However, as few students attend and participate in online classes, the teacher's responsibility increases as lessons have to be repeated and discussed again in the face-to-face sessions. For instance, during the interview session, a participant indicated that because students have to provide their own learning aids like laptops, internet data, and efficient internet connectivity, this results in poor attendance at online lectures. The implication, therefore, is that teacher educators need to engage in extra work for the benefit of those students who were unable to attend the online part of the classes, which educators perceived as a major challenge.

Consequently, as was revealed by the participants in the qualitative part of this study, poor attendance and participation of students in teaching sessions creates a challenge for teacher educators. Student attendance and participation in the classroom, either face-to-face or online, is crucial for effective blended learning practices. Despite the fact that blended learning environments are inherently learner-focused, teacher educator assistance strengthens the learner-centred setting in blended courses. However, poor attendance and participation deter teacher support, including motivation for conversation, social engagement, and feedback. De los Arcos, Farrow,

Pitt, Weller and McAndrew (2016) concur that student engagement in a blended learning environment is beneficial to teachers who utilise the pedagogy in their practice. Thus, blended learning encourages students with varying expectations to play an active role in learning, taking into consideration their various styles, competences, and circumstances. Therefore, teacher educators' motivation, encouragement and proper monitoring are likely to improve students' attendance and engagement in a blended learning setting.

Teachers perceived a lack of time as a result of contextual factors such as time schedule framework and workload hence, the majority agreed that the blended learning approach to teaching demands more time, more responsibility and increased workload capacity. This is consistent with the findings of Cuban, Kirkpatrick and Peck (2001) and Pajo (2001), who assert that limited amounts of time due to contextual factors such as time schedule structure and workload, as well as inadequate training, can lead to delays and ineffectual utilisation of educational technology. Ocak (2011) also reports that teacher respondents believe blended teaching changes their role from teaching to coaching and monitoring, which demands more time for the whole exercise. Therefore, educators need to strike a balance by attending to every task based on good decision-making, proper planning and the motivation package provided to them.

A greater number of the respondents concurred that lack of proper training on the use of innovative tools causes delays in the effective use of a blended learning approach. This means that a simple task that could be performed within a specific time frame can take longer, thereby putting a burden on the teacher. It therefore requires education administrators to organise frequent training and workshops for educators to ease their time spent and intensive work done in a blended learning setting. Participants noted during the interview session that the lack of adequate and continuous training in the blended learning mode of teaching was one of the challenges they faced. Teachers' perception and decision to implement technology is influenced directly by their prerequisite knowledge and skills (Van Twembeke & Goeman, 2018). Hence, there is a need for higher education leadership to organise continuous professional training for members to build on their competence in the use of blended learning technologies, particularly as technology is constantly evolving. Similarly, Cheok *et al.* (2017) affirm

that in using Davis' technology acceptance model, a teacher's perception of usefulness and ease of use of technology could be developed through professional training and assistance to ensure a successful integration.

The study's research question two sought to find out what the practices of teacher educators in the use of a blended learning mode in teaching in Ghana were.

The findings relating to the practices of teacher educators in the use of a blended learning approach in teaching in Ghana revealed that teacher educators' perceptions of the blended learning approach have an impact on the teaching and learning process. In this context, the constructs of a teacher educator's instructional mode, style, and strategy, and the institutional blended learning practices are presented and discussed.

The analysis of participants' responses on blended learning practices such as instructional mode, style and strategy revealed that whilst 27% and 10% of teacher educators agreed or strongly agreed that the instructional mode, style and strategy have an influence on the blended learning approach (Table 4.9), 30% and 7% disagreed or strongly disagreed with such a perception. However, 27% of the respondents remained neutral. Researchers have defined a teacher's teaching strategy as either the transmission of knowledge, which is likely to use a content-focused approach, or the facilitation of students' learning, which is likely to use a student-focused approach (Kember & Kwan, 2000; Owusu-Agyeman, Out-Larbi, Brenya & Anyidoho, 2017). It has been established that educators' teaching styles in a blended learning environment promote student-centered learning. Mladenovici, Ilie, Maricuţoiu, and Iancu (2021) used the revised approaches to teaching inventory to investigate academics' approaches to teaching in higher education: the perspective of network analysis. Their findings revealed that academics' conceptions of the subject matter are central to their preferences for a content-focused or a learning-focused approach to teaching.

On the mode of teaching, while educators disagreed that with a blended learning mode, preparation for instructional delivery is time-demanding and supporting technology is susceptible to breakdown, an equal number of them either agreed or remained neutral to the statement. The results of the study revealed that respondents perceived the blended learning approach to teaching is practical and thus, innovations

are implemented in their blended teaching. A blended learning mode of instruction could be implemented in either an asynchronous or synchronous mode. It is, however, dependent on the decisions made by a teacher educator and the activities planned for effective teaching and learning in those situations. For example, in an asynchronous mode, pre-or post-lesson tasks, pre-recorded videos, or assignments could be shared via educational learning platforms such as Moodle, Sakia, Blackboard, or Whatsapp to help learners prepare for face-to-face lessons. In a synchronous learning mode, on the other hand, educators could deliver live lessons in real time via virtual learning platforms such as Zoom, Webinars, Microsoft Team, Webex, and Google Meet, among others. To use blended learning in a more innovative way, teachers could integrate communication and collaborative tools such as Learning Management Systems, Whatsapp, WeChat, Email, and Social Media (Instagram, Twitter). Cong, 2020; Moorhouse and Kohnke, 2021; Rehn, Maor, and McConney, 2016 encourage teachers to be equipped with the necessary knowledge, skills, and competence to integrate other platforms and collaborative tools in order to provide students with multiple modes of interaction in a blended learning environment.

Higher education decision makers need to take note and take advantage of the opportunities blended learning practices offer when institutions have the necessary conditions to foster innovation. Since innovations bring creativity, teacher educators need to acquire new skills, knowledge and competencies by attending seminars, workshops or professional development programmes to improve themselves and their students alike. Anagün's (2018:825) study on teachers' perspectives of the connection between 21st century education and managing constructivist learning surroundings support this point that "teachers have strong beliefs about problem solving, critical thinking, collaboration, communication, and creativity. They may appear to provide learning environments that are more open to students' inquiry and investigation and thus more conducive to positive student attitudes." It is crucial for education administrators to implement strategies for blended learning to progress from being a practice limited to innovative teachers to being widely deployed at the institutional level. Building an innovative teacher who focuses on student-centred pedagogy in a blended teaching practice requires clearly defined institutional policy structures and support systems (Graham, Woodfield & Harrison, 2013) to achieve the intended

teaching and learning outcomes. Wallace and Young (2010) argue that when deciding on blended delivery, the process for individual course development versus entire programmes, as well as policy practice and modification, should not be overlooked. Although updating policies in a blended learning environment may appear difficult, it is worthwhile because it provides opportunities to examine current systems, frequently taken-for-granted institutional values, social rules, and protocols.

In addition to the analysis of participants' responses to blended learning practices regarding teaching strategies, respondents perceived that applying blended strategies in teaching allows for reflection and discussions on course content, which helps the teacher educator to correct mistakes and improve their teaching practices. Reflection is therefore a critical practice for educators in higher education to reflect on their own teaching and the learning of the students in order to improve their practice and cognitive awareness of the assessment processes (Lubbe & Botha, 2020; McAlpine *et al.,* 2004).

Reflective practice not only allows educators to ponder on their practice but also provides a tool for exploring and communicating ideas, observations and newly acquired knowledge (Lubbe & Botha, 2020; Osterman & Kottkamp, 2004). Through reflective practice, teachers are able to reconsider their perceived beliefs, decisions, and experiences, which helps to reshape their thinking and action in blended learning practices. The outcome of serious reflection must have a positive impact on the teacher educators' teaching activities and students' learning performances. Discussion posts on discussion forums or blogs offer an electronic record that can be accessed and reviewed at any time to examine how students have engaged and made progress over time (Ocak, 2011). Therefore, teacher educators ought to reflect on their blended teaching activities to assess and improve themselves personally and professionally.

Consequently, a higher rate of responses showed that educators using a blended learning style in their mode of delivery build on individual's creativity skills. From the results, teacher educators perceived that using a blended learning approach helps to develop their skills and competence needed for effective teaching practice.

