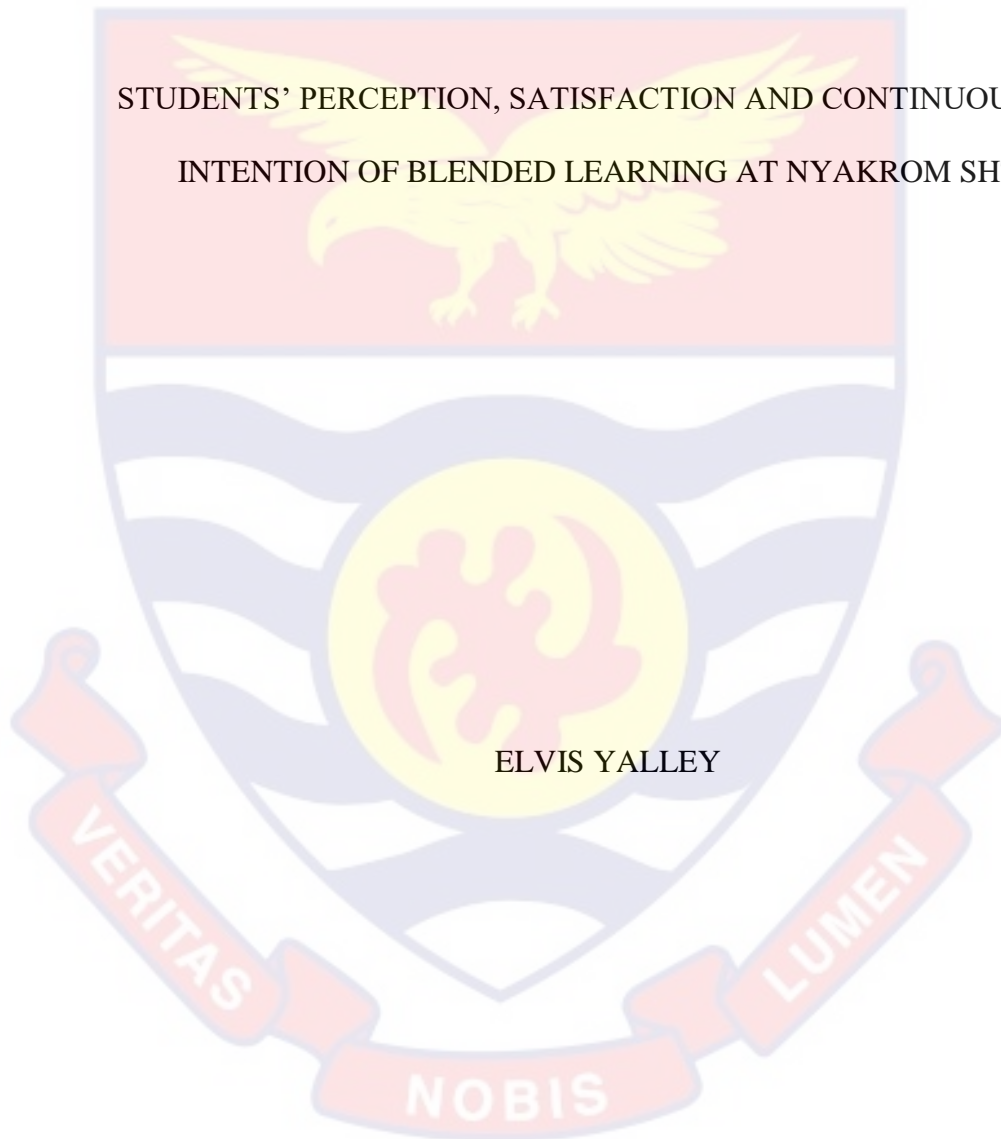UNIVERSITY OF CAPE COAST

STUDENTS' PERCEPTION, SATISFACTION AND CONTINUOUS USE

INTENTION OF BLENDED LEARNING AT NYAKROM SHTS

ELVIS YALLEY

2023

UNIVERSITY OF CAPE COAST

STUDENTS' PERCEPTION, SATISFACTION, AND CONTINUOUS USE

INTENTION OF BLENDED LEARNING AT NYAKROM SHTS

BY

ELVIS YALLEY

Dissertation submitted to the Department of Mathematics and Science

Education of the College of Distance Education, University of Cape Coast, in

partial fulfillment of the requirements for the award of Master of Education

degree in Information Technology

MARCH 2023

DECLARATION

Candidate's Declaration

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

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

Name: Elvis Yalley

Supervisor's Declaration

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

Supervisor's Signature: .... Date: ....

Name: Dr. Emmanuel Arthur-Nyarko

ABSTRACT

The prime purpose of the study was to assess the relationship between students' perception and satisfaction of blended learning with their continuous use intention of blended learning at Nyakrom Senior High Technical School. The descriptive survey research design was used for this study. The study utilised simple random sampling to select 327 sample size out of 2,206 for the study. The instrument used to collect data was questionnaire, and the data collected were analysed using mean, standard deviation, mean of means and multiple regression. The results of the study revealed that respondents have positive perceptions of Blended Learning at Nyakrom SHTS. The findings also showed that students were highly satisfied with blended teaching at Nyakrom SHTS. Again, the result also revealed that the students have a high level of continuance use intention of blended learning. Additionally, the study revealed that students' perception and satisfaction predicted their continuance use intention of blended learning for ICT instruction at Nyakrom SHTS. The study, therefore, recommended that the Ministry of Education, through Ghana Education Service, should train students on the use of blended learning. It was recommended that students' perception and satisfaction should be considered when adopting blended learning for use in Senior High schools in Ghana.

ACKNOWLEDGEMENTS

My heartfelt thanks go to my supervisor, Dr. Emmanuel Arthur-Nyarko, whose supervision, direction, and guidance enabled me to complete this work. Thank you to the administration of Nyakrom Senior High Technical School for allowing me to administer my questionnaires to their students. I would also like to thank all of the lecturers from the Department of Information Technology at the College of Distance Education for their assistance. Finally, I would like to thank Grace Araba Biney, my tireless course rep, course mates Aguti Reuben Medodzi, Richard Adade, Augustine Weyage, Richard Osei Ampofo, David Kweku Akoto, Emmanuel Ako Tsakley and everyone else who helped me make this dissertation a success.
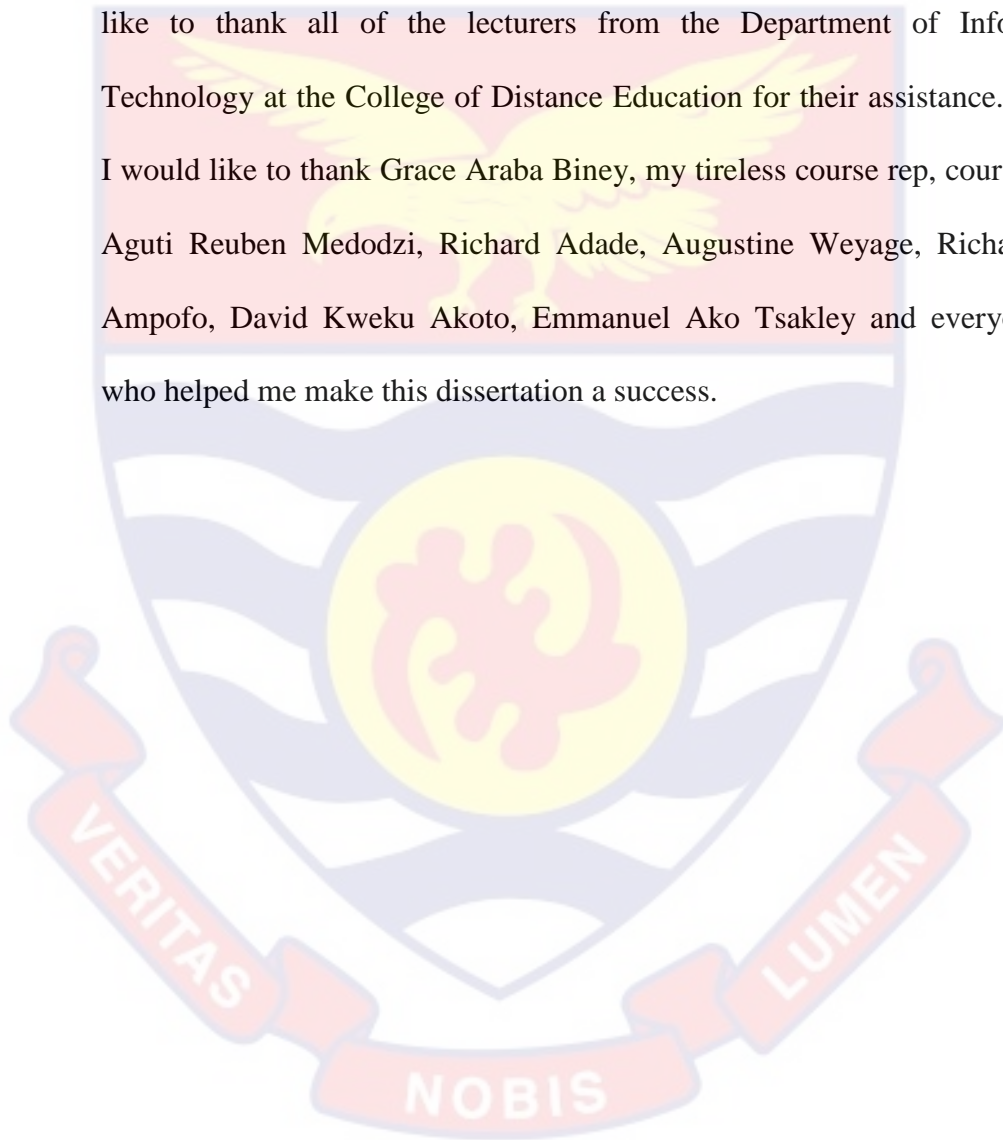
DEDICATION

This research is dedicated to my mother, Faustina Abena Amponsah Andorful,

auntie Linda Obeng Quansah, uncles Alexander Andorful and Justice Arthur,

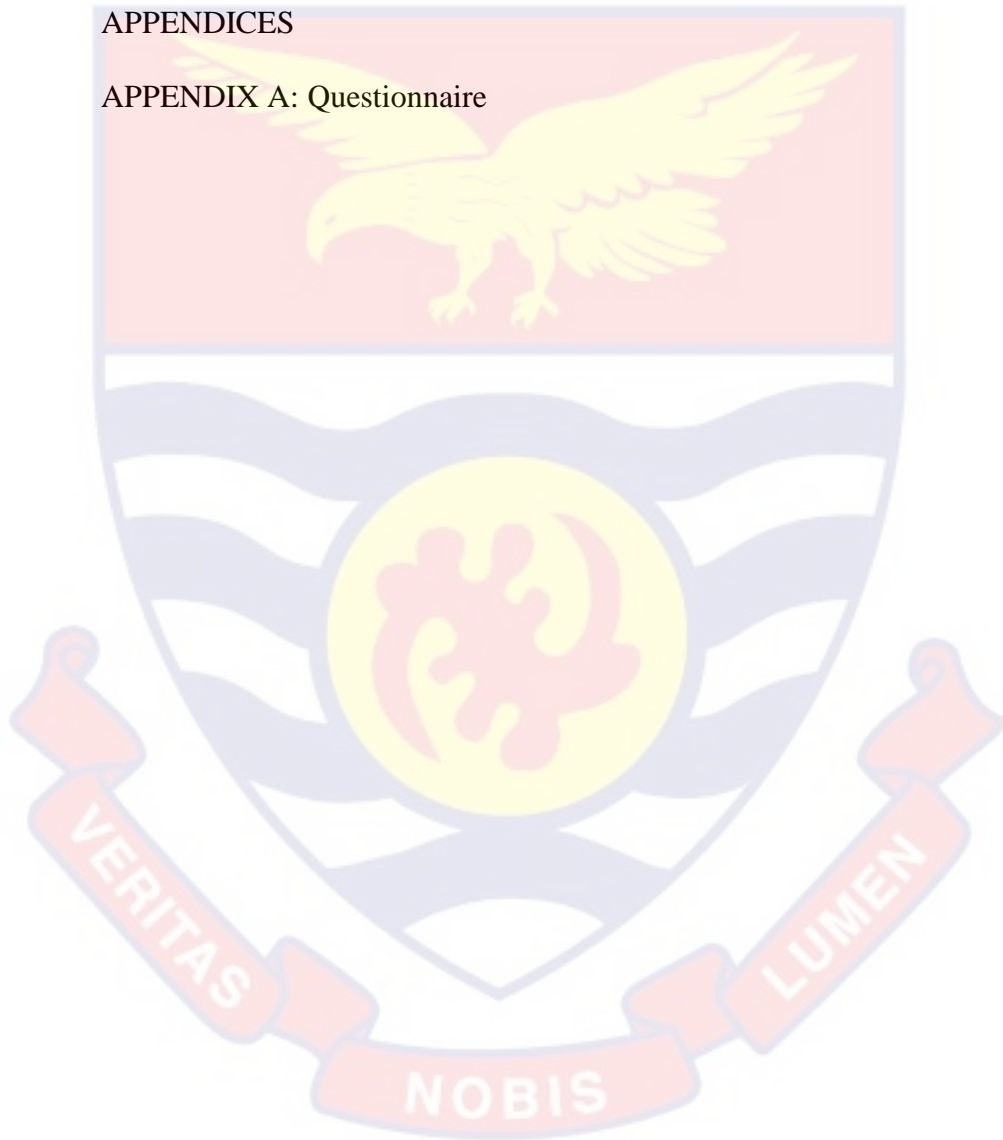and sisters Felicity and Irene Ama Yalley.

