



ASHESI UNIVERSITY

**EXPLORING THE IMPACT OF MIGRATING ONLINE ON HIGHER EDUCATION IN
GHANA: THE CASE OF ASHESI UNIVERSITY**

BY

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University in partial fulfilment of the requirements for the award of Bachelor of Science Degree
in Business Administration.

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DECLARATION

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

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I hereby declare that the preparation and presentation of this thesis was supervised in accordance with the guidelines on supervision of theses established by Ashesi University.

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ABSTRACT

According to Bao (2020), five high-impact principles exist in order for online education for be sustainable, namely:

(a) high relevance between online instructional design and student learning, (b) effective delivery on online instructional information, (c) adequate support provided by faculty and teaching assistants to students, (d) high-quality participation to improve the breadth and depth of student's learning, and (e) contingency plan to deal with unexpected incidents of online education platforms. (Bao, 2020, p.115)

The objective of this thesis is to understand how and why Ashesi University was able to migrate online faster than other Ghanaian universities, as well as investigating the impacts of this migration on the teaching quality, student experience and operations of the institution. A sequential exploratory research was conducted using a purposive non-probability sampling method to select the respondents to be engaged for the purpose of this study. The findings from this research were obtained from students, faculty and staff from Ashesi University by way of interviews and online questionnaires. All the targeted respondents were from Ashesi University's community.

The findings show that teaching quality since the online migration has not dwindled, but students' own motivation towards learning has decreased. Also, the findings showed that Ashesi managed to migrate online quickly due to having contingency plans in place as well as already having most of its operations online. The main problems with the online migration are the breaks in communication between all groups (i.e. staff, students and faculty) as well as Zoom fatigue with showed major effects on all groups based on their responses. Also, student experience was shown to have been hanging in a bittersweet balance; there was a tight-knit network between students regarding feedback and emotional support, but there was also a sense of nostalgia due to the sudden campus closure and online migration.

Keywords: Online learning, COVID-19 pandemic, campus closure.

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CHAPTER ONE

INTRODUCTION

1.1 Overview and Background

Higher education over the years has greatly progressed due to technological advancements and innovations which have spurred on educators, and students alike, to find new approaches to learning as well as constantly reshaping knowledge by feeding curiosity and adding on to existing knowledge (Jugănaru, 2020).

The advent of online learning has brought a new phase to higher education that consists of many ways of delivering lessons, including but not limited to blending face-to-face interactions with online learning to create a flexible means of delivering information to students or fully offering all educational processes online. This is done by allowing operations such as classes, registration, grading, issuing of assignments and providing learning materials (amongst other operations) to be done online as opposed to face-to-face; this reduces the consumption of time that would occur if it were to be done in person. This is a major benefit of distance learning as it creates an ease of access where information can be remotely obtained at any given point in time to efficiently assist the learning of students.

At the beginning of the twentieth century, distance learning emerged to suit the needs of students who were limited by distance