The results again showed that teacher educators perceived that the use of a blended learning strategy supports a student-centred approach.

The face-to-face instruction is viewed as solely relaying information to students. Often, the main focus of the teacher is on covering the entire syllabus or meeting the examination requirements, with little regard for the students' comprehension. In contrast, in the online mode, teaching is perceived as learning facilitation. The emphasis of online teaching moves away from the teacher and towards the students. It is believed that teaching is about facilitating student learning and focusing on meeting students' needs while assisting them in developing into independent learners (Mladenovici, Ilie, Maricuțoiu & Iancu, 2021). This student-centred approach is demonstrated in an incorporated learning mode in which students learn at their own pace without regard to time, space, or location, and they benefit from both digital and traditional instructional strategies. The learner-centred approach of blended learning pedagogy necessitates engagement, group collaboration, and the formation of communities of inquiry (Brenya, 2021; Garrison, 2016; Graham, 2019; Gurley, 2018). However, it has been observed that teachers are under pressure to change their teaching practices to be more student-centred, and the development of student knowledge construction should become the focus of teachers' efforts (Mladenovici, Ilie, Maricuțoiu & Iancu, 2021, Ramsden, 2003). As a result, pedagogical training for teachers in higher education institutions can be effective in changing teachers' approaches to be more student-focused.

Moreover, the study revealed that a blended learning platform creates an avenue for teacher educators to interact with students and other colleagues. Dziuban, Moskal, and Hartman (2005) discovered learning engagement and the value of interaction as components of a blended learning system. Research shows that students are more socially engaged if the virtual learning environments involve dynamic and interactive media formats (Bond, 2020; Mozeliusl & Rydell, 2017). Meanwhile, difficulties in teaching from a distance are frequently associated with the absence of nonverbal communication methods such as facial countenance and voice variations (Rovai & Jordan, 2004). These nonverbal cues aid in the direct instruction and facilitation of student learning in face-to-face learning environments. As a result, using the community of inquiry model in a blended education setting allows teachers to support

students to interact socially and emotionally despite the use of technology by teaching presence behaviours (Garrison *et al.,* 2000). Students value both social presence and teaching presence (elements of the Community of Inquiry model or CoI) in their blended learning experiences, according to Akyol, Garrison, and Ozden (2009). The depth of knowledge construction is affirmed by teachers' and students' ability to establish social presence, teaching presence, and cognitive presence (Shea & Bidjerano, 2009, 2013).

Academics' preconceptions, experiences, and impediments to the acceptance of blended learning have been studied (Ocak, 2011). For example, Ocak (2011) investigated why faculty members in a Turkish higher education institution were not adopting blended learning and discovered that lack of institutional assistance, complexity in instruction, and the challenge of implementing new technologies were among the reasons for that faculty's apathetic outlook toward blended learning acceptance.

The analysis of participants' responses on institutional blended learning practices such as policy, support structure, motivation, and professional development revealed that whereas 32% and 8% of teacher educators agreed or strongly agreed to the perception of policy, motivation, and professional development having an impact on the blended learning approach, 21% and 14% of teacher educators disagreed and strongly disagreed with that perception. This finding is consistent with other research results that show the endorsement and implementation of the blended learning initiative in part depends on institutional support, clear direction and policy (Al-Hunaiyyan, Alhajri & Al-Sharhan, 2018; Garrison & Kanuka, 2004; Porter *et al.,* 2015).

Policies are intended to ensure that statutory requirements are met. For example, teacher educators disagreed that there was a general policy framework in place at the university to guide the application of blended education methods. In a case where there are no clear institutional and college policies, educators get demotivated and tend not to use a blended learning system. Policymakers and education stakeholders have a commitment to enact policies that truly customise learning and strengthen the delivery of instruction and learning (Horn & Staker, 2011). A higher number of respondents agreed that the college's clear direction motivates their application of a

blended education strategy to teaching activities if there is any available. Van Twembeke and Goeman (2018) share the same opinion that the existence of motivation factors is crucial to the teacher educators' acceptance and use of blended learning and its related instructional technologies.

Thus, the majority of the respondents agreed that institutional measures motivate their application of blended education technology. In this study, the findings indicated that there are no clear policy guidelines catering to blended learning use. Tanye's (2017) studies in Ghana confirm these findings that few higher education centres have a clearly defined policy guiding the blended learning method for instruction delivery and learning although many have accepted the practice. As stated earlier, policies on blended instruction delivery, teacher educator practices, and student and intellectual property issues must be clearly specified.The passage to blended learning initiative in educational institution probably present additional resources such as staffing, technology, training, and technical support. Therefore, a clear policy statement regarding resource allocation, funds and budget for blended learning practice is critical for consideration by higher education institutions.

On professional development, an equal number of respondents either agreed or remained neutral on the position that they receive frequent training in their use of a blended learning mode. Teacher educators' ability to use the blended learning resources is achieved by attending regular workshops that can address their skills and competence issues on how to use a blended learning system effectively and efficiently (Villalon, 2017). Educators' internet or computer literacy is critical and of concern to the ease of use of blended learning systems. Hence, higher education authorities ought to organise regular training workshops for teacher educators and students alike to improve their internet or computer literacy knowledge, skills and competence. In support, Bariham, Ondigi and Kiio (2021) report that Kenyatta University demonstrated best practice by formulating and executing training for teaching staff and students prior to the university's adoption of blended learning. Similarly, looking at the TAM constructs of usefulness, ease of use and attitude (Davis *et al.,* 1989), a frequent professional training schedule for teachers could possibly enhance their understanding of the potential benefits a blended learning approach brings to them, students, and higher education. Nevertheless, according to Katzin (2020), the

provision of professional training for teachers is not adequate if the training they receive does not emphasise the reason for learning about blended learning. Cochran and Brown (2016) explain that there is a need for new instructional strategies (Knowles *et al.,* 2015), recognize teachers' skills and competence (Cochran & Brown, 2016), acknowledge educators' experiences (Knowles *et al.,* 2015), offer solutions to their needs (Storey & Wang, 2017), and recognise that educators are internally motivated to teach (Ryan & Deci, 2018). Thus, offering professional coaching to teachers in their application of the blended learning mode is significant for its success.

With regard to technical support and infrastructure needed for blended learning applications, some teacher educators strongly disagreed that the institution provides support such as reliable, affordable, and accessible internet for blended learning applications. The results revealed in the quantitative study aligned with those of the qualitative study as participants expressed poor functionality of technology gadgets as one of the challenges experienced in the course of blended learning application in their instructional delivery practices. Teacher educators who plan to use instructional technologies in their blended learning approach are faced with performing an extra task of applying such technologies. It was revealed in this study that teacher educators are accountable for providing, setting up, and bringing back any projection units, laptops or other classroom hardware that they require for each class session. This means that though these technologies are available, it leaves educators frustrated believing that technology use in the classroom is not worth it as they have to go through an arduous process and perform an extra task to acquire and return these.

With issues of technology, unreliability was found as participants expressed their sentiments. Thus, if technological gadgets are non-functional and unreliable, teacher educators tend not to use the equipment even when issues are resolved. Teacher educators who go through such an ordeal or experience may be deterred from using blended learning technology in the future. Bervell and Umar (2018) also found that educators' previous experience with the use of a blended learning approach had an impact on their acceptance of that approach. Such an experience may not only turn away some teacher educators, but it will influence more to follow, and it will be hard to win such members back regardless of future improvements. Thus, educators' belief in technology reliability and functionality has a ripple effect on others, which could be

termed social influence. Bevell *et al.* (2021) citing Bervell *et al.* (2020:5) explained that in technology acceptance studies, “social influence is defined as the effect or influence that other people who are seen to be of importance have on the decision of potential adopters to accept a new technology”.

Even though institutional administrators might find it disappointing that expensive technological gadgets provided for instructional delivery by educators are not being effectively used as they might, administrators would understand the situation better when they try to use them and find them non-functional and unreliable. Hence, the need for administrators to make an effort to ascertain the challenges teacher educators face in their use of the equipment provided for blended learning applications.