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CHAPTER ONE

INTRODUCTION

Background to the Study

The twenty-first century is often labelled as the era of technology (Raja & Nagasubramani, 2018). The rapid advancement in technology has contributed to a great change in society in terms of its demands and expectations (Buabeng-Andoh & Yidana, 2014). The growing importance of knowledge and information in maximizing productivity made it necessary to invest in high-quality education in learning institutions (Hamidi, Meshkat, Rezaee & Jafari, 2011). In a world where teaching and learning are hugely impacted by technology, many educational institutions are incorporating technology as a key tool to commend, enhance and change education for the benefit of students in the twenty-first century (Raja & Nagasubramani, 2018).

Technology has three main roles in education: becoming an integral part of the curriculum, as a medium to deliver instructions, and as a medium to improve the entire learning process (Raja & Nagasubramani, 2018). Technology improves collaborative learning among students and interaction between lecturers and students (Amir, Ismail & Hussin, 2011). With technology, the transfer of knowledge becomes easier and more appropriate. Under this, learning becomes more active as learners become more engaged with ICT tools (Raja & Nagasubramani, 2018). Technology also makes learning integrative by enabling students to experience what they learn in theory (Raja & Nagasubramani, 2018). Students also learn to take their time and evaluate what they learn to gain a better understanding rather than

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memorize definitions without any understanding of what the definitions mean (Raja & Nagasubramani, 2018).

Graham, Allen and Ure (2005) established that there are three main reasons why blended learning is an overwhelmingly beneficial education model. Firstly, it improves teaching methods (Graham, 2006). Blended learning causes a shift from a transmissive teaching approach to a more interactive one where the teacher does not just give information to students but invites students to be a part of the teaching process by incorporating online peer-to-peer activities (Graham, 2006). Secondly, blended learning increases accessibility and flexibility in education. This allows students to participate in learning from different geographical locations at any time of their choosing (Graham, 2006). Students are also able to access any kind of information and use it to learn new skills (Raja & Nagasubramani, 2018). Thirdly, it increases cost-effectiveness which provides a chance to reach a global audience without spending a lot of time and money (Graham, 2006).

A study conducted by Previtali and Scarozza at a higher institution in Europe revealed that blended learning allowed for a more active and interactive learning experience (Previtali & Scarozza, 2019). This, however, hinges on the fact that there is a dedicated faculty and an optimum environment that allows for access to the necessary tools and the liberty to access online material without difficulty (Previtali & Scarozza, 2019).

In the United States of America, blended learning is at the core of the K-12 system (Shaidullin, Safiullin, Gafurov & Safiullin, 2014). The K-12 system implements different styles of blended learning ranging from the face-to-face drivers' model to the online drivers' model (Shaidullin et al., 2014).

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This classification is based on increasing involvement of online activities. With the face-to-face drivers' model, the majority of learning is done in-person and electronic training using computers is organized during the in-person lesson (Shaidullin et al., 2014). With the online drivers' model, most of the learning are carried out through electronic means and in-person lectures are highly periodic with activities such as interviews, consultations, and compulsory examinations (Shaidullin et al., 2014). In between these two extremes are four models in order of increasing involvement of online activity. They are the rotation model where school hours are divided between individual electronic learning and in-person training together with the teacher; the flex model where most of the training is electronic and the teacher guides each pupil remotely; the online lab model where there is a condition that online learning is conducted in school, specifically in classrooms equipped with the necessary ICT tools; and the self-blend model where students independently choose online classes in addition to main education lectures (Shaidullin et al., 2014).

Developing countries are modelling their blended learning curricula using blended learning models implemented in Europe and North America (Larson & Murray, 2008). However, these countries are facing the typical barriers of blended learning which are highlighted by Raja and Nagasubramani. These barriers include lack of time to use the technologies, lack of access to the technologies, lack of expertise in the use of the various technologies, lack of reliability on the technologies due to hardware failures, slow internet connectivity, out-of-date software, etc. (Raja & Nagasubramani, 2018). These are problems faced by many education facilities in Ghana (Sarfo

& Ansong-Gyimah, 2010). Indeed, a study conducted by Afful-Broni and Duodu to assess the effective utilization of education facilities at Nyakrom Senior High Technical School revealed that specialized classrooms designed and equipped to facilitate blended learning were inefficiently used even though it is the policy of the school that all science and technology-related lessons be held in these special classrooms (Afful-Broni & Duodu, 2013).

Statement of the Problem

It has been established that blended learning presents many opportunities in education as it enhances teaching and learning. It improves teaching methodologies, enhances accessibility and flexibility of education material, and reduces the cost of providing learning materials to students. It also makes learning active, enabling social interaction between students from different parts of the world by facilitating peer-to-peer learning and group work.

Though blended learning has widely recognized benefits, a study conducted by Szadziewska and Kujawski points out that it has its drawbacks (Szadziewska & Kujawski, 2017). In some instances, there is an imbalance in the blending of a traditional face-to-face method and the use of multi-media systems (Szadziewska & Kujawski, 2017). Whichever way the balance topples can have its effects. If there is more use of multimedia systems, physical teacher activity is reduced, and this can affect the ability of students to better understand concepts that may require physical interactions and illustrations. If there is more face-to-face interaction, there is a risk of having a more transmissible education system where the active learning component is drastically diminished (Szadziewska & Kujawski, 2017). Also, there can be

technical problems with downloading content and logging in to platforms where there is reduced connectivity (Szadziewska & Kujawski, 2017). In instances where the online platforms being used in blended learning are not easy to manoeuvre, it can pose a problem for novice users and this can affect online participation, grading, etc. (Szadziewska & Kujawski, 2017)

Even though blended learning is being implemented in developing countries there are major challenges that it still needs to overcome (Larson & Murray, 2008). Such challenges include a lack of motivation on the part of instructors to participate in blended learning (Larson & Murray, 2008). Also, both students and lecturers experience technical difficulties such as poor connectivity, frequent power outages, and a lack of technical ability to use Information and Communication Technologies (Aboagye, 2020). This, in turn, affects student reception and acceptance. A survey conducted by Atkins, Yan, Meragia, Mahomed, Rosales-Klintz, Skinner and Zwarenstein on student experiences from participating in five collaborative blended learning courses in Africa and Asia revealed that students and lecturers were less receptive to blended learning courses where they experienced technical difficulties trying to access online content (Atkins, Yan, Meragia, Mahomed, Rosales-Klintz, Skinner & Zwarenstein, 2016).

There are four main challenges faced by developing countries in their attempt to implement e-learning in their education systems (Andersson & Grönlund, 2009). These challenges are challenges with the course in terms of its content, designs and delivery, challenges related to the characteristics of the students or the teacher, technological challenges, and contextual challenges in terms of organization, culture, and society (Andersson & Grönlund, 2009).

These challenges are present in all levels of education in Ghana. A study conducted by Owusu, Narh, Boateng and Afful-Dadzie sought to assess the challenges and limitations of delivering e-learning in Ghana (Owusu, Narh, Boateng & Afful-Dadzie, 2019). In the study, challenges were categorized into three groups: individual challenges, technological challenges, and organizational challenges. From the study, it was observed that in using e-learning models and video platforms in studying, students experienced major difficulties (Owusu et al., 2019). With respect to institutional challenges, the students were poorly oriented into the e-learning program. With respect to individual challenges, the students had poor computer skills, inadequate knowledge of internet handles and a lack of time management skills. In terms of technological challenges, there was poor internet speed and a lack of advanced technology to support e-learning (Owusu et al., 2019).

These existing challenges were worsened by the COVID-19 pandemic which led to a reduction in the availability of education services, a reduction and diversion of human and financial resources, unpreparedness of students, teachers and parents for distance and home-schooling, loss of quality in learning and teaching, etc. (Agormedah, Adu Henaku, Ayite & Apori Ansah, 2020). Prior to the pandemic, the government of Ghana was lagging in providing basic ICT tools for blended learning in the country. Because of the pandemic's effect on the education system, the government is taking measures to ensure the continuity of education, However, because of the lag that existed prior to the pandemic, the stakeholders in the education system are now playing catch-up and concerns have been raised on the awareness and

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readiness of students and teachers towards online learning platforms (Agormedah et al., 2020).

Teachers at Nyakrom Senior High Technical School have to complete a comprehensive review of the previous semester's lessons before academic work can start for each semester as a result of the students' complaints about decreased academic activity during their vacations, which can occasionally last for more than twelve weeks. This cycle of teaching and reteaching the topics has explained why the students' performance has been subpar since the teachers have not been able to complete the requisite syllabus before the students take their final exams. In order to improve the existing state of affairs at the school, it is necessary to look into how students perceive blended learning, how satisfied they are with it, and how they want to use it going forward.

Purpose of the Study

The main purpose of the study was to assess the relationship between students' perception and satisfaction of blended learning with their continuous use intention of blended learning at Nyakrom SHTS.

Specifically, the study seeks to;

1. Assess students' perceptions about blended learning in learning Information and Communications Technology (ICT) at Nyakrom SHTS.

2. Assess students' satisfaction with blended learning in learning Information and Communications Technology at Nyakrom SHTS.

3. Assess the continuous use intention of students to utilize blended instruction at Nyakrom SHTS.

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4. Assess the relationship between students' perception and their continuous use intention of blended learning at Nyakrom SHTS.

5. Assess the relationship between the satisfaction of students and their continuous use intention of blended learning at Nyakrom SHTS.

Research Questions

Based on the purpose of this study, three research questions were addressed in the study as follows:

1. What are students' perceptions of blended learning in teaching Information and Communications Technology (ICT) at Nyakrom SHTS?

2. To what extent are students satisfied with blended ICT instructions at Nyakrom SHTS?

3. How high is the continuous use intention of blended learning in teaching Information and Communications Technology (ICT) among students at Nyakrom SHTS?

Research Hypotheses

It was hypothesized that;

1. H_{O1}: There is no statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS

2. H_{O2}: There is no statistically significant relationship between students' satisfaction with blended learning and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS.

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Significance of the Study

This study was geared towards providing information on students' perception, satisfaction, and continuous use intention of blended learning. In that light, it would contribute to research in this particular area thus blended learning. It would also serve as a guide to the practice of teaching and learning using the blended learning approach at the Senior High School level. It will further serve teachers with empirically grounded sense of what they can do when using the blended learning approach. On the same tangent of guidance, the study would also serve as a guide to policy makers and curriculum planners to provide the needed instructional resources and professional training for teachers to enable teachers to satisfactorily carry out the blended learning approach.

Delimitation of the Study

The researcher is well informed about some other elements when it comes to the blended learning approach but primarily, the research will look at the blended learning approach within the boundaries of students' perception, satisfaction, and continuous use intention.

Definition of Terms

For the purpose of this study, the following terms are defined.

Blended learning. A teaching and learning approach that combines face-to-face instruction with online learning.

Continuous use intention. The likelihood that a student will continue to use blended learning after the initial adoption period.

Face-to-face instruction. Traditional classroom-based teaching and learning, where students and instructors interact in person.

ICT. An abbreviation for Information and Communications Technology. ICT is the study of how computers and other electronic devices are used to process and manage information.

Online learning. A type of learning that occurs over the Internet, where students and instructors interact through digital platforms and tools such as chatrooms and videoconferencing.

Student perception. The way in which students view and interpret their experiences with blended learning, including their attitudes, beliefs, and opinions.

Student satisfaction. The degree to which students are content with their experiences with blended learning, including the quality of instruction, the level of engagement, and the overall learning outcomes.

Organisation of the Study

Five chapters were included in this research project. The study's background, statement of problem, purpose and objectives have been well covered in Chapter One's opening paragraphs. Chapter Two focused on the relevant literature that was expound on the study's objectives with conceptual reviews bordering students' perception of blended learning, students' satisfaction with the usage of blended learning and students' continuous use intention of blended learning. More so, the theoretical base for the study was clearly delineated and finally, an empirical review was conducted to put the study in focus.

Additionally, Chapter Three looked at the various ways and means the researcher went about collecting data and analysing them. Key mention was the design to be used, the population, sampling procedure, data collection

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instruments, the processing and subsequent analysis of data. Chapter Four was dedicated to the presentation of the results and the discussions thereof. The final chapter of the work focused on summarising, concluding, and making recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

This chapter focused on various concepts underlying the research questions posed by the researcher. The first was the conceptual review which explained concepts related to blended learning. This was followed by a theoretical review of the theories such as connectivism and the Complex Adaptive Blended Learning Systems (CABLS) framework which the research was based on and the conceptual framework which provided the relationship among the variables in the study. After this, an empirical review of previous studies conducted in relation to this research with the aim of focusing on the research questions posed by the researcher in this study.

Conceptual Review

Blended learning, sometimes called mixed-mode or hybrid learning, can be defined as the incorporation of online or e-learning into an education system that implements a traditional classroom environment (Cleveland-Innes & Wilton, 2018). In a more structured definition, blended learning is defined as an education system that provides instructions and learning outcomes by combining in-person tutoring and e-learning (Cleveland-Innes & Wilton, 2018). Students and lecturers can interact electronically while in different locations during the electronically mediated aspect of blended learning (Cleveland-Innes & Wilton, 2018). Therefore, in-person interactions can be blended with online learning modules and include different levels of interaction between the tutor and the learner (Cleveland-Innes & Wilton, 2018)

These definitions of blended learning create an avenue to explore the characteristics of blended learning. Lalima and Dangwal (2017) defined blended learning to be characterised by face-to-face teaching, student interaction with course content, peer group communication, group assignments, electronic libraries and laboratories which helps facilitate online learning through audio-visual means and educational blogs and webinars which are ICT supported formats (Lalima & Dangwal, 2017). According to Lalima and Dangwal (2017), in a blended learning model, students have the option of two modes of learning, which are in-person tutoring or e-learning (Lalima & Dangwal, 2017). Teachers are also well adapted to implementing learning objectives using these two learning modes making the role of the teacher a more diverse one (Lalima & Dangwal, 2017).

The nature of the flexibility with which this educational system can alternate between online learning experiences and in-person interactions allows for there to be various models for which learning material is given and education is done in blended learning. According to Cleveland-Innes and Wilton (2018), three main representations or models of blended learning exist (Cleveland-Innes & Wilton, 2018). The first representation is called blended presentation and interaction. It is characterized as having classroom engagement as the primary component (Cleveland-Innes & Wilton, 2018). Out-of-class and online exercises act as a support to the in-person component (Cleveland-Innes & Wilton, 2018). A typical example of this model is a flipped curriculum approach where students view online resources independently, followed by classroom tutorials that are administered as a form of in-person group learning based on the resources provided (Cleveland-Innes

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& Wilton, 2018). The second representation is the blended block model, which is also called a program flow model (Cleveland-Innes & Wilton, 2018). In this model, activities are tailored for both tutoring and learning and are composed to include both in-person learning and electronic learning (Cleveland-Innes & Wilton, 2018). Here both teaching and learning is done in a mixed method and delivery of learning materials can alternate between in-person and online means. The third representation of blended learning is one that is fully web-based. It is however regarded as blended when it includes concurrent learning methods such as webinars and interaction-directed online discussions, and non-concurrent learning methods such as research projects, student presentations, and group assignments (Cleveland-Innes & Wilton, 2018).

Blended learning generally refines student satisfaction and learning outcome. It improves the learning skills of students. It also provides students with a better acquisition of information, and the chance to interact with other students (Cleveland-Innes & Wilton, 2018). It also facilitates a wholistic development of the student as the students are exposed to a plethora of information which helps shape their personality mentally, emotionally and physically (Lalima & Dangwal, 2017). As a learning model based on constructivism, blended learning allows students to design their own knowledge in a guided environment (Lalima & Dangwal, 2017). A plethora of information also allows for the facilitation of a multicultural and multidimensional path to teaching and learning (Lalima & Dangwal, 2017). From literature, added advantages of blended learning include the opportunity to collaborate with other students from any part of the world, an increased flexibility which allows for learning at any place and at any time, an enhanced

learning experience that involves the use of tasks that boosts commitment and aids learners to attain advanced levels of education (Cleveland-Innes & Wilton, 2018). It also provides students with the opportunity to learn to become virtual citizens, enabling the learner to project himself or herself socially and academically in an online society (Cleveland-Innes & Wilton, 2018). This also enhances the acquisition of necessary skills for the use of a wide array of technologies (Cleveland-Innes & Wilton, 2018).

Despite the many benefits that hybrid learning there are some challenges that may constrain attempts to successfully incorporate and implement it. A limited access to sustainable infrastructure and suitable technology are typical challenges that pose a problem to the proper implementation of a blended learning model (Namyssova, Tussupbekova, Helmer, Malone, Afzal & Jonbekova, 2019). These infrastructures include, but are not limited to a sustainable internet connection, an adequate number of ICT tools such as computers, mobile phones, digital calculators, etc., and necessary applications that aid learning (Sharma, 2010). Challenges of blended learning are not limited to technological ones. There are also challenges that are connected to human involvement. Mirriahi, Alonzo, and Fox highlight that a typical challenge of blended learning is the deficit in the ability of staff involved to engage with blended learning technologies (Mirriahi, Alonzo & Fox, 2015). According to Mirriahi et al. (2015), this leads to an increased chance that the staff involved misinterpret and miscommunication hybrid learning practices and principles (Mirriahi et al., 2015). Other challenges are a lack of clear-cut objectives of hybrid learning in

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an education model, lack of participant computer literacy and hesitance of faculty to embrace hybrid learning (Smith & Hill, 2019).

It therefore becomes imperative that before a blended learning model is implemented in an education system, certain measures be put in place to mitigate the effect of any challenges that may occur. According to Lalima and Dangwal (2017), there are certain prerequisites of blended learning that need to be met (Lalima & Dangwal, 2017). First of all, there should be teachers who are well trained (Lalima & Dangwal, 2017). These teachers should be ones trained and equipped with the ability to create digital content and make it available to learners online (Lalima & Dangwal, 2017). The teachers should develop a scientific viewpoint, be willing to embrace change and, exhibit good skills of observation and optimism as it will enable them better deal with failures that may ensue (Lalima & Dangwal, 2017). Also, there should be adequate facilities including, but not restricted to a fully furnished and equipped ICT laboratory and a stable internet connection to facilitate a campus that is receptive to e-learning (Lalima & Dangwal, 2017). Students should also be able to have unrestricted exposure to the internet and ICT tools (Lalima & Dangwal, 2017). In preparation of the schedules for teaching and learning, there should be flexibility in the time table and modes of assessment (Lalima & Dangwal, 2017). Parents should also be aware and in complete agreement with the innovative means of teaching that will be used in the education system (Lalima & Dangwal, 2017). This will enable the parent of the students to assist their wards financially when necessary so their wards can fully participate (Lalima & Dangwal, 2017). Lalima and Dangwal (2017) highlight also, that evaluation should be formative and that there should be a continuous

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internal assessment implemented in the blended learning model (Lalima & Dangwal, 2017). These forms of assessment should be made accessible online to promote flexibility of the blended learning system (Lalima & Dangwal, 2017).

The conceptual review on blended learning delves into various models, emphasizing the importance of understanding student engagement with both in-person and online components in assessing perception and satisfaction. Positive outcomes, including enhanced satisfaction and learning, are intricately linked to the study's satisfaction component. Blended learning is portrayed as a contributor to holistic student development, aligning with the goal of evaluating continuous use intention, where satisfaction and perception play crucial roles. The constructivist approach underscores students' active role in knowledge formation, pivotal for understanding continuous use intention. Implementation challenges, like limited infrastructure access, pose potential obstacles to perception and satisfaction, impacting continuous use intention. Prerequisites such as well-trained teachers and flexible schedules contribute to overall satisfaction, influencing continuous use intention. The emphasis on assessment flexibility is vital for how students practically perceive and engage with blended learning, affecting their satisfaction and continuous use intention. Challenges related to faculty engagement and hesitance are crucial considerations, given their direct impact on the learning experience, perception, and satisfaction of students.

Theoretical Framework

There are several theories underlying the application of hybrid learning systems in education. For this research, two key theories will be focused on.

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These theories are the theory of connectivism and the Complex Adaptive Blended Learning Systems (CABLS) framework.

Connectivism

According to Siemens (2006), connectivism is an abstract model that sees education as an experience of interfacing which is affected by technology and socialization (Siemens, 2006). Per this view, earlier theories of learning including behaviourism, cognitivism and constructivism were made in a period when learning was happening in a different framework which was void of advanced technology and required a traditional face-to-face learning experience (Marhan, 2014). There is therefore the need to replace these learning models that were important for previous generations with ones of greater importance to the needs of the present educational system (Marhan, 2014). Connectivism therefore aims to provide a path for incorporating technology into education systems. It provides an awareness of the various facets of networks and environments that support a continual learning process. Learning is thus viewed as a networked process in which a learner obtains multiple external resources and incorporates them into comprehensive representation (Marhan, 2014). Per this theory, there is an understanding that decision making is because information is rapidly changing. Therefore, what is viewed as correct today can be wrong tomorrow or even in the next thirty minutes. It becomes important to obtain information as it continually changes, separate unimportant information from important information and detect changes in the education system to make knowledgeable choices (Marhan, 2014). Technology thus becomes very important in tracking changes in the

information climate as it provides ready access to mainstream databases and authorities presiding over various ideologies in the world.

Connectivism also presents an interesting idea that learning is a disordered, chaotic process and must be designed and developed to aid the student in his or her learning experience (Marhan, 2014). Unlike traditional learning modules that seek to provide a rigid linear sequential form of arrangement of knowledge and content to students, proponents of connectivism believe that learners should be given a plethora of equipment to use in finding their learning footpath (Marhan, 2014). This involves the use of weblogs, podcasts, wiki spaces, and other open cooperative platforms on the internet. Per connectivism, this approach fosters an ideal ecology to allow for learning to occur (Marhan, 2014).