Sobie (2015) noted that technical challenges identified by teachers relate to issues such as cracked iPad screens, not having their device due to servicing, not charging their device for the day, and students being locked out of their device due to inappropriate information retrieval. This study’s findings revealed that a major challenge was an unreliable internet connection. The teachers expressed frustration with the use of the institution’s Wi-Fi infrastructure, which should be addressed by the institution’s authorities.

Research question three sought to address the challenges teacher educators experience in their use of a blended learning mode in teaching in Ghana.

Five themes were found to represent the challenges perceived by teacher educators in the qualitative part of the study. These were poor internet connectivity and disturbances in the course of blended teaching sessions, inadequate and continuous training in the blended learning mode of teaching, poor attendance and participation of students in teaching sessions, and poor functionality of technological gadgets. Although some of these problems were integrated and discussed in the quantitative section, a few are explained again for important consideration regarding successful blended learning practices in an institution of higher education.

Granting that studies affirm teacher educators derive potential benefits from using blended learning applications in their teaching practice, problems do hinder the successful implementation, such as inadequate technological resources. For instance,

Benson *et al.* (2011) and Katzin (2020) confirmed that possible obstacles to blended learning acceptance and utilisation by teacher educators were access to technology systems, system unreliability, and implementation sophistication.

On the contrary, Ocak's (2011:697) findings revealed that, despite the fact that institutions had adequate access to technology and that classes were fully equipped with the most up-to-date technology, academic staff were hesitant to incorporate technology into their lessons due to technological incompetence. The challenges that teacher educators face with blended learning practices may differ due to the different environments and contexts in which they encounter such problems. As a result, higher education authorities must compare and contrast how they find solutions for successful blended learning practices.

Other researchers continue to identify blended learning challenges such as technology resources, implementation, professional training, curriculum and course development, and theoretical understanding as major barriers to effective and potential blended learning practices (Alvarado-Alcantar, Keeley & Sherrow, 2018; Halverson & Graham, 2019; Moore, Robinson, Sheffield & Phillips, 2017; Shand & Glassett Farrelly, 2017; Vaughan, Reali, Stenbom, Van Vuuren & MacDonald, 2017).

The unavailable or inadequate resources, such as lack of equipment are described as first-order and external barriers to educators' blended learning acceptance. Therefore, the critical need for higher institution authorities to address both first-hand/external barriers (lack of equipment, time factor, professional training as examples.) as well as second-hand/internal hindrances (such as teacher beliefs, perceptions, attitudes etc.) to achieve successful blended learning utilisation in schools. Tondeur, Van Braak, Ertmer and Ottenbreit-Leftwich, (2017) agreed that the availability of internet access and the information technology support system influences teachers' perception of technology integration in the classroom. Therefore, addressing these challenges to make provision of available technology infrastructure suitable for blended teaching for teacher educators is likely to improve their blended learning practices (Edannur & Marie, 2017). The suggestion is that teachers should be made aware of the availability of the innovative facilities to ensure their effectiveness and proper usage.

The outcome of the interview sessions with the participants showed that internet connectivity as well as the high cost of internet charges were problems that they

encountered in their implementation of blended learning technologies. Consequently, poor internet connectivity and higher charges experienced by teacher educators and students result in low student class attendance and participation, which affects students' academic performance. The cost of accessing the Internet continues to be high and out of reach of many students and teachers as one considers other key elements such as affordable broadband, computers, smartphone devices and the knowledge, skills and competency vital to use technology. The challenge of accessing the Internet is made up of several components notable amongst them are connectivity issues and cost (price). In 2012, less than 5% of schools in some African countries were estimated to have even basic Internet connectivity (Internet Society Organisation, 2017). The implication is that students in developing countries do not have the needed financial resources to acquire network access to the Internet and consequently preventing and limiting their use of Internet in education. It is crucial for higher education stakeholders to collaborate with the Internet Service Providers (IPS) to provide teachers and students with low cost internet service/resources to enhance their effective use in the blended teaching and learning. In addition, educational technological gadgets such as laptops and internet broadband can be given to teacher educators and students at subsidised prices by the government or institutions to improve their internet usage. The Internet Service Providers must be consulted to frequently check on the proper functioning of the internet connections in the university campuses and in the students' hostels.

The disturbance during teaching sessions, identified by teacher educators, has to do with technical problems, a lack of office space, and a recording studio for individual educators. The technical hitches which cause disturbances experienced by teacher educators during blended teaching sessions are lack of support. Teacher support is a significant factor in the success of educational-technology programmes like blended learning. Hence, the people involved in such efforts ought not to underrate the difficulties of integrating technology into the blended teaching approach. Either teacher educators are provided with the requisite knowledge and skills in a professional training workshop to equip them to address such hitches themselves to reduce the disturbance during class sessions, or the university administrators need to make provision for a standby help desk and technical assistant personnel to address

teachers' needs on such matters before and during blended teaching sessions. Students without adequate information and skilfulness about how to use blended learning systems could add to the problem, causing disturbances. Although some students might well have vast experience with certain types of technologies, the majority will have no expertise in the application of instructional technologies, which can lead to frustration among those students who attempt to use them (Reid, 2014). A higher education institution that does not provide technical support to students puts pressure on teacher educators who have to deal with students' frustrations and demands for more support in an area the teacher has no expertise, or for which he is not responsible. Therefore, students should be taken through orientation programmes to be equipped with how to use the system without causing any disturbances. The lack of office space and a recording studio for educators to carry out their teaching duties responsibly is of concern as per the challenges they perceive. If teacher educators need to record pedagogical instruction for students, there must be a provision for a furnished recording studio where such tasks could be accomplished properly. According to the findings of the study, teachers lack such premises and even share office space with their colleagues. Hence, teaching online courses is problematic as one experiences disturbances making their work challenging.

5.3 CONTRIBUTIONS TO BLENDED LEARNING PRACTICE

The blended learning approach enhances the effectiveness and efficiency of the teaching and learning experience.

This statement lends credence to the assertion that blended education systems are thought to be effective and efficient when used for the teaching process (Sexton *et al.,* 2016). Garrison and Kanuka's (2004:98) research concludes that "blended learning is consistent with the values of traditional higher education institutions and has the proven potential to enhance both the effectiveness and efficiency of meaningful learning experiences". It aids in keeping course participants focused on a task that allows them to learn; it aids in the exploration of new concepts in the delivery and increases job performance. To this end, teacher educators must ensure that students cultivate a sense of belonging (Gurley, 2018) for effective engagement and collaboration in blended learning environments (Halverson & Graham, 2019). Student

engagement is possible via learning management systems that offer learning analytics with the use of notices to ensure continuous monitoring of their involvement in interpersonal and intergroup blended learning activities. However, Caravias (2015) mentions that learning management system technical problems and the lack of teacher-student interaction on the learning management system are disadvantages to educators' blended learning mode usage. Meanwhile, it is anticipated that students, having grown up with technology, will be able to effectively and efficiently utilise online techniques of engagement such as blogs, social media, wikis, and mobile devices. It is expected that blended learning modalities are clearly drawn out to guide its good practice. Hence, an instructional and curricular administration blended learning committee must be constituted to ensure effective blended learning innovations are updated and implemented efficaciously. There should be an encouragement of the establishment of innovation centres to assist teacher educators in incorporating technology into their classroom instruction in a blended teaching mode

The blended learning approach model has a direct influence on the teaching and learning activities when used effectively and creatively.

The proper measures put in place could possibly enhance the application of blended learning techniques to reach the intended teaching and learning goals. It implies that improving the support system for teacher educators could contribute to building a positive attitude towards blended learning practices in higher education institutions. Institutions ought to make efforts to organise various forms of support, such as workshops, short courses and seminars for teachers to attend as part of their continuous professional development and introduce it as a criterion for career advancement. Institutions should insist on the introduction of a structured mechanism or policy through which blended teaching can be improved and teacher educators get the best professional training and adequate support.

Feedback from student evaluations on teacher educators is not enough to assist teachers develop a positive perception towards a blended learning approach. Teacher self-evaluation and peer assessment outcomes will help to achieve the desired results. The concerns with regard to student evaluation, such as poor student turnout and the issue of anonymity, should be addressed to ensure good results. The formal protocols

for teacher self-evaluation and peer review should be outlined clearly to improve the best blended learning activities in higher institutions.

Institutional authorities must clearly define regulations in the institution's blended learning policy framework that will be used to reward outstanding and successful teacher educators who use the blended learning mode in their teaching practices. These awards could be based on the outcome of student evaluation and peer assessment. Such awards could be public recognition, certificates of participation, academic excellence, or be in the form of financial awards. There should be a clearly defined model criteria that will be used to assess teaching effectiveness, use of blended teaching strategies, contributions to teaching and their relationship with students.

Higher institutions' leadership should create an awareness of their expectations of teacher educators regarding blended teaching and learning approaches. This could be communicated before and during professional development training or workshops. Creation of awareness about the best blended learning practices should be done not only for teachers but at the institutional and departmental levels. For instance, regular orientation programmes should be organised for administrative staff and the student body to create awareness and successful blended learning implementation.

During the qualitative study, the majority of participants stated that they do not have sufficient technological resources, such as a reliable internet connection, to make use of blended learning in teaching and learning. The lack of infrastructure and technical support has a negative impact on the acceptance and ongoing use of blended learning in teaching and learning. The university administration must have a comprehensive budget for information and communication technology infrastructure that supports their long-term interest in using the blended learning approach in the teaching and learning environment at higher education institutions. When introducing blended learning at higher education institutions, policymakers must make informed choices regarding the integration of emerging technologies. The physical infrastructure's sustainability and upkeep must be prioritized. Higher education decision makers must insist on a maintenance culture concept to keep the blended learning infrastructure safe and secure.

Low internet bandwidth and unreliable internet connectivity were one of the reasons teachers and even the students expressed a challenge to not using blended learning. Therefore, there is a need for school management to prioritise blended learning technology infrastructure within their institutions. Also, educators and students must be encouraged to make use of their computing gadgets, and authorities must strengthen Wi-Fi hotspots at campuses and residences where teachers and students can reliably access the internet facility.

Blended learning is used in educational contexts with the aim of enhancing and achieving students' learning goals partly in a virtual learning environment (VLE) and face-to-face settings. Blended learning environments (BLE) such as Moodle, Blackboard, Sakai, etc. give teacher educators a platform to deliver different educational resources and methods of delivery to students. Carvaras, citing Coates et al. (2005), identifies numerous key characteristics of LMSs: asynchronous and synchronous interaction between teachers and students (discussion boards, emails, and live chats); content creation and delivery (lecture notes, readings, and hands-on activities); formative and summative evaluation (submission of assignments, quizzes, feedback on collaborative work, grades); management of classes and users (enrolment of students, display of timetable) (p. 20-21). Creating a conducive blended learning environment for educators to deliver instructions successfully is critical and must be the responsibility of higher education leadership to ensure that is done. Thus, a well-furnished studio and office space are needed for the recordings of pre-lesson, during-lesson, and post-instruction delivery.

Such environments should be created for a richer learning process that could satisfy the needs of different study techniques and learning styles (Picciano, 2009). The accessibility, reliability, and complexity of technology in the education environment could impede or facilitate teacher educators' use of blended teaching approaches and students' learning. Also, if the problems perceived by teachers per the outcome of this research are not addressed, the implications can be difficult to accept by educators to use blended learning mode successfully. As a result, the critical needs are to ensure adequate facilities, technology infrastructure, pedagogical support, evaluation data, and an institution's intention to adopt blended learning would have the greatest effect on teacher acceptance (Porter & Graham, 2016, p. 748). Similarly, faculty members'

communications with advanced technologies, academic workload, institutional context, relationships with students, the teacher's ideas and perceptions about instruction, and career development prospects are the six identified factors that cut across the review of empirical studies conducted by Brown (2016). Galvis (2018) advised that institutional appraisal of these different factors in higher education institutions could enable them to describe strategies that aid in creating appropriate environments for educators' affirmation of blended learning methods in their education. The educators indicated during the qualitative study that they do not have adequate and continual preparation in the blended learning style of instruction and learning. Providing frequent, appropriate training and support will enable teachers to be prepared with the information necessary and pedagogical skills to implement a collaborative learning approach in the classroom. Teacher educators can be encouraged to take digital literacy courses in order to become more technically proficient and content with blended learning applications in teaching and learning. Therefore, regular seminars and workshops must be organized at the departmental, college, and school levels to enhance teachers' knowledge on how to apply blended learning in the higher education environment. Some teacher educators indicated during the interview session of the study that they belong to the 'BBC' age (that is, born before the computer age), are therefore not the technology-savvy type and lack the necessary knowledge and technology-assisted pedagogy expertise to use differentiated instruction in teaching and learning. Therefore, they sometimes fall on other colleagues for assistance to use blended learning systems. Some of the educators have already acquired skills and knowledge via individual-based training without the help of the institution. Such teacher educators could be mobilized by the institution to train their colleagues.

5.4 CONCLUSION

This research study purposed to investigate teacher educators' perceptions and practices as well as the challenges they encounter in teaching in a blended learning mode in Ghana. The results found in other research studies on teacher educators' perceptions, practices, and the challenges they experienced with regard to using blended learning mode in higher education institutions are confirmed in this study

(Brown, 2016; Caravias, 2015; Kim *et al.,* 2015; Oh & Park, 2009; Raymond, 2019, Katzin, 2020).

Perceived usefulness and ease of use of technology is a determining factor of whether educators use blended learning approach or not. It is found that teacher educators' perceptions have an influence on the blended learning systems' usefulness, and user-friendliness and this encourages the favourable reception and implementation of the approach. The example is evidenced in the research work by Vongkulluksn, Xie and Bowman (2018), which shows that teachers' perception of technology usefulness is a determining factor of the quality and magnitude of technology integration. In addition, teacher educators' instructional workload capacity, time spent in a blended teaching environment, as well as changing roles from teaching in a conventional face-to-face class to a blended teaching class are influenced by their perception, hence their hesitation to use the approach. It is confirmed in other studies that teacher educators' perceptions are influenced by time commitment, task responsibility and change role experienced in a blended learning mode (Benson *et al.,* 2011; Brown, 2016; Ocak, 2011). Administrators of higher education institutions need to play a significant role in shaping teacher perceptions by fostering an environment in which information and communication technology is viewed as an important policy agenda for effective and efficient use of the blended learning approach.

Teacher educators believe that their perceptions have a positive impact on instructional delivery and learning practices in a blended learning mode. Many researchers have confirmed these findings (Brown, 2016; Caravias, 2015; Katzin, 2020). However, according to their study on blended learning perceptions, attitudes, and practices among educators in business and management education in the United Kingdom, Benson, Anderson, and Ooms (2011:152) concluded that blended learning is not always perceived as a positive thing. They go on to say that, while there have been reports of successful blended learning examples, many educators find the preparation stage to be time-consuming and the array of technologies to be likely to fail. It was discovered in this study that tutoring in a blended learning environment is more effective and requires teacher creativity as well as skills and competencies to apply the approach. Teacher educators believe that the blended teaching approach allows for reflective practice where mistakes are corrected and new ideas are

developed to improve teacher and student blended learning practices. This is confirmed by other researchers who found that reflection is a critical practice for educators in higher education in evaluating their instruction and students' learning in order to inform their practices (Lubbe & Botha, 2020; McAlpine *et al.,* 2004; Osterman & Kottkamp, 2004).

Teacher educators agreed that institutional policy, support structure, motivation, and professional development have an impact on blended education practice in higher education institutions. Nonetheless, teacher educators reported that the institution has no clear policy and does not provide teachers with motivation or frequent training to enhance their blended learning use. Professional development opportunities should be made available regularly to support institutional blended learning initiatives. Katzin (2020), Raymond (2019) and other researchers recommend that higher education administrators organise continuous professional development programmes for educators to improve their blended teaching practices. There is a need, however, for administrators to involve teachers in the decision-making process and ensure that professional training programmes and infrastructure needed to support blended learning are in place prior to implementation.