Complex Adaptive Blended Learning System (CABLS)

The Complex Adaptive Blended Learning System (CABLS) structure dissects the design and application of hybrid learning (Cleveland-Innes & Wilton, 2018). According to Wang, Han and Yang (2015), this structure is tailored to provide a precise in-depth analysis and apprehension of the flexible identity of hybrid learning (Wang et al., 2015). There are six constituents of this structure. These constituents are learners, teachers, technology, content, learning support, and institutions. The learner's role is an adaptive one. It changes as the learner engages dynamically with other constituents of the framework. The learner's role gradually moves from a passive one to a more active learning role with increasing interactions with other elements (Cleveland-Innes & Wilton, 2018). The learner is at the centre of the system and every constituent has its own structure and duties and interacts in a

parallel fashion, with other constituents (Cleveland-Innes & Wilton, 2018). The role of teachers in a hybrid learning environment evolves together with that of the student. This is because the teacher and the student interact with and adjust to each other and together, they interact and adjust to the other four constituents of the framework (Cleveland-Innes & Wilton, 2018). The teacher stops being the only source of information and acquires a new label: facilitator, mentor, adviser, or moderator; guiding the learner as he or she carves a learning path using the other elements. The content refers to the material element used to engage the learner in the pursuit of mastery of a concept and is of great influence on the delivery of learning (Cleveland-Innes & Wilton, 2018). Technology generally is any equipment that extends human capacity to achieve a certain goal (Cleveland-Innes & Wilton, 2018). Applying technology in education creates a new role for the student and the tutor and new means of obtaining and manipulating information (Cleveland-Innes & Wilton, 2018). The learner support component exists in CABLS framework to assist the learner in mastering the content and becoming competent as this is a vital part of the learning process (Cleveland-Innes & Wilton, 2018). It implements the abilities of teachers, and the use of technology and content or information. Institutions are present in this framework to provide and ensure the availability of the necessary resources needed in a blended learning environment (Cleveland-Innes & Wilton, 2018). The adaptive system of hybrid learning therefore occurs because of the relationship it has with other constituents and the impact each constituent has with and on other constituents (Cleveland-Innes & Wilton, 2018).

The theoretical frameworks of connectivism and the Complex Adaptive Blended Learning System (CABLS) provide comprehensive lenses for understanding the dynamics of blended learning in the study. Connectivism underscores the significance of technology and socialization in learning, aligning with the study's focus on assessing students' perception and satisfaction in a blended learning environment. The theory's emphasis on the dynamic, networked nature of learning and adaptation to evolving information aligns with the exploration of students' continuous use intention. The Complex Adaptive Blended Learning System (CABLS), on the other hand, offers a structured analysis of hybrid learning, highlighting key constituents such as learners, teachers, technology, content, learning support, and institutions. The adaptive roles of learners, the evolving roles of teachers, and the influence of content and technology resonate with the study's investigation into factors shaping students' satisfaction and perception. The learner support component and institutional roles in Complex Adaptive Blended Learning System (CABLS) also parallel the study's consideration of support mechanisms and institutional factors influencing students' experiences in blended learning. Together, these theories provide a robust framework for comprehensively understanding and analyzing the variables under investigation in the study.

Conceptual Framework

A conceptual framework may comprise one or more formal theories entirely or in part, together with other ideas and empirical evidence from the literature. It is used to highlight the links between these ideas and how they relate to the subject of the investigation (Lemieux, n.d.). A conceptual framework, according to Imenda (2014), is a compilation of interconnected

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elements and variables that aid in resolving a practical issue. So, it serves as the ultimate lens through which the logical solution to a problem is viewed (Imenda, 2014). The conceptual framework for the study depicts the relationship between students' perception and satisfaction of blended learning with their continuous use intention of blended learning in ICT instruction. The framework shows the predictive relationships among the two independent variables thus students' perception and satisfaction of blended learning on the dependent variable thus their continuous use intention of blended ICT instruction. Also, the framework proposes that students' perception predicts their continuous use intention. Additionally, students' satisfaction level with blended learning also predicts their level of continuous use intention of blended learning in teaching of ICT. The predictive relationship among the above variables is shown in the figure 1.
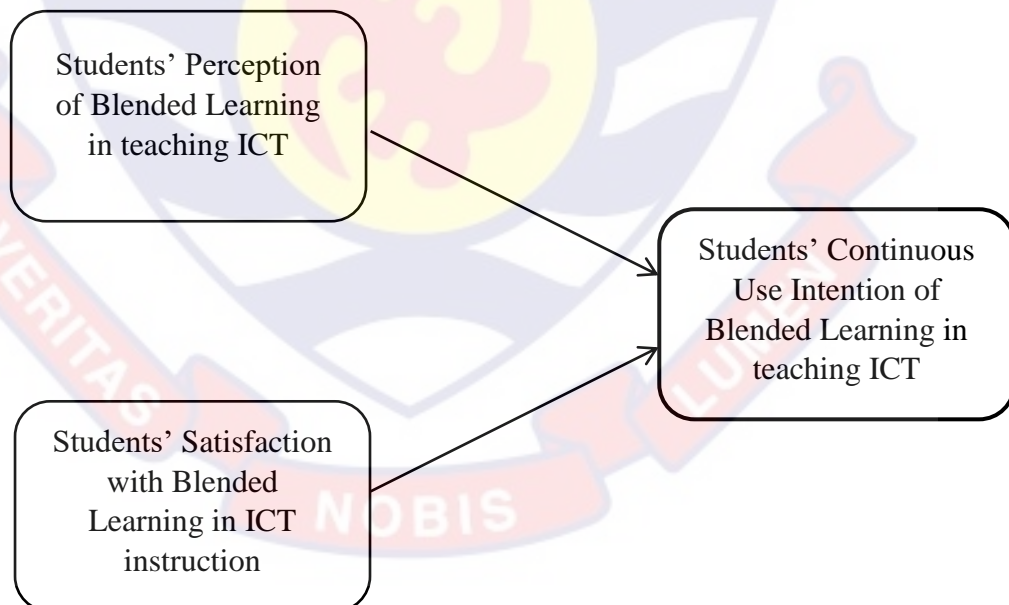

Figure 1: Conceptual Framework

Empirical Review

Akkoyunlu and Soylu (2008) conducted a study on students' perception in a blended learning environment. The study assessed student

perception of different education models and revealed that students like blended learning, especially its in-person component (Akkoyunlu & Soylu, 2008). The study subjects were 34 undergraduate students studying Authoring Languages in PC Environment and Instructional Design at Hacettepe University, Ankara Turkey (Akkoyunlu & Soylu, 2008). The study implemented the use of a fifty-item questionnaire to measure student perception on blended learning environment (Akkoyunlu & Soylu, 2008). Statements in the questionnaire were put into two categories. The first category, which comprised 35 questions, assessed the views of students on the process of implementation of blended learning. It assessed evaluations concerning the content given in a blended environment and the ease of use in blended education models in the following environments: web environment, online environment, in-person sessions (Akkoyunlu & Soylu, 2008). The remaining 15 questions were constructed to assist the researchers in determining the opinions of students on hybrid learning models in general (Akkoyunlu & Soylu, 2008). The students assessed each item on a scale of 1-10 with 1-5 being low, 5.01-7 being moderate and 7.01-10 being the highest (Akkoyunlu & Soylu, 2008). A reflective report was given by the students to give subjective feedback on their experience with blended learning (Akkoyunlu & Soylu, 2008).

The experiment showed that generally, students highly appreciated and positively rated the provision of the blended learning environment with the general mean score determined as 8.44 out of 10 (Akkoyunlu & Soylu, 2008). This was cemented by the analysis provided on the students' reflective report which indicated that blended learning improved the entire education

experience. (Akkoyunlu & Soylu, 2008). The overall highest mean score of 8.99 corresponds to face-to-face aspect of the blended learning environment (Akkoyunlu & Soylu, 2008). From this, it was concluded by the researchers that in-person communication was necessary for the students (Akkoyunlu & Soylu, 2008).

Another study conducted by Wright (2017) sought to assess student perception of electronic and in-person lessons in English-as-a-Foreign-Language (EFL) blended learning modules among Malaysian undergraduate EFL students (Wright, 2017). The study involved the use of a questionnaire quantitatively and qualitatively designed to assess student perception on blended learning. The quantitative approach employed a method where students were asked to choose one answer from two possible options in questions asked and the qualitative aspect involved open-ended questions (Wright, 2017). The questionnaires were delivered to better understand the students' choice of learning model and the reasoning behind (Wright, 2017). The results revealed that out of 112 respondents, (37.5%) preferred online lessons as compared to the majority of students (58%), who preferred in-person tutoring (Wright, 2017). The remaining 4.5% of the participants stated that they preferred both types of lessons (Wright, 2017). The open-ended questions revealed that most students preferred face-to-face lessons because of several reasons including better understanding, interactions with other students and lecturers, better focus as they help in obtaining clarification of grammar explanations with lecturers and other students (Wright, 2017). Students who preferred online lessons stated that online lessons provide comfort, are convenient with respect to time and location and are more fun (Wright, 2017).

When the students were asked if they were more motivated by face-to-face lessons, 51% responded that they were highly motivated by face-to-face lesson, 33.3% reported that they found online lessons more motivating and 15.7% reported that they found both motivating (Wright, 2017). When asked which of the two learning styles they found more fascinating, 50.4% students reported that they found in-person tutoring to be more fascinating and 32.8% of the students thought online lessons were more fascinating with 16.8% of all the students reporting that they found both kinds of lessons interesting (Wright, 2017). Wright (2017) in discussing the results, stated that student motivation and interest may have been influenced by the fact that online lessons had just been introduced and by the fact that there was poor internet connection (Wright, 2017).

Nasution, Surbakti, Zakaria, Wahyuningsih and Daulay (2021) conducted research to assess student perception of learning in the height of the COVID 19 pandemic. The study focused on three different learning models: in-person learning, hybrid learning, and electronic learning (Nasution et al., 2021). By using a quantitative approach, the researchers sought to determine student preferences regarding the three different learning models being assessed. When asked their presence between in-person learning and hybrid learning, 75% of the students chose that they preferred in-person learning rather than blended learning, which was chosen by 25% of the students (Nasution et al., 2021). When asked to choose between in-person and online learning, 95% of the students chose in-person learning and the remaining 5% opted for electronic learning (Nasution et al., 2021). When asked to choose between blended learning and electronic learning, 96% of the students chose

blended learning and the remaining 4% chose electronic learning (Nasution et al., 2021). The findings of this research corroborate with research carried out by Yam and Rossini (2011) which highlighted that education done in a hybrid learning environment is more productive than education that is purely electronic based. This is because blended learning gives the advantage of in-person interactions and online activity simultaneously which enhances the overall learning experience (Yam & Rossini, 2010).

Vaksalla, Mohd Saat, Ishak, Hanawi, Mohd Amin, Kamsan, Zulkifli and John (2019) also conducted a study to assess the perceptions and attitudes of students to hybrid learning in the nutrition and biomedical science departments for Year 1 and Year 2 in a university in Kuala Lumpur, Malaysia (Vaksalla et al., 2019). The method used to obtain the sample for the study was a stratified sampling method (Vaksalla et al., 2019). Out of a total number of 126 participants, 64 were in Year 1 and 62 were in Year 2. In the study, a questionnaire consisting of thirty-six items categorized into three main groups. These groups represented the perception and attitudes students had towards blended learning modules, the negative impressions of hybrid learning and the concepts of hybrid learning (Vaksalla et al., 2019).

Pertaining to the first group of questions in the questionnaire, it was observed that students deemed online learning systems in the university as important (Vaksalla et al., 2019). This is because, according to them, it enabled them to access lecture notes easily and submit assignments without issues. They however highlighted that they found instructions given by instructors through online learning systems as unclear, creating challenges in understanding what was required of them to complete an assignment (Vaksalla

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et al., 2019). Results from the second group of questions, which focused on the negative impression created by hybrid learning, revealed that students saw the incorporation of blended learning into learning modules as a good use of time (Vaksalla et al., 2019). They however were not happy with the constraints a slow internet connectivity posed on hybrid learning modules. Results from the third group of questions, which focused on the concept of hybrid learning, revealed that averagely, certain tools provided through hybrid learning like videos made it easier for students to appreciate the concepts that they were being taught (Vaksalla et al., 2019). The students however disagreed that hybrid learning was more important than in-person lectures. Vaksalla et al. (2019) highlighted that this may have been because the curriculum of the participants involved foundational concepts that would require a more traditional method of teaching and learning as against a blended approach (Vaksalla et al., 2019).