Although blended learning brings benefits to the education fraternity, teacher educators are faced with challenges in applying the blended education strategy. This study has uncovered that challenges experienced by teachers are poor internet connectivity and high charges, disturbances in the course of the blended teaching, inadequate training in the blended learning mode of teaching, poor attendance and participation of students in teaching sessions, and poor functionality of technological gadgets to support blended learning practices. This study is supported by the findings of earlier studies that lack of availability of internet access and information technology support systems are challenges that influence teachers' perception of technology integration in the classroom (Edannur & Marie 2017; Oh & Park, 2009; Tondeur *et al.,* 2017). Therefore, further investigation is warranted to gain a thorough understanding of the difficulties teacher educators experience in applying the blended learning approach amidst the emerging technologies and the new strategies to address them.

5.5 LIMITATIONS OF THE STUDY

One constraint of the study is that data was gathered from a single higher education institution under the assumption that all universities in Ghana have the same education and learning contexts as this university. A survey method was employed in the quantitative study and a follow-up with a qualitative interview, yet the sample sizes were small. Future research on teacher educators' perceptions and practices of teaching in a blended instructional delivery approach must draw a larger sample, including at least one college of education from each region in the country. An online survey only was used to collect the quantitative data due to the Covid-19 protocols. Even though the researcher expected to receive 100 responses, this target was not achieved. Therefore, future studies could consider using both online and paper-based methods for quantitative data collection.

5.6 RECOMMENDATIONS

The following recommendations are made for higher education institutions, student practice, and future research.

5.6.1 Recommendation to Higher Education Institutions

Institutions ready to implement blended learning approaches must endeavour to build positive teacher educators' perceptions, provide adequate resources, and help them create a combination of teaching strategies and technologies that provide the best results, especially in blended teaching and learning contexts in higher education institutions.

There should be supportive innovation for quality higher education that strengthens the blended learning platform throughout the higher education centres including the possibility to improve teacher educators' professional proficiency, recognition and self-confidence.

Higher institution administrators are advised to provide teacher educators teaching in a blended learning mode with motivation and incentives to improve their enthusiasm for the task. It is also necessary to offer teacher educators a support system such as providing an online help desk, frequent faculty workshops suitable for their blended teaching, and the necessary technical help for effective and efficient service.

Teacher educators should be provided the educational resources, media, and information support they need to carry out their roles in the delivery of blended learning programs. Educators must have access to latex technology and the technical infrastructure that supports them by providing virtual access to teaching and learning materials, administrative records, and communication facilities.

Policies governing the provision of promotions or reward systems for teacher educators need to be considered. It is critical that university education administrators provide incentive packages to ensure that teacher educators are actively involved and engaged in the blended learning instructional delivery method. It is crucial for administrators to align their institutional blended learning agenda with teacher educators' systems of appraisal and promotional policies that will boost their enthusiasm. A clear guideline stating incentives for teachers extra workload and adequate technical/technological support is needful for a successful blended learning practice in higher education institutions.

Although the findings of this study contributed to the body of knowledge about blended learning practices, the lack of an institutional policy plan guiding the initiative is cause for concern. According to Rice and Skelcher (2018), the government's limited education policy and regulation present challenges to successful blended learning practices. Thus, a well-defined policy and well-planned management at an institution are likely to shape the overall plan of academic, managerial, and operational departments toward a successful blended learning program.

To ensure successful blended learning activities, a clear policy outline that addresses the teacher educator's workload, blended learning curriculum and instruction development, resources and accessibility, training and support is recommended. A new policy from government institutions aligned with the well-defined blended learning strategy of higher education institutions could assist education authorities in offering rigorous but flexible programs, activities, and practices appropriate for and accessible to a larger student population in a country.

5.6.2 Recommendation for Teacher Educators' Blended Learning Practice

Today's students are described as 'digital natives' (Prensky, 2010) and therefore require a blended learning environment that enables active engagement for learning

such as social media, wikis, blogs, and so forth. Nonetheless, lack of communication amongst students and teachers is one of the main disadvantages of blended education (Bond, 2020; Salmon, 2002) and can be seen in a lack of interaction, such as individual comments posted with no replies or comment threads from teachers and other colleagues. In addition, postings are mostly task-oriented, directing students to perform an assignment without necessarily calling for further deliberations or discussions on the content. It is therefore recommended that teacher educators make online discussions compulsory and grade students upon participation. Teacher educators are advised to take deliberate action once a course starts to create a community of inquiry where they can respond to online discussion board postings. Teachers should also use other learning innovative media like Skype, Whatsapp, Blog, Wiki in addition to ensure students' active engagement in blended learning settings like the learning management system (LMS). For an effective and successful blended learning delivery of their programmes, teacher educators must make informed decisions about how to embrace the use of these diverse innovative tools, such as multimedia, social networks, mobile technologies, Web resources, and services.

Students are to be encouraged by their teachers to take part in blended learning technology interactive activities to develop their skills and knowledge. As revealed in this study, there is poor student engagement and participation in an online class due to internet challenges such as poor connection and high data charges. It is suggested that students are provided with subsidised technological gadgets and low-cost internet data bundles to improve their active participation in blended learning classes.

It is essential for higher education bodies practicing blended learning to make provision for support services for their students. Institutions to establish policies and programmes for the appropriate development and provision of student support services that cover the pedagogic, technical, and administrative aspects that can affect today’s ICT learners.

5.6.3 Recommendations for Future Research

The purpose of this research was to investigate teacher educators’ perceptions of blended learning, their approaches to its practices and the challenges facing them in higher education institutions.

In general, this study should be replicated to ascertain a comprehensive insight of the best blended learning practices from the teacher educators', students', and higher education institutions' perspectives. Current innovations and modalities that make teaching blended instruction efficient and effectual are recommended for the future studies. Furthermore, further research is required to determine teacher educators' approaches to teaching in a blended learning model, bringing in new ideas concerning the collaborations between elements that truly define their blended teaching practices. Students' blended learning practices, such as their interaction with teachers, other students, and new emerging digital devices, are critical for upcoming researchers in the blended learning initiative to focus on.

Research in the future should be geared towards including more universities and assessing their diverse strategies to improve the blended learning approach that has come to stay.

5.7 A FINAL WORD

It is obvious that blended learning has become the new normal educational approach to instructional delivery and learning in higher education institutions. Therefore, it is required of teacher educators to consider their mixed instructional objectives and learn how to use the blended learning innovations and strategies that will work best for students. Looking at the educator's time constraint, workload increase and other challenges facing their delivery of instruction in blended learning settings, education authorities are demanded to strategically address such problems. For instance, educators require more time for course preparation and to familiarise themselves with the technology structures for a successful blended learning implementation. It is advised that there ought to be effective support teams to design blended learning courses for teachers while they are taken through an orientation programme to ease the time spent on designing and getting familiar of the blended learning system. Motivations for teacher educators is much appreciated for a successful blended instruction delivery. As a result, school authorities must include the provision of an incentive package in the blended learning policy guidelines for teacher educators teaching in a blended learning model.

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APPENDICES

Appendix A: Ethical Clearance

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA

UFS UV

GENERAL/HUMAN RESEARCH ETHICS COMMITTEE (GHREC)

10-Jun-2021

Dear Ms Boahemaa Brenya

Application Approved

Research Project Title:
TEACHER EDUCATORS' PERCEPTIONS AND PRACTICES OF TEACHING IN A BLENDED LEARNING MODE IN GHANA

Ethical Clearance number:
UFS-HSD2021/0140/21

We are pleased to inform you that your application for ethical clearance has been approved. Your ethical clearance is valid for twelve (12) months from the date of issue. We request that any changes that may take place during the course of your study/research project be submitted to the ethics office to ensure ethical transparency. furthermore, you are requested to submit the final report of your study/research project to the ethics office. Should you require more time to complete this research, please apply for an extension. Thank you for submitting your proposal for ethical clearance; we wish you the best of luck and success with your research.