A study conducted by Rifa'i and Sugiman (2018) on students' perception of a blended learning mathematics course that incorporated the use of smartphone applications like Moodle (Rifa'i & Sugiman, 2018). The study incorporated a mixed method survey model where both quantitative and qualitative research questions were asked to fully ascertain the perception students had of their mobile blended learning course (Rifa'i & Sugiman, 2018). The subjects were 32 junior high school students. The data analysis of the results was aimed at understanding students' perception of four aspects of the blended learning model (Rifa'i & Sugiman, 2018). These aspects were "classroom activities", "online learning", "smartphones and web assistance", and "mobile assessment".

With respect to students' perception of classroom tasks, it was discovered from the results that students preferred classroom discussions as it enabled them understand the mathematical content provided by the learning module (Rifa'i & Sugiman, 2018). It was also revealed that classroom tasks incorporated the use of contextual problems which the students perceived as helpful in learning how to solve complex mathematical questions (Rifa'i & Sugiman, 2018). With respect to the perception of online learning, students reported that online mobile assignments brought the best out of them as it posed a chance to display their skills through assigned tasks (Rifa'i & Sugiman, 2018). The participants also reported that the online learning feature of the hybrid learning model gave them freedom to ask questions in online discussion forums without being worried about any fear of embarrassment (Rifa'i & Sugiman, 2018). With respect to students' perception of smartphone and web assistance, participants reported that the use of applications such as Moodle helped them to better understand the subject matter, making learning more practical. According to students, materials provided in Moodle enabled them to appreciate content that were discussed during in person lectures (Rifa'i & Sugiman, 2018). The use of smartphones also increased student interest to learning enabled the students to learn anywhere and anytime (Rifa'i & Sugiman, 2018). With respect to students' perception of mobile assessment, students reported that information needed to complete assignments was made elaborate in the Moodle application (Rifa'i & Sugiman, 2018). Also, the hybrid learning schedule allowed for the existence of reviewer's sessions that helped students to go over concepts taught and consolidate information given.

This, according to the students, made it easier to take and pass mobile assessments (Rifa'i & Sugiman, 2018)

A study conducted by Owston, York and Murtha (2013) focused on determining the views of students and their achievements in a blended learning system at York university in Toronto, Canada (Owston et al. 2013). The research involved a total of 1147 students enrolled in eleven courses in three faculties (Owston et al. 2013). A questionnaire was used in the study and was made to incorporate four themes in which the questions could be grouped (Owston et al. 2013). These themes were "feedback to recruitment pressure", "better involvement for commuter students", "heightened commitment" and "enhanced learning" and were a measure of student achievement in the blended learning module (Owston et al. 2013).

The researchers sought to determine university officials' response to recruitment pressure (Owston et al. 2013). The lecturers were reluctant to increase the number of recruits for the blended model as it meant that there will be more classrooms available for the recruitment of student for traditional in-person lectures (Owston et al. 2013). The lecturers saw this as a pressure-increasing occurrence and decided that a pre-requisite for increasing recruitment of students into blended learning modules was if students were more satisfied with their blended learning model as against the in-person model (Owston et al. 2013). The results therefore showed that students were more satisfied with hybrid learning than with in-person learning and were willing to take their course in a blended learning format as against a full in-person system (Owston et al. 2013). Pertaining to involvement of commuter students, the results suggested that blended learning was very convenient as it

reduced the expenses that commuter students bore in getting to campus, increased accessibility to class activities and reduced the time it took for them to travel to campus for in-person lectures (Owston et al. 2013). Pertaining to heightened commitment, the results showed that students were more engaged and involved in participating in the blended learning module (Owston et al. 2013). According to the researchers, there were no other sections of the courses in session except the blended learning module aspect (Owston et al. 2013). Therefore, they were unable to determine, in a comparative manner, how learning had been enhanced by the hybrid learning module (Owston et al. 2013).

Another study conducted by Giannousi, Vernadakis, Derri, Michalopoulos and Kioumourtzoglou (2009) sought to determine students' satisfaction from blended learning instructions in a study involving 60 participants. These participants were enrolled in a motor learning course, a course designed and developed as a blended learning course, in a public university in Greece (Giannousi et al. 2009). The tool for the study was a questionnaire. The researchers used a one-sample t-test to ascertain students' satisfaction with the hybrid learning course (Giannousi et al. 2009). From the research, the sample mean for students' satisfaction was determined as 3.61 with a standard deviation of 0.72 and was significantly different from the accepted mean for students' satisfaction which was 2.5 (Giannousi et al. 2009). The 95% confidence interval for the mean values of perceived satisfaction were from 3.43 - 3.80, supporting the conclusion that students' satisfaction was quite higher than average (Giannousi et al. 2009).

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Ghaderizefreh and Hoover (2018) conducted a research in a Canadian university to ascertain the satisfaction of students with the online aspect of a hybrid learning modules at the school (Ghaderizefreh & Hoover, 2018). The aim of the study was to measure the emotions of students towards the features of the electronic aspect of the hybrid learning module (Ghaderizefreh & Hoover, 2018). These features were identified as the ease of straightforwardness, illustration, level of anticipation, complexity, clearness, tempo, passion and fostering attention (Ghaderizefreh & Hoover, 2018). The academic feelings assessed were joy, displeasure, uneasiness and dullness (Ghaderizefreh & Hoover, 2018). To adequately conduct the research, the researchers posed three research questions: "What features of the electronic course impacted the academic feelings of students the most?", "What features of the electronic course were most indicative of student satisfaction with the electronic component of the hybrid course?", and "Which emotions of students were most indicative of their satisfaction with the online course?" (Ghaderizefreh & Hoover, 2018). The participants of the study were sampled from a Canadian university and out of 53 participants, 29 completed all surveys administered (Ghaderizefreh & Hoover, 2018). After the administration of the surveys, correlations were calculated using the results to determine the relationships of features of electronic learning and students' feelings and satisfaction with the electronic experience (Ghaderizefreh & Hoover, 2018).

From the data analysis, in addressing the first research question, it was noticed that straightforwardness and illustration significantly and positively correlated to joy and negatively correlated to displeasure, uneasiness and

dullness (Ghaderizefreh & Hoover, 2018). Level of anticipation, complexity, lack of clearness and tempo were meaningfully and positively correlated to displeasure, uneasiness and dullness (Ghaderizefreh & Hoover, 2018). Passion significantly and negatively correlated to displeasure and uneasiness (Ghaderizefreh & Hoover, 2018). Fostering attention however had no notable effect on academic feelings (Ghaderizefreh & Hoover, 2018). In addressing the second research question, it was discovered that straightforwardness, illustration, passion and fostering attentions significantly and positively correlated to the satisfaction of students (Ghaderizefreh & Hoover, 2018). Level of anticipation however had a pronounced and negative correlation to satisfaction of students (Ghaderizefreh & Hoover, 2018). Complexity, lack of clearness and tempo had a negative correlation with satisfaction but these correlations were not noteworthy (Ghaderizefreh & Hoover, 2018). The data analysis that addressed the third research question showed that joy had a positive and consequential correlation to satisfaction and displeasure and dullness had a notable and negative correlation to satisfaction (Ghaderizefreh & Hoover, 2018). Uneasiness however, did not have a consequential relationship to satisfaction (Ghaderizefreh & Hoover, 2018).

Al Awamleh (2020) also conducted research to determine student satisfaction on blended learning at the School of Sport Sciences in the University of Jordan (Al Awamleh, 2020). A total of 83 undergraduate students in the sports science program at the university were sampled for the study (Al Awamleh, 2020). The researchers developed a questionnaire with statements put into six categories: the quality of the lectures, merits, learning, ability to use virtual learning and online environment and communication (Al

Awamleh, 2020). In the overall assessment of the results, 83.4% of the students reported that they were satisfied with blended learning (Al Awamleh, 2020).

An in-depth assessment of the results of the study revealed that the quality of the lectures delivered using blended learning methods was the most important factor in affecting the satisfaction of the students (Al Awamleh, 2020). Quality of lectures referred to the ability of lecturers to adequately use online environments confidently, adapt quickly the ever-changing nature of online learning and good motivational skills (Al Awamleh, 2020). Of the total number of participants, 88.6% reported that they attributed their satisfaction with the blended learning module to the degree of merits they obtained from the module (Al Awamleh, 2020). This means that the students believed they obtained a lot of information from the blended learning course. The results also revealed that 76.4% of the students attributed their satisfaction to the ability to use virtual learning and online environment (VLE) as the program enabled students to work at their own pace without any time constraints (Al Awamleh, 2020). The results also revealed that 77.8% of students related their satisfaction with the blended learning module to the ability to communicate and work together with other students and lecturers (Al Awamleh, 2020). The blended learning model was rated by 83.6% of the students because it enhanced learning through blended learning instructions (Al Awamleh, 2020).

Another study conducted by Kurniawan, Wangid and Supriyanto (2022) investigated students' satisfaction concerning the implementation of the blended learning method following the COVID-19 pandemic (Kurniawan et al., 2022). The research sample was 135 students in Indonesia from various

universities across the country (Kurniawan et al., 2022). A unique students'
satisfaction scale was developed and comprised five aspects of satisfaction
namely tangibles, responsiveness, reliability, empathy, and assurance
(Kurniawan et al., 2022). The first indicator, tangibles, was indicated by the
appearance of equipment, personnel, media, and physical facilities
(Kurniawan et al., 2022). The second indicator, responsiveness, was indicated
by the ability of instructors to assist learners and the quality of education
(Kurniawan et al., 2022). The third indicator, reliability, was indicated by the
reliability and appropriate nature in which expectations were met in learning
(Kurniawan et al., 2022). The fourth indicator, empathy, was indicated by the
conditions for caring and giving personal attention to students (Kurniawan et
al., 2022). The fifth indicator, assurance, was indicated by the courtesy and
knowledge about generating trust and confidence to learn in students
(Kurniawan et al., 2022). The data was analysed using percentages and
standard deviations and the research criteria were divided into four measures
of very satisfied, satisfied, less satisfied and, dissatisfied (Kurniawan et al.,
2022). Using the data obtained from the five indicators of satisfaction in the
hybrid learning method, 73 learners out of 115 reported that they were
satisfied or pleased with the hybrid learning environment, 38 were very
satisfied with the method but four learners were less satisfied with the blended
learning method (Kurniawan et al., 2022).

Student satisfaction with blended learning modules has been shown to
have a significant correlation to continued use intention of blended learning
(Puriwat & Tripopsakul, 2021). However, for a student to be pleased with a
blended learning environment, certain elements need to be addressed.

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Rahman, Hussein and Aluwi (2015) conducted a study to determine what these elements are. A sample of students enrolled in different business programs in a public university in Malaysia was chosen for the study (Rahman et al., 2015). Using a quantitative research design, questionnaires were used to assess satisfaction on blended learning as a dependent variable and its relationship to certain dimensions which were independent variables in the study (Rahman et al., 2015). These dimensions were: "recognized ease of use of blended learning modules", "recognized value of blended learning modules", "student-instructor interactions" and the "learning climate" that blended learning modules provide (Rahman et al., 2015). The Cronbach alpha, which determines how closely related the measured variables are together, means and standard deviations were obtained. Of all the independent variables, "recognized value of blended learning modules" reported the highest average of 3.44, "recognized ease of use" reported an average of 3.40, "learning climate" reported an average of 3.39 and "student instructor interactions" reported an average of 3.29 (Rahman et al., 2015). Cronbach alpha of the variables ranged from 0.88-0.95 (Rahman et al., 2015). The standard deviation for the independent variables stretched from 0.82 – 0.94 (Rahman et al., 2015). In finding the direction, power, and relevance of the association between all the measured variables of the experiment, a Pearson correlation analysis was conducted. The result of this correlation analysis revealed that there was a positive relationship between various independent variables and student satisfaction, which was the dependent variable (Rahman et al., 2015). A multiple regression analysis was used to further assess the connection between the independent variables and the dependent variable. The

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results of the regression analysis revealed that there was a significant connection between all the measured variables (Rahman et al., 2015). All variables were significant at 0.00 (p<0.01). The R2 value was 0.68 and the adjusted R2 value was 0.68 (Rahman et al., 2015). This means that the independent variables contribute 68% to the reason why students are pleased with hybrid learning environments (Rahman et al., 2015). According to Rahman et al. (2015), the other 32% may be contributed by other factors (Rahman et al., 2015). From the study, it was determined that "recognized value of blended learning modules" was the highest factor influencing student satisfaction (Rahman et al., 2015). This means that when students view their education as relevant, their satisfaction increases. The second most influential factor on student satisfaction with hybrid learning modules was "recognized ease of use", suggesting that students are satisfied when they can operate blended learning modules with ease (Rahman et al., 2015). The third contribution to satisfaction was learning climate, indicating that a positive learning environment improves students' satisfaction (Rahman et al., 2015). The last was student-instructor interactions which involves delivering information, supporting students, and providing feedback when necessary (Rahman et al., 2015).