Yours sincerely

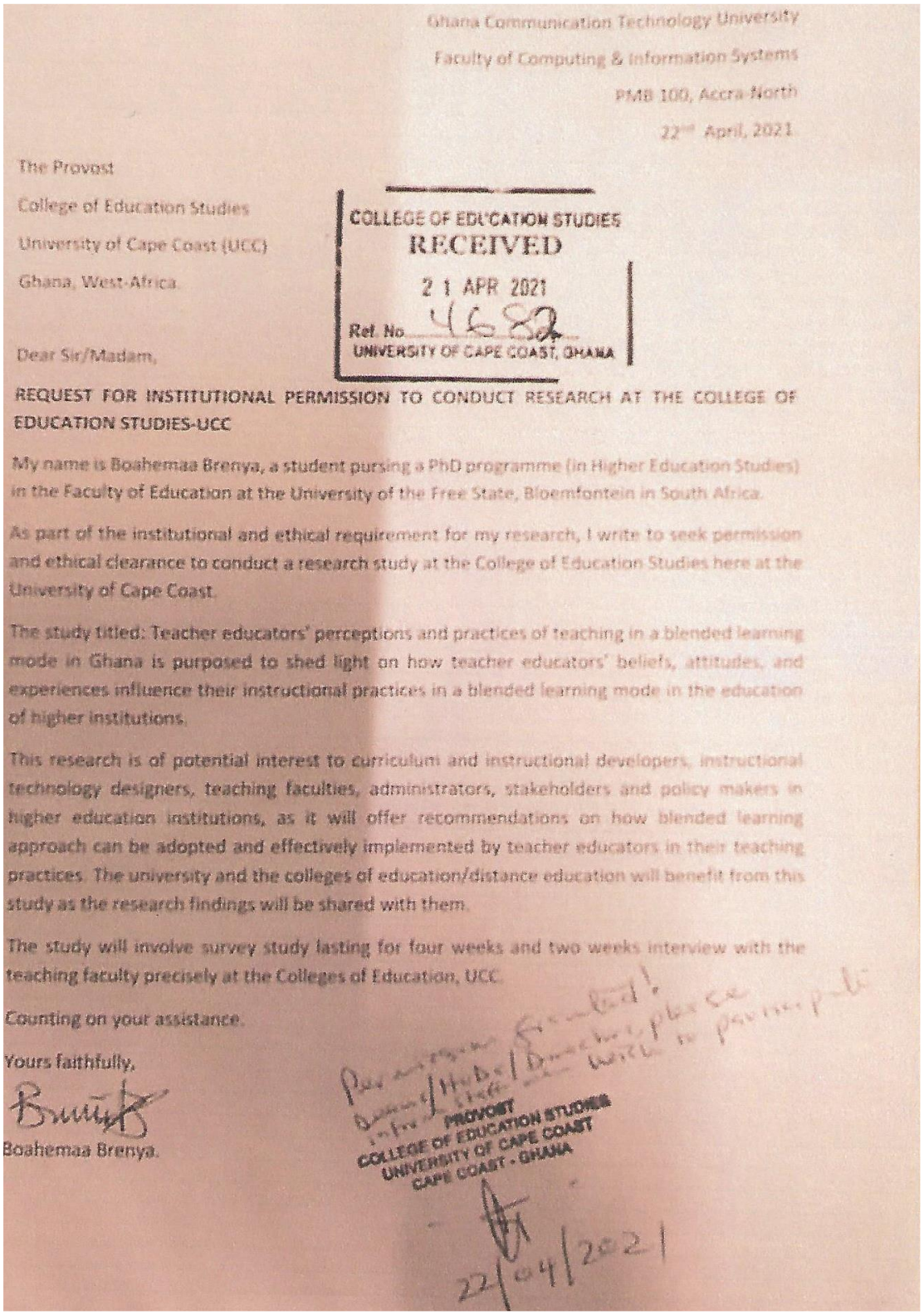
Dr Adri Du Plessis
Chairperson: General/Human Research Ethics Committee

Adri du Plessis
Digitally signed by Adri du Plessis
Date: 2021.06.11 09:10:44 +02'00'

205 Nelson Mandela Drive
Park West
Bloemfontein 9301
South Africa

P.O. Box 339
Bloemfontein 9300
Tel: +27 (0)51 401 9337
duplessisA@ufs.ac.za
www.ufs.ac.za

Appendix B: Approval from the College of Education



Ghana Communication Technology University

Faculty of Computing & Information Systems

PMB 100, Accra North

22nd April, 2021

The Provost

College of Education Studies

University of Cape Coast (UCC)

Ghana, West-Africa.

COLLEGE OF EDUCATION STUDIES
RECEIVED
21 APR 2021
Ref. No. 4682
UNIVERSITY OF CAPE COAST, GHANA

Dear Sir/Madam,

REQUEST FOR INSTITUTIONAL PERMISSION TO CONDUCT RESEARCH AT THE COLLEGE OF EDUCATION STUDIES-UCC

My name is Boahemaa Brenya, a student pursing a PhD programme (in Higher Education Studies) in the Faculty of Education at the University of the Free State, Bloemfontein in South Africa.

As part of the institutional and ethical requirement for my research, I write to seek permission and ethical clearance to conduct a research study at the College of Education Studies here at the University of Cape Coast.

The study titled: Teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana is purposed to shed light on how teacher educators' beliefs, attitudes, and experiences influence their instructional practices in a blended learning mode in the education of higher institutions.

This research is of potential interest to curriculum and instructional developers, instructional technology designers, teaching faculties, administrators, stakeholders and policy makers in higher education institutions, as it will offer recommendations on how blended learning approach can be adopted and effectively implemented by teacher educators in their teaching practices. The university and the colleges of education/distance education will benefit from this study as the research findings will be shared with them.

The study will involve survey study lasting for four weeks and two weeks interview with the teaching faculty precisely at the Colleges of Education, UCC.

Counting on your assistance.

Yours faithfully,

Boahemaa Brenya.

PROVOST
COLLEGE OF EDUCATION STUDIES
UNIVERSITY OF CAPE COAST
CAPE COAST - GHANA

22/04/2021

Appendix C: Request permission to conduct research

Ghana Communication Technology University
Faculty of Computing & Information Systems
PMB 100 Accra-North
15th December, 2020.

The Provost
~~Center for~~ College of Distance Education
P. O. Box
University of Cape Coast

Permission is granted.
15/12/2020
cc: Senior members (CoDE)
CFO

Dear Sir/Madam,

REQUEST FOR INSTITUTIONAL PERMISSION & ETHICAL CLEARANCE TO CONDUCT RESEARCH AT COLLEGE OF DISTANCE EDUCATION-UCC

My name is Boahemaa Brenya, a lecturer at the Ghana Communication and Technology University and a PhD (Higher Education Studies) student at the University of the Free State, South Africa.

As part of the institutional and ethical requirement for my research, I write to seek permission and ethical clearance to conduct a research study at College of Distance Education here at University of Cape Coast.

The study titled: Teacher educators' perception and practices of teaching in a blended learning mode in Ghana is purposed to shed light on how teacher educators' beliefs, attitudes, and experiences influence their instructional practices in a blended learning mode in the education of higher institutions.

This research is of potential interest to curriculum and instructional developers, instructional technology designers, teaching faculties, administrators, stakeholders and policy makers in higher education institutions, as it will offer recommendations on how blended learning approach can be adopted and effectively implemented by teacher educators in their teaching practice. The university and the colleges of education/distance education will benefit from this study as the research findings will be shared with them.

The study will involve survey study lasting for six weeks and four weeks interview with the teaching faculty precisely at the College of Distance Education, UCC.

OFFICE OF THE PROVOST
COLLEGE OF DISTANCE EDUCATION
UNIVERSITY OF CAPE COAST

Counting on your assistance.

Yours faithfully,

Boahemaa Brenya.

Appendix D: Participant consent form

UNIVERSITY OF THE FREE STATE

CONSENT TO PARTICIPATE IN RESEARCH

You are kindly asked to participate in a research study conducted by Boahemaa Brenya, a PhD candidate, from the Department of Higher Education Studies at University of the Free State. Please note that the result of this research study will contribute to her thesis. You were selected as a possible participant in this study because of your knowledge and experience in the teacher education industry. Your contributions will be very useful in advancing quality teaching and learning in higher education institutions (HEIs).

1. PURPOSE OF THE STUDY

This study seeks to investigate and find out teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana. This research is of potential interest to curriculum and instructional developers, instructional technology designers, teaching faculties, administrators, stakeholders and policy makers in higher education institutions, as it will offer recommendations on how blended learning approach can be adopted and effectively implemented by teacher educators in their teaching practice.

2. PROCEDURES

If you volunteer to participate in this study, you will be required to participate in a semi-structured individual interview (telephone recordings). This should not require more than 15 minutes of your time.

3. POTENTIAL RISKS AND DISCOMFORTS

Please note that there are no foreseeable risks, discomforts or inconveniences in participating in this interview and we will be grateful if you could inform the researcher of any reservation you may have while participating in the interview.

4. POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The result of this study is expected to provide options for HE institutions and other stakeholders in Ghana to design relevant instructional technology to meet the knowledge needs of teacher educators and learners in blended learning approach.

5. PAYMENT FOR PARTICIPATION

Please note that you will not receive payment for participating in this study.

6. CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

Confidentiality will be maintained by means of blind coding procedures and plans to safeguard data, including where data will be kept and who will have access to it, are in place.

7. PARTICIPATION AND WITHDRAWAL

Please note that you can choose whether to participate in this study or not. If you volunteer to participate in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study. The researcher may withdraw you from this research if circumstances arise which warrant doing so.

8. IDENTIFICATION OF RESEARCHER

If you have any questions or concerns about the research, please feel free to contact Boahemaa Brenya on 0244981536/0501408347 or e-mail bboahemaa@gctu.edu.gh

9. RIGHTS OF RESEARCH SUBJECTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. If you have questions regarding your rights as a research subject, contact 0514019398 at the Division for Research Development, University of the Free State, Bloemfontein South Africa.

Signature of Participant..... Date.....

Signature of Researcher...BOAHEMAA BRENYA..... Date.....28/7/2021.....

Appendix E: Information letter

UNIVERSITY OF THE FREE STATE
UNIVERSITEIT VAN DIE VRYSTAAT
YUNIVESITHI YA FREISTATA
UFS UV

RESEARCH STUDY INFORMATION LEAFLET AND CONSENT FORM

DATE

May, 2021.

TITLE OF THE RESEARCH PROJECT

Teacher Educators' Perceptions and Practices of Teaching in a Blended Learning Mode in Ghana

PRINCIPLE INVESTIGATOR / RESEARCHER(S) NAME(S) AND CONTACT NUMBER(S):

BOAHEMAA BRENYA 2019828991 +233 501408347

FACULTY AND DEPARTMENT:
Faculty of Education
Department of Higher Education Studies

STUDYLEADER(S) NAME AND CONTACT NUMBER:
Dr Olugbenga Ige
+27587185467

WHAT IS THE AIM / PURPOSE OF THE STUDY?

This study is aimed to find out teacher educators' perceptions and practices of teaching in a blended learning mode in Ghana. It is purposed to understand how perceptions, beliefs and experiences influence teacher educators' behaviour and ultimately affect teaching practices in blended learning settings.

WHO IS DOING THE RESEARCH?

I am Boahemaa Brenya , a student from the University of the Free State Faculty of Education, pursuing a PhD programme in Higher Education Studies. This study is purely an academic exercise and will be used only for that purpose.

HAS THE STUDY RECEIVED ETHICAL APPROVAL?
This study has received approval from the Faculty of Education, University of the Free State, Bloemfontein South Africa.

Approval number: Protocol Number: UFS-HSD2021/0140

WHY ARE YOU INVITED TO TAKE PART IN THIS RESEARCH PROJECT?

You have been chosen to participate in this study because you belong to the College given training to teachers who are the target audience. Your contact detail was obtained from the office of the Provost here at the College of Education/College of Distance Education, UCC.

WHAT IS THE NATURE OF PARTICIPATION IN THIS STUDY?

The study involves questionnaires and structured interviews (audio taping). You are required to answer the questionnaire and the interview which is going to be recorded. Questions are asked about your perceptions and practices of teaching in a blended learning setting. Please you are required to use not more than 20 minutes and 15 minutes to answer both the questionnaire and interview questions respectively. Please note that there are no foreseeable risks, discomforts, inconveniences, in completing this questionnaire/interview schedule and we will be grateful if you could inform the researcher of any reservation you may have while completing this questionnaire/interview schedule.

CAN THE PARTICIPANT WITHDRAW FROM THE STUDY?

Please note that participation is voluntary and that there is no penalty or loss of benefit for non-participation. Being in this study is voluntary and you are under no obligation to consent to participation. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. You are free to withdraw at any time and without giving a reason. However, it will not be possible to withdraw once you have submitted the questionnaire/interview as it will be used for the purpose of which it was collected.

WHAT ARE THE POTENTIAL BENEFITS OF TAKING PART IN THIS STUDY?

This study is purposed to benefit the teacher educators in their teaching practices in blended learning mode as well as curriculum developers, instructional technologist and stakeholders in the higher education institutions at large to design relevant blended learning courses and technologies to meet users' needs. Please be assured that your participation in the study will be kept confidential, but only the information about you will be given to the study sponsor.

WHAT IS THE ANTICIPATED INCONVENIENCE OF TAKING PART IN THIS STUDY?

Be assured that there is no possible or reasonably foreseeable risks of harm or side-effects to you as the potential participant.

WILL WHAT I SAY BE KEPT CONFIDENTIAL?

Be assured that the confidentiality of your information will be maintained, e.g. your name will not be recorded anywhere and no one will be able to connect you to the answers you give. Your answers will be given a fictitious code number or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings. Transcriber, external coder and members of the ethics research committee will have access to the data and these individuals will maintain confidentiality by signing a confidentiality agreement. Your answers may be reviewed by people responsible for making sure that research is done properly, including the transcriber, external coder, and members of the Research Ethics Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records. Kindly note that your anonymous data may be used for other purposes, e.g. research report, journal articles, conference presentation, etc. A report of the study may be submitted for publication, but be assured that you will not be identifiable in such a report.

HOW WILL THE INFORMATION BE STORED AND ULTIMATELY DESTROYED?

Soft copies of your answers and any other electronic information will be stored on a password protected computer for future research or academic purposes. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable.

WILL I RECEIVE PAYMENT OR ANY INCENTIVES FOR PARTICPATING IN THIS STUDY?

You are kindly informed that you will not be given any payment or incentives for participating in this study.

HOW WILL THE PARTICIPANT BE INFORMED OF THE FINDINGS / RESULTS OF THE STUDY?

If you would like to be informed of the final research findings, please contact Boahemaa Brenya on +233501408347 or bboahemaa@gctu.edu.gh. Should you have concerns about the way in which the research has been conducted, you may contact Dr Olugbenga Ige on +27587185467 or IgeOA@ufs.ac.za.

Thank you for taking time to read this information sheet and for participating in this study.

CONSENT TO PARTICIPATE IN THIS STUDY

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet. I have had sufficient opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable). I am aware that the findings of this study will be anonymously processed into a research report, journal publications and/or conference proceedings.

I agree to the recording of the insert specific data collection method.

I have received a signed copy of the informed consent agreement.

Full Name of Participant: _____

Signature of Participant: _____ Date: _____

Full Name(s) of Researcher(s): BOAHEMAA BRENYA

Signature of Researcher:

Date: 28TH JANUARY, 2021.

Appendix F: Interview guide

INTERVIEW GUIDE ON BLENDED LEARNING

INSTRUCTIONS

1. You are requested to respond to the following set of questions to the best of your knowledge.
2. You are kindly notified that the conversation will be recorded and after the research has been completed they will be destroyed.
3. You will be expected to sign a consent form before the commencement of the interview.

Name:
Gender:
Age:
Qualifications:
Years in education:
Course area:

Kindly provide your general opinion on the perceptions and practices of the blended learning approach employed in your teaching practice.

1. What are your perceptions of blended learning?
   ……
   …
2. Have you been trained to incorporate a blended learning approach in your teaching practice?
   ……
   …
3. What challenges do you face in using blended learning approach in teaching?
   ……
   .

4. What are your current practices in the blended learning mode?

   ……
   …

5. Based on your experiences, how do you feel blended learning impacts students?

   …….

Appendix G: Survey Instrument

UNIVERSITY OF THE FREE STATE, SOUTH AFRICA

School of Social Sciences, Languages, and Higher Education Studies

Questionnaire on Teacher Educators' Perceptions and Practices of Teaching in a Blended Learning Mode in Ghana

Dear All,

This questionnaire aims to solicit your views and experiences on **Teacher Educators' Perceptions and Practices of Teaching in a Blended Learning Mode in Ghana.** This research is solely for academic purposes; in view of that please indicate your candid knowledge and responses to the questions. Please note that there are no foreseeable risks, discomforts or inconveniences in participating in this survey and we will be grateful if you could inform the researchers of any reservation that you may have while participating in the survey.