The level of continuous use intention of blended learning among students is dependent on certain key elements. Baranova et al. (2022) conducted an experiment to discover these elements that impact the desire for continued use intention to learn in a hybrid environment (Baranova et al., 2022). The research measured students' intention using six indices: frame of mind, abstract patterns, recognized control of conduct, recognized relevance,

corroborations, and gratification (Baranova et al., 2022). A sample of undergraduate and postgraduate students (n=301) was used in this research. These students were sampled from the humanities department at Peter the Great Polytechnic University (Baranova et al., 2022). A quantitative research method was employed, using an electronic survey to determine the elements impacting the desire for continued use intention of a blended education system by students (Baranova et al., 2022). A Pearson correlation analysis was done on the data obtained to determine a relationship between all studied indicators and continued use intention (Baranova et al., 2022). The result of this correlation analysis revealed that there was a positive relationship between all the studied indices. The strongest connection was between "frame of mind" and "gratification" (Baranova et al., 2022). The weakest relationship to continued use intention was between "abstract patterns" and "corroborations" (Baranova et al., 2022). Thus, a learner's attitude or frame of mind and satisfaction, according to this study, are key determinants of continued use intention of blended learning (Baranova et al., 2022).

Yang, Cai, Yang and Wang (2022) also conducted research to determine the necessary factors of continued use intention of blended learning among beginners. This study was done following the outbreak of the COVID 19 pandemic. A sample of freshmen (n=1845) enrolled in a "Fundamentals of Computer" course at a Chinese university was obtained and used in the research. These freshmen were using a hybrid education system for the first time. The research was conducted over a two-year interval: 2020 and 2021 (Yang et al., 2022). A questionnaire was used to determine the relationship between continuous use intention of blended learning and key factors

including satisfaction, performance expectancy, intrinsic motivation, and academic self-sufficiency. The questionnaire was administered to two sets of students, one set in the fall of 2020 and another in the fall of 2021 (Yang et al., 2022).

The direct effect of the factors being investigated on continued use intention was represented as path coefficients (β value) and were measured using a bootstrapping method. With respect to the questionnaire administered in 2020, the performance expectancy had a β value of 0.136 (p< 0.05), satisfaction had a β value of 0.598 (p<0.001) and intrinsic motivation had a β value of 0.136 (p<0.001) and they had a positive association with continuous intention, making up 78.8% of R2. (Yang et al., 2022). With respect to the questionnaire administered in 2021, the performance expectancy had a β value of 0.164 (p< 0.001), satisfaction had a β value of 0.677 (p<0.001) and intrinsic motivation had a β value of 0.057 (p<0.05) and they also had a positive association with continuous intention, making up 76.4% of R2. (Yang et al., 2022). From the corresponding β values, it can be deduced that when students are satisfied in a hybrid learning environment, continuous use intention of students will be higher as it has greater effect on it (Yang et al., 2022).

Al-Maroof, Alhumaid and Salloum (2020) also conducted a study to determine continuous intention to implement e-learning practices in traditional face-to-face education environment. The study focused on the opinions of two groups: teachers and students, with the sample size being 30 teachers and 342 students at the British University in Dubai (Al-Maroof et al., 2020). For students, researchers investigated how continued use intention of electronic learning was affected by certain key factors namely technology self-efficiency,

recognized importance of the learning module, recognized ease in using the e-learning module and controlled motivation (Al-Maroof et al., 2020). The connection these factors have with continuous use intention was determined by simultaneously analysing the individual relationships the variables have with continued use intention. This required the use of a Partial Least Squares Structural Equation Modelling (PLS-SEM) system to find the coefficient of determination (R2) and path coefficients (β value) for both sets of questionnaires (Al-Maroof et al., 2020). With respect to students' continuous use intention, technology self-efficacy had a β value of 0.290 (p<0.01), recognized ease in using blended learning models had a β value of 0.357 (p<0.05), recognized importance of blended learning systems had a β value of 0.465 (p<0.05), and controlled motivation had a β value of 0.243 (p<0.05). These factors therefore have a significant impact on continuous intention to incorporate e-learning platform into the learning module (Al-Maroof et al., 2020).

The empirical literature underscores the interconnected nature of students' perception, satisfaction, and continuous use intention in blended learning. Factors such as the quality of interactions, convenience, perceived value, and satisfaction with the learning environment play crucial roles in shaping students' intentions to continue using blended learning approaches. These findings provide a foundation for understanding the complex dynamics that influence students' engagement with blended learning, which is relevant to the purpose of this study.

Chapter Summary

The review encompasses a conceptual exploration and empirical insights into blended learning, emphasizing the interplay between students' perceptions, satisfaction, and continuous use intention. The conceptual review underscores the importance of assessing how students engage with both in-person and online components to understand their satisfaction and perception. Challenges in implementation, such as limited infrastructure access, impact perception and satisfaction, influencing continuous use intention. Theoretical frameworks of connectivism and the Complex Adaptive Blended Learning System (CABLS) provide lenses for understanding the dynamics of blended learning, aligning with the study's focus. The conceptual framework illustrates predictive relationships, positioning students' perception and satisfaction as key predictors of continuous use intention in blended ICT instruction. The empirical review consolidates diverse findings, shedding light on factors influencing students' experiences in blended learning. Together, these components offer a comprehensive understanding of the intricate landscape of blended learning, combining theoretical perspectives with practical insights.

CHAPTER THREE

RESEARCH METHODS

Introduction

The research assesses the relationship between students' perception and satisfaction of blended learning with their continuous use intention of blended learning at Nyakrom Senior High Technical School. This chapter explains the study design, population, sample and sampling procedure, research instrument, data collection procedure, data analysis and ethical consideration.

Research Design

Research design is a framework for carrying out a research project. This design allows researchers to focus on developing research techniques appropriate for the topic and set up their investigations for success (Sileyew, 2019). Malhotra and Birks (2007) confirmed that research designs help explains the steps to take to get the data you need to address a specific research problem. The current study adopted a descriptive research design and it is an essential ingredient in the research process. The descriptive survey, as a research design, facilitates the gathering of data to test hypotheses or respond to inquiries about the current state of a research problem (Gay, 1987).

The use of a descriptive survey was because it provides surfeit of data needed for descriptive and inferential statistics (Bonsu, Bervell, Armah, Aheto, & Arkorful, 2021). Again, a descriptive survey was also adopted since it requires lesser amount of time to gather and analyse data as compared with other designs (Creswell & Clark, 2007). Despite its affordances, descriptive survey research design has some drawbacks. One of the drawbacks include the inability of the research to gather a detailed data of the respondents'

experiences. Kelley, Clark, Brown and Sitzia (2003) also pointed the danger that the significance of the data can become neglected. They assert that this occurs when a researcher concentrates excessively on the scope of coverage without providing a sufficient analysis of the significance of those data for pertinent issues, problems, or theories.

Study Area

Nyakrom is located in Agona West Municipal District of Central Region. Nyakrom Senior High Technical currently has student population of 2,206 and it is designated as category "B" school by the Ghana Education Service.

Population

Population in research refers to "the aggregate of the individuals or units from which a sample is drawn, and to which the results of any analysis are to apply. In other words, the aggregate of persons or objects under investigation" (Krieger, 2012, p.2). Concerning the study, the population comprised of 2,206 students at Nyakrom Senior High Technical School. Out of the 2,206 population, 1,024 are in SHS 1 and 1,182 are in SHS 2. At the time of the study, there were no SHS 3 students around as they had written their final exams and had left the school.

Sampling Procedures

The primary goal of sampling is to choose samples that fairly represent the entire population from which they were chosen (Taherdoost, 2016). First, the researcher used purposive sampling to select Nyakrom Senior High Technical School due to its proximity to the researcher and robust ICT infrastructure. Then researcher used Krejcie and Morgan's (1970) sampling

table to determine the sample size of 327 students from the school's total students' population of 2,206.

All in all, to ensure that the sample of each form is more representative of the population of each class or form, the proportionate stratified (allocation) sampling technique was further used to determine the sample of each Form (level) such that out of the 327 sample size, SHS1 (with the population 1,024) had a sample size of 152 participants while SHS2 (with a population of 1,182) had a sample size of 175 participants. Furthermore, in each Form/level, the simple random sampling using the lottery technique was employed to select the participants. This method ensured that each student in the class had an equal chance of being selected for the study. Table 1 shows the population of each class and their corresponding sample size.

Table 1: Breakdown of the Population and the Corresponding Sample Size

Class	Population	Sample Size
SHS 1	1,024	152
SHS 2	1,182	175
Total	**2,206**	**327**

Source: Field Survey: Yalley (2023)

Data Collection Instrument

The study adopted a self-developed questionnaire. The questionnaire had four sections in all. The first part (section A) gathered background data of the respondents. The second part (Section B) elicited data on students' perceptions of blended learning in teaching Information and Communications Technology at Nyakrom SHTS. The third section (Section C) also looked at the extent to which students are satisfied with blended instructions at Nyakrom

SHTS. The fourth section (Section D) focused on students' continuous use intention of blended learning among students at Nyakrom SHTS.

In addition, the questionnaire had a 5-point Likert scale ranging from Strongly Disagree to Agree. The questionnaire's items were all closed-ended questions allowing the respondents to complete it swiftly. Additionally, the construction, coding and analysis of the closed-ended questions are simple and uncomplicated; hence, its adoption for the study (Cohen, Manion & Morrison, 2003).

Validity and Reliability of Instrument

The researcher carried out a pilot study at Swedru Senor High School in the Agona East District Assembly. The school was chosen because it has similar characteristics as Nyakrom Senior High Technical School. The data gathered from the pilot test was analysed with Cronbach's alpha to ascertain whether or not the instrument was reliable enough to be used for data collection. Prior to being distributed to the respondents, the questionnaire once more given to my supervisor, an expert in technology education, for review to determine whether it meets the face, construct, and content validity before it was finally administered to the respondents during the pilot test.

Data Collection Procedures

The researcher sought authorisation from the school prior to data collection phase. This was done by submitting a letter of introduction obtained from the College of Distance Education, University of Cape Coast, to Nyakrom SHTS. After approval, the researcher, who doubles as ICT teacher in the school developed and taught ICT via blended learning mode. The face-to-face teaching was carried out in school while the online mode was done during their vacation.

Participants used WhatsApp, YouTube and Google Classroom for the online learning mode. The researcher then explained the rationale of the research and to sought their consent to participate in the data collection before the questionnaires were given to them via google forms to be completed and returned. Three hundred and twenty-seven questionnaires were fully completed and returned thereby representing 100 per cent return rate.

Data Processing and Analysis

The questionnaires obtained from data collection were all serialised for quick identification before being coded in Statistical Product for Service Solution (SPSS 21.0). The Five-point Likert scale was given the numerical values 1, 2, 3, 4 and 5. Strongly Disagree (SD) was assigned the value of 1, Disagree (D) was assigned the value of 2, Neutral was assigned the value of 3, Agree (A) was assigned the value of 4, and Strongly Agree (SA) was assigned the value of 5. The background of the respondents was analysed using frequency and percentages in Statistical Product for Service Solution (SPSS 21.0). Research questions 1-3 were also analysed with mean and standard deviation. The hypotheses on the other hand were analysed with a multiple regression model.

Research Ethics

Some actions were made to ensure adherence to accepted ethical principles and practises in research. These actions comprise: Obtaining an introduction letter from the College of Distance Education at the University of Cape Coast is the first step. This letter was then sent to the Nyakrom SHTS for study approval. Second, the questionnaire's opening sentence had a phrase assuring respondents of their rights, privacy, and anonymity. Additionally, traits

that would have helped identify the respondents were ignored. In addition, participants had to sign a consent form outlining the objectives of the study, their rights, and confidentiality.

Chapter Summary

The study assesses the relationship between students' perception and satisfaction of blended learning with their continuous use intention of blended learning at Nyakrom Senior High Technical School. To achieve the main purpose of the study, a descriptive research design was adopted. The main instrument for the data collection was a self-developed questionnaire which had 5-point Likert scale ranging from strongly disagree to strongly agree. The background of the respondents was analysed using frequency and percentages in Statistical Product for Service Solution (SPSS 21.0). Research questions 1-3 were also analysed with mean and standard deviation. The hypotheses on the other hand were analysed with a multiple regression model.
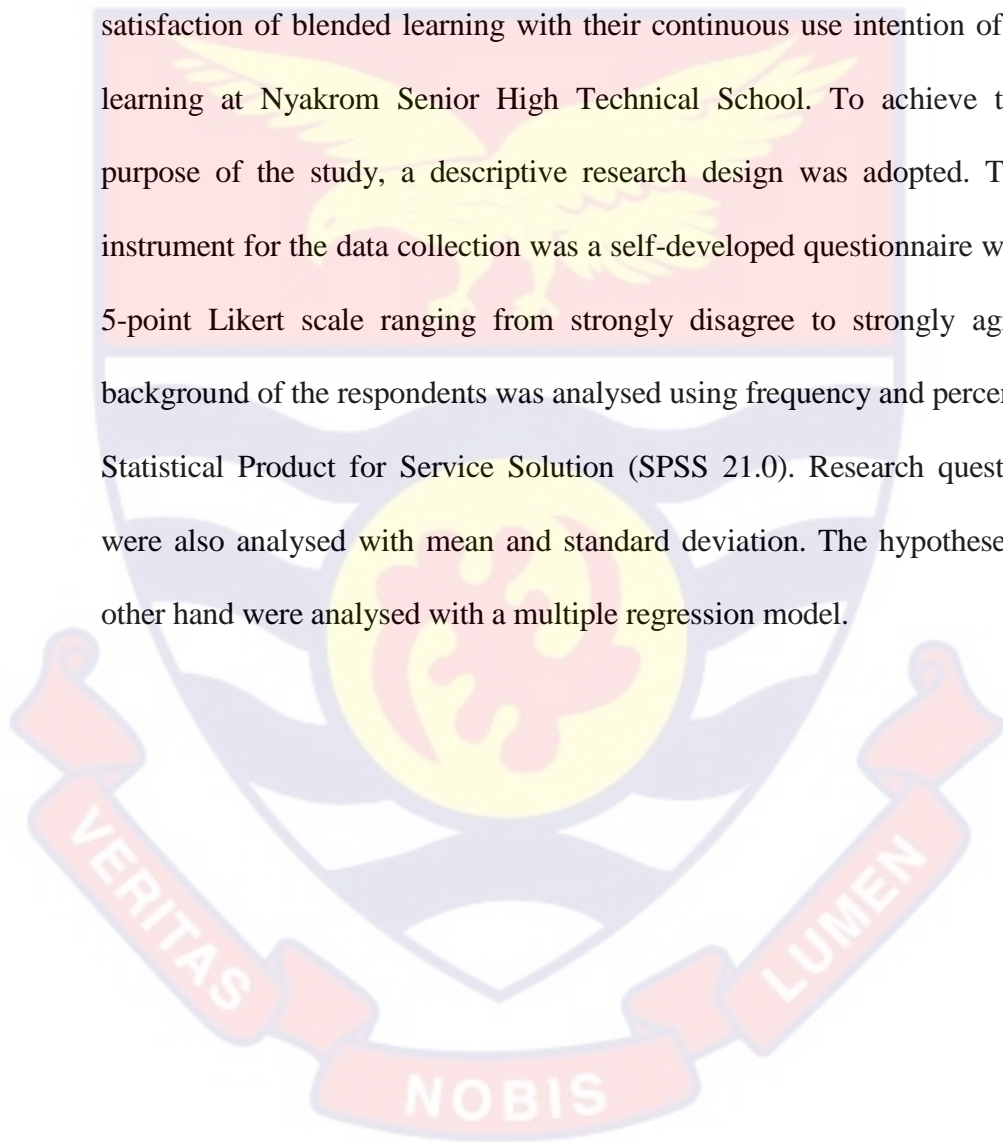
CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

The main purpose of the study was to assess the relationship between students' perception and satisfaction of blended learning with their continuous use intention of blended learning at Nyakrom SHTS. Questionnaires were used to gather data from respondents for this study. The data collected were analysed using descriptive such as frequencies, percentages, mean and standard deviation and multiple regression, which is inferential statistics. This chapter presented the interpretations, discussion and inferences that emerged from the data analysis.

Analysis of Data from Respondents

Table 2 shows the respondents' results regarding their gender and age group.

Table 2: Demographic Information of Respondents

Category	Sub-Category	Frequency (F)	Percentage (%)
Gender	Male	151	46
	Female	176	54
	Total	**327**	**100**
Age	16 years and below	76	23.3
	17 to 20 years	247	75.5
	Above 20 years	4	1.2
	Total	**327**	**100**

Source: Field Data, Yalley (2023)

The Table 2 shows that, out of the 327 students who participated in this study, 46% were males, whiles 54% were females. Thus, majority of the respondents were females. Again, concerning the age groups of the respondents, 23.3% were 16 years and below, 75.5% were between 17 to 20

years, whiles only 1.2% were between above 21 years. Thus, the majority of the respondents were between the ages of 17 to 20 years.

Analysis of Research Questions

Research Question One (1): What are students' perceptions of blended learning in teaching Information and Communications Technology (ICT) at Nyakrom SHTS? The results are presented in Table 3.

Table 3: Students' Perceptions of Blended Learning for ICT instruction at Nyakrom SHTS

Statements	Mean (M)	Stand. Dev. (SD)
I feel blended learning helps me improve my understanding and knowledge in ICT.	4.3	.84
I think blended learning offers me wide range of learning resources.	4.2	.82
I feel blended learning enables me to get swift feedback on my performance from my teacher.	4.0	.88
In my opinion, blended learning encourages me to interact with my peers.	4.2	.88
I think blended learning is effective than face-to-face teaching alone.	3.9	1.2
Mean of means	**4.1**	

Source: Field Survey: Yalley (2023)

The result from Table 3 indicated that the respondents, students, feel blended learning helps them improve their understanding and knowledge in ICT (M=4.3, SD=.84). Also, the respondents agreed with the statement that sought to find whether they think blended learning offers them a wide range of learning resources (M=4.2, SD=.82). Again, the respondent agreed that they feel blended learning enables them to get swift feedback on their performance from their teacher. This is evident by the mean value of 4.0 and standard

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deviation value of .88. Moreover, students agreed that they in their opinion, blended learning encourages them to interact with their peers (M=4.2, SD=.88). Lastly, the respondent think blended learning is effective than face-to-face teaching alone (M=3.9, SD=1.2). In conclusion, the overall mean of means of 4.1 showed the respondents have positive perceptions of blended learning for information communication technology (ICT) instruction at Nyakrom SHTS.

Research Question Two (2): To what extent are students satisfied with blended ICT instructions at Nyakrom SHTS? The results are presented in Table 4.

Table 4: The Extent to Which Students are Satisfied with Blended ICT Instruction at Nyakrom SHTS.

Statements	Mean (M)	Stand. Dev. (SD)
Blended learning mode made the ICT subject more interesting and exciting.	4.5	.77
I am satisfied with the feedback from my teacher in the blended learning mode.	4.2	.70
I am satisfied with ease of navigation of the course content.	3.9	.90
I am satisfied with the fact that I could study anywhere, anytime.	4.4	.84
I am satisfied with the peer-to-peer interaction of the course.	4.1	.91
Mean of means	**4.2**	

Source: Field Survey: Yalley (2023)

Students' satisfaction is seen as one of the determinants of their continuous use intention of a technology. As such, the researcher sought to establish how satisfied are students of Nyakrom SHTS towards blended

learning instruction. The outcome of the analysis from Table 4 shows that the respondents strongly agreed that the blended learning mode of teaching made the ICT subject more interesting and exciting (M=4.5, SD=.77). Furthermore, the respondents agreed with the statement that they were satisfied with the feedback from their teacher in the blended learning mode (M=4.2, SD=.70). Again, the respondents agreed that they were satisfied with the ease of navigation of the course content (M=3.9, SD=.90). Also, the respondents were satisfied with the fact that they could study anywhere, anytime (M=4.4, SD=.84). Lastly, the respondents reiterated their satisfaction with the peer-to-peer interaction of the blended learning course (M=4.1, SD=.91). The mean of means value (4.2) revealed that the students were highly satisfied with blended ICT instruction at Nyakrom SHTS.

Research Question Two (3): How high is the continuous use intention of blended learning in teaching Information and Communications Technology (ICT) among students at Nyakrom SHTS? The results are presented in Table 5.

Table 5: The level of the continuous use intention of blended learning in teaching ICT among students at Nyakrom SHTS.

Statements	Mean (M)	Stand. Dev. (SD)
I intend to keep on using the online learning system to support my face-to-face learning.	4.5	.71
I would keep using the online learning system in the next academic year in addition to face-to-face sessions if implemented.	4.5	.65
I plan to keep using online learning to supplement face-to-face whenever possible.	4.3	.75
I intend to use the online learning system to interact with my peers if need be.	4.2	.75
I plan to use an online learning system to send questions to my teacher on things I do not understand during face-to-face teaching.	4.3	.90
Mean of means	**4.4**	

Source: Field Survey: Yalley (2023)

The evidence from Table 5 shows that the respondents intend to keep on using the online learning system to support my face-to-face learning (M=4.5, SD=.71). Furthermore, the respondents strongly agreed with the statement that sought to ascertain whether they would keep using the online learning system in the next academic year in addition to face-to-face sessions if implemented (M=4.5, SD=.65). Again, the respondents agreed that they plan to keep using the online learning to supplement face-to-face instruction whenever possible (M=4.3, SD=.75).

Moreover, the respondents intend to use the online learning system to interact with their peers if need be (M=4.2, SD=.75). Last, the respondents agreed that they plan to use online learning systems to send questions to their teacher on things they do not understand during face-to-face teaching (M=4.3,

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SD=.90). The mean of means value of 4.4 revealed that the respondents have a high the level of the continuous use intention of blended learning in teaching Information and Communications Technology (ICT).

Analysis of Research Hypotheses

Two research hypotheses were formulated to assess the relationship among students' perception of blended learning, students' satisfaction and student's continuous use intention of blended learning in Nyakrom SHTS. These research hypotheses are as follows:

1. H_{O1}: There is no statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS.

2. H_{O2}: There is no statistically significant relationship between students' satisfaction with blended and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS.

To answer these research hypotheses, the researcher conducted a multiple regression analysis to ascertain the cause-effect (predictive) relationship among the three variables.

Multiple Regression Analysis

Multiple regression is a statistical technique that analyses cause-and-effect relationships between a single dependent variable and several independent variables. This study utilised multiple regression to assess the predictive association between the three variables. The outcome of the analysis is presented in Table 6.

Table 6: The Predictors of Continuous Use Intention of Blended Learning in teaching Information and Communications Technology at Nyakrom SHTS.

Coefficients Table							
Variable	B	Beta (β)	t	p	VIF	95% Confidence Interval	
						Lower Bound	Upper Bound
(Constant)	6.501		6.846	.000		4.633	8.369
P	.205	.217	4.535	.000	1.369	.116	.293
S	.529	.537	11.218	.000	1.369	.436	.622

Source:Field Data, Yalley (2023)   Significant at .01 and .05 Alpha Levels

1. H_{01}: There is no statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS

From the coefficient's Table 6, students' perception predicted their continuous use intention of blended learning in teaching ICT at Nyakrom SHTS with β=.217 and t=4.535 at p=.000, p≤0.01 significant alpha threshold. The prediction is further validated by the one-dimensionality of the confidence interval level at lower and upper boundaries of .116 and .293, respectively. The confidence interval values imply that the prediction was valid in significance. The acceptable variance inflation factor (VIF) threshold of 1.37 also showed no collinearity effect in the measurement according to Kock (2015) and Hair, Hult, Ringle and Sarstedt (2017) recommendation of 3.3. Hence, the null hypothesis formulated for this predictive relationship is rejected.

2. H$_{02:}$ There is no statistically significant relationship between students' satisfaction with blended and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS.

Table 6 indicates that students' satisfaction with blended learning predicted students' continuous use intention of blended learning in teaching ICT with β=.529 and t=11.218 at p=.001, p≤0.01 alpha threshold. The prediction is further validated by the one-dimensionality of the confidence interval level at 95%, with a lower boundary value of .436 and upper boundary value of .622. The confidence interval values show that the prediction was non-spurious in significance. Additionally, the acceptable variance inflation factor (VIF) threshold of 1.37 revealed no collinearity effect in the measurement (Kock, 2015; Hair et al., 2017). From the foregoing, the null hypothesis formulated for this predictive relationship is rejected.

Discussion of Results

Concerning research question one, which sought to find out students' perceptions of blended learning in teaching ICT at Nyakrom SHTS, the overall mean of means of 4.1 showed the respondents' have positive perceptions of blended learning in teaching ICT at Nyakrom SHTS. Students overwhelming agreed with all the five statements under this section, indicating their positive perception of blended-enabled ICT instruction. This finding is in line with Akkoyunlu and Soylu (2008) and Nasution et al. (2021) who also found positive perceptions of students in a blended learning environment.

Furthermore, research question two assesses the extent to which students were satisfied with blended ICT instructions at Nyakrom SHTS. The mean of means value (4.2) revealed that the students were highly satisfied

with blended education when it comes to ICT instruction at Nyakrom SHTS. The outcome of research question two corroborates with a similar study conducted by Giannousi et al. (2009), which sought to determine students' satisfaction with blended learning instruction. The study reported that students were generally satisfied with blended learning lessons. Al Awamleh (2020) also reported that, in Jordan, students were satisfied with blended learning.

Additionally, research question three explored the level of the continuous use intention of blended learning in teaching ICT among students at Nyakrom SHTS. The result of the study revealed (mean of means value of 4.4) that the respondents have a high level of continuous use intention of blended ICT instruction. This indicates students intend to use online learning to supplement their face-to-face ICT instruction if permitted by the Ghana Education Service. This finding also unearths the importance of continuous intention to use blended learning as a critical determinant of students' adoption (Yang et al., 2022). The finding, however, opposes the results of Wright (2017), whose study revealed that out of 112 respondents, only 37.5% preferred online lessons as compared to the majority of students (58%), who preferred in-person tutoring and the remaining 4.5% of the participants stated that they preferred blended learning.

With regards to hypothesis one, which stated that there is no statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning in the teaching of ICT at Nyakrom SHTS, the finding revealed the opposite; thus, there is a statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning in teaching

ICT at Nyakrom SHTS. This implies that students' perception is one of the critical variables that predict continuous use intention of blended learning in teaching ICT.

Lastly, the result of hypothesis two showed a statistically significant relationship between students' satisfaction with blended and their continuous use intention of blended learning in teaching ICT at Nyakrom SHTS. This relationship is a predictive one, thus, students' satisfaction directly predicts the continuous use intention blended learning in teaching ICT. This finding has been reported in a similar study by Yang et al. (2022), who also researched the necessary factors of continued use intention of blended learning among beginners. They reported satisfaction as one of the key determinants of continuous use intention of blended learning.

Chapter Summary

In conclusion, the result from research question one showed that the respondents have positive perceptions of Blended Learning at Nyakrom SHTS. The result of research question two also revealed that the students were highly satisfied with blended instruction at Nyakrom SHTS. Again, research question three revealed that the respondents have a high level of continuous use intention of blended learning.

Moreover, regarding hypotheses one and two, the findings of the multiple regression analysis disclosed that students' perception and satisfaction are the two determinants of continuous use intention of blended learning in teaching ICT at Nyakrom SHTS.

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CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter summarized the study that assessed students' perception, satisfaction, and continuous use intention of blended learning at Nyakrom SHTS. This chapter also concludes and makes recommendations for practice and further research.

Summary

The prime purpose of the study was to assess the relationship between students' perception, satisfaction and continuous use intention of blended learning at Nyakrom SHTS. The specific objectives of the study were to: assess students' perceptions about blended learning in teaching Information and Communications Technology at Nyakrom SHTS; assess students' satisfaction with blended learning in teaching Information and Communications Technology at Nyakrom SHTS; assess the continuous use intention of students to utilize blended instruction at Nyakrom SHTS; assess the relationship between students' perception and their continuous use intention of blended learning at Nyakrom SHTS; and explore the relationship between the satisfaction of students and their continuous use intention of blended learning at Nyakrom SHTS.

Consequently, to achieve the study's objectives, the following research questions and hypotheses were formulated.

Research Questions:

1. What are students' perceptions of blended learning in teaching Information and Communications Technology (ICT) at Nyakrom SHTS?

2. To what extent are students satisfied with blended ICT instructions at Nyakrom SHTS?

3. How high is the continuous use intention of blended learning in teaching Information and Communications Technology (ICT) among students at Nyakrom SHTS?

Research Hypotheses:

1. H_{O1}: There is no statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning at Nyakrom SHTS

2. H_{O2}: There is no statistically significant relationship between students' satisfaction with blended and their continuous use intention of blended learning at Nyakrom SHTS.

The study adopted a descriptive survey design with a 327 sample size out of 2,206. A questionnaire was the main instrument for data collection and the data gathered were analysed with descriptive and inferential statistics.

Key Findings

The main findings of the study were as follows:

Research question one, which sought to assess students' perceptions of blended learning at Nyakrom SHTS, revealed that respondents have positive perceptions of Blended Learning at Nyakrom SHTS.

Regarding research question two, which assessd the extent to which students are satisfied with blended instruction at Nyakrom SHTS, it found that the students were highly satisfied with blended teaching at Nyakrom SHTS.

With regards to research question three, which sought to assess the level of the continuous use intention of blended learning among students at Nyakrom SHTS, revealed that the students have a high level of continuous use intention of blended learning.

Moreover, regarding research hypothesis one, which stated that there is no statistically significant relationship between students' perception of blended learning and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS, the study found that students' perception predicted their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS with β=.217 and t=4.535 at p=.000, p≤0.01 significant alpha threshold.

Lastly, regarding research hypothesis two, which stated that there is no statistically significant relationship between students' satisfaction with blended and their continuous use intention of blended learning for ICT instruction at Nyakrom SHTS, revealed that students' students' satisfaction predicted students' continuous use intention of blended learning for ICT instruction with β=.529 and t=11.218 at p=.001, p≤0.01 alpha threshold.

Conclusions

The following conclusions could be deduced from the findings of this study:

Firstly, on the findings that students have positive perception of blended learning for ICT instruction, the study concluded that students' positive perception is one of the antecedent variables that predict their

continuous use intention of blended learning. Again, students' positive perception could imply they were already familiar with the underlying technology needed for blended learning implementation.

Secondly, on the findings that the students were highly satisfied with blended instruction, the study concluded that the students' satisfaction with blended learning for ICT instruction indicates that the approach or strategy could be utilise to teach not only information communication technology but other uninteresting and abstract subjects which students usually find boring. Thus, blended learning could arouse students' interest and satisfaction with other subjects in Senior High Schools.

Thirdly, concerning the finding that students have a high level of the continuous use intention of blended learning for ICT instruction, the study concluded that students have a high level of continuous use intention of blended ICT instruction. This means that students in senior high schools possess the appropriate readiness for blended technology in their classroom ICT instruction. Thus, the Ghana Education Service can capitalise on this to implement blended learning instruction, especially during students' long vacations.

Lastly, concerning predictors of students' continuous use intention of blended learning for ICT instruction, the researcher concluded that students' perception and satisfaction were the main predictors of their continuous use intention of blended learning. This implies that in order to implement blended learning for ICT instruction in senior high schools in Ghana, students' perception and satisfaction ought to be the main focus of the educational stakeholders.

Recommendations

The study makes recommendations based on the conclusions drawn from the respective findings:

1. The study recommends that Ghana Education Service should lift the ban on mobile phone and personal computer usage in senior high schools so that students and teachers can freely utilise mobile/e-learning to supplement face-to-face instruction.

2. It recommends that students' perception and satisfaction should be considered when adopting blended learning for use in Senior High schools in Ghana.

Suggestions for Further Studies

This study only focused on examining students' perception, satisfaction, and continuous use intention of blended learning at Nyakrom SHTS. A replication of the current research nationwide with a much larger sample size would be commendable so that the findings could be generalised across Ghana. Additionally, the present study could also be replicated to include teachers' perception, satisfaction, and continuous use intention of blended learning.

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APPENDICES

APPENDIX A: Self-Administered Questionnaire for Participants

UNIVERSITY OF CAPE COAST

COLLEGE OF DISTANCE EDUCATION

Department of Mathematics, Science and ICT Education

Questionnaire for Students

Dear Student,

You are invited to participate in the study "Students' Perception, Satisfaction, and Continuous Use Intention of Blended Learning at Nyakrom SHTS." I will therefore solicit your cooperation and consent to participate in this study. The confidentiality of your response is assured. You are kindly entreated to provide accurate responses by ticking items on this questionnaire. Thank You

SECTION A

DEMOGRAPHIC INFORMATION

Instruction: please, tick [√] the appropriate box [   ]

1. Gender

   Male [   ]   Female [   ]

2. Age Group

   16 years and below [ ]   17-20 years [   ]   Above 20 years [ ]

SECTION B: Students' Perceptions About Blended Learning in Teaching

Information and Communications Technology at Nyakrom SHTS

Please, tick [√] the appropriate column to indicate the extent to which you

agree or disagree with the following statements

Scale:

1= Strongly Disagree (SD)

2=Disagree (D)

3=Neutral (N)

4=Agree (A)

5=Strongly Agree (SA)

S/N		SD	D	N	A	SA
3	I feel blended learning helps me improve my understanding and knowledge in ICT.					
4	I think blended learning offers me wide range of learning resources					
5	I feel blended learning enables me to get swift feedback on my performance from my teacher.					
6	In my opinion, blended learning encourages me to interact with my peers.					
7	I think blended learning is effective than face-to-face teaching alone.					

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SECTION C: The Extent Are Students Satisfied with Blended Instruction at Nyakrom SHTS

Please, tick [√] the appropriate column to indicate the extent to which you agree or disagree with the following statements

Scale:

1= Strongly Disagree (SD)

2=Disagree (D)

3=Neutral (N)

4=Agree (A)

5=Strongly Agree (SA)

S/N		SD	D	N	A	SA
8	Blended learning mode made the ICT subject more interesting and exciting.					
9	I am satisfied with the feedback from my teacher in the blended learning mode.					
10	I am satisfied with ease of navigation of the course content.					
11	I am satisfied with the fact that I could study anywhere, anytime.					
12	I am satisfied with the peer-to-peer interaction of the course.					

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SECTION D: Students' Continuous Use Intention of Blended Learning Among Students at Nyakrom SHTS.

Please, tick [√] the appropriate column to indicate the extent to which you agree or disagree with the following statements

Scale:

1= Strongly Disagree (SD)

2=Disagree (D)

3=Neutral (N)

4=Agree (A)

5=Strongly Agree (SA)

S/N	Continuous Use Intention	SD	D	N	A	SA
13	I intend to keep on using the online learning system to support my face-to-face learning.					
14	I would keep using the online learning system in the next academic year in addition to face-to-face sessions if implemented.					
15	I plan to keep using the online learning to supplement face-to-face whenever possible.					
16	I intend to use the online learning system to interact with my peers if need be.					
17	I plan to use online learning system to send questions to my teacher on things I do not understand during face-to-face teaching.					

Thank You