Confidentiality and anonymity of your responses are assured and will be maintained by means of blind coding procedures and plans to safeguard data, including where data will be kept and who will have access to it, are in place. Thank you.

Please choose either Yes/No if you consent to participate in the study as outlined in the consent letter that accompanies this questionnaire.

YES	
NO	

The questionnaire is divided into seven parts: A-G. This may take approximately 10 minutes to complete.

PART A: DEMOGRAPHIC INFORMATION

Please answer each item by indicating your choice where applicable.

1. Name of the College you are currently teaching	
College of Education Studies	
College of Distance Education	

2. Programme of Teaching	
Foundational Education	
Science and Technology Education	
Educational Development and Outreach	
Humanities and Social Sciences	
Others…	

3. Gender	
Male	
Female	

4. Age Group	
25-35 years	
36-45 years	
46-55 years	
Above 55 years	

5. Highest Educational Qualification	
Doctorate	
Masters	
Bachelors	

6. Experience in Teaching Blended Courses	
0-2 years	
3-5 years	
6-10 years	

In the next sections (Part B-F) you will be required to respond to the experiences on the use of the instructional approach in a blended learning environment using the Technology Acceptance Model proposed by Davis et al. (1989).

Kindly note that the scale below will be used to indicate your response

1- ***Strongly Disagree (SD***)
2- ***Disagree (D)***
3- ***Neutral (N)***
4- ***Agree (A)***
5- ***Strongly Agree (SA)***

PART B – BLENDED LEARNING UTILIZATION

No.	Usefulness and Ease of use	SD	D	N	A	SA
1.	The learning management system is useful for blended learning instructional delivery.					
2.	Blended learning environment allows me to post all course material online, using digital textbooks, and to have students write in Google Docs.					
3.	Blended learning enhances the effectiveness and efficiency of meaningful teaching and learning experiences.					
4.	Blended learning environment allows me to communicate critical due dates/time frames for learning activities.					
5.	I can monitor student's activities in the online classroom.					
6.	Blended learning helps to keep course participants engaged and participating in productive dialogue.					
7.	Blended learning environment helps me to keep the course participants on a task in a way that allows them to learn.					
8.	The environment (Moodle) is useful for me to explore new concepts in the delivery of course.					
9.	Using a blended learning platform increases job performance					
10.	A blended learning management system helps work to be done quickly, efficiently and effectively without any difficulty					
11.	I can provide feedback on the student's assessments in a timely fashion on Moodle.					

PART C: PERCEPTIONS OF BLENDED LEARNING

No.	Personal factors (e.g. belief, attitude, experience, anxiety, behaviour, and self-efficacy)	SD	D	N	A	SA
1.	I believe in the potency, efficacy, and usefulness of a blended learning to achieve teaching and learning objectives					
2.	I feel nervous using the blended learning approach in teaching.					
3.	I fear the blended learning program fails to achieve intended learning goals.					
4.	Selecting the most appropriate design approach for a blended course is a significant challenge.					
5.	I feel comfortable participating in the course discussions among students.					
6.	I believe blended learning strategy brings a greater level of effectiveness into learning and teaching					
7.	Blended learning offers an effective program for employing different pedagogical strategies.					
8.	Previous experiences of blended learning usage prevent me from applying it in teaching					
9.	Online discussions help me to develop a sense of collaboration.					
10.	Technology self-efficacy is built using blended learning mode.					

PART D: DETERMINANTS OF BLENDED LEARNING RESISTANCE

No.	Time commitment, change role, workload capacity, availability of resources, Instructional design and technical support,	SD	D	N	A	SA
1.	Designing a blended learning course module is time-consuming.					
2.	There are insufficient technology resources such as the internet, high cost of bandwidth, low power supply.					
3.	Using a blended learning approach increases workload and creates labour-intensive.					
4.	It changes my teaching roles and adds more responsibilities.					
5.	Insufficient time due to contextual factors such as the structure of timetables and workload					
6.	Lack of proper training on the use of technological tools causes delays in the effective use of blended learning technology					

PART E: BLENDED LEARNING PRACTICES

No.	Instructional mode, style, approach/strategy	SD	D	N	A	SA
1.	I find blended learning mode of preparation time-consuming and supporting technology prone to failure.					
2.	The blended learning approach to teaching is practical.					
3.	Innovations are implemented in my teaching when using blended learning.					
4.	I can see improvement in my teaching skills using blended learning.					
5.	I am comfortable with the blended learning approach use in teaching.					

7.	Reflection on course content and discussions helps me to correct mistakes and improve on my teaching practices.					
8.	Blended learning practice builds my personal creativity skills.					
9.	It gives me the chance to reflect on my instructional delivery.					
10.	The use of blended learning supports a student-centered approach.					
11.	Blended learning platform creates an avenue to interact with students and other colleagues.					

PART F: INSTITUTIONAL BLENDED LEARNING PRACTICES

No.	**Policy, structure, support, motivation and professional development**.	**SD**	**D**	**N**	**A**	**SA**
1.	Institutional measures motivate me to use blended learning technology**.**					
2.	There is a general policy framework in my university that guides the use of blended learning methods**.**					
3.	College's clear direction motivates me to apply a blended learning approach in my teaching activities.					
4.	Institution and the college structures rather demotivate my use of a blended learning system.					
5.	I receive frequent training on the use of a blended learning mode.					
6.	The institution provides technical support for blended learning applications.					
7.	The institution provides the infrastructure needed for blended learning usage.					
8.	The institution provides reliable, affordable, and accessible internet package for blended learning applications.					

PART G: BASIC COMPUTER LITERACY SKILLS

Please answer the questions by indicating; poor, good, adequate or excellent on a scale of 1-4. Please place a cross **(X)** in the applicable column.

How would you rate your own computing skills working with:	***1 Poor***	***2 Good***	***3 Adequate***	***4 Excellent***
1. Basic computer applications				
2. Communication applications				
3. Multimedia applications				
4. Web design software				
5. Web search engines				
6. Send and receive attachments through email messages				
7. Upload, download and save files				
8. Use video conferencing tools on the web				

Kindly give answers to the questions below as it explores your essential qualities of computer basics.

9. After selecting a group of files, what would you do to copy the files to a new drive or directory? 1) Click and shift 2) Double click 3) Click and drag 4) None of the above
10. A software that allows the user to connect to and navigate the Internet is called 1) Log on 2) Web Browser 3) Modem 4) Gateway
11. Fetching out some data (Images, Audios, and Videos etc.) from the internet is known as ____.1) Uploading 2) Downloading 3) Chatting 4) None of above
12. Which key is used when selecting a group of files? 1) ALT 2) CTRL 3) ESC 4) TAB
13. When we connect two or more computers in a small area then it is known as ___? 1) LAN 2) WAN 3) MAN 4) CAN
14. Windows is a ___ system that means it can run more than one program at the same time. 1) Fast 2) Powerful 3) Mega 4) Multitasking
15. Which menu contains the commands that allow you to rename or delete a file? 1) Disk 2) File 3) Options 4) Window

THANK YOU.

Appendix H: Proof of editing

To whom it may concern

This letter serves to confirm that editing and proofreading was done for:

BOAHEMAA BRENYA

PHD in Higher Education Studies

Faculty of Education

University of the Free State

Bloemfontein

TEACHER EDUCATORS' PERCEPTIONS AND PRACTICES OF TEACHING IN A BLENDED LEARNING MODE IN GHANA

Cilla Dowse
19 November 2021

Cilla Dowse
PhD in Assessment and Quality Assurance in Education and Training: University of Pretoria 2014
Basic Editing and Proofreading: McGillivray Linnegar Associates 2008
Programme on Editing Principles and Practices: University of Pretoria 2009
Editing and Proofreading for Academic Purposes: McGillivray Linnegar Associates 2021
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Appendix I: Turn-it-in Receipt

Turnitin Originality Report

Processed on: 13-Mar-2022 19:06 SAST
ID: 1778909633
Word Count: 62221
Submitted: 2

THESIS FINAL By Boahemaa Brenya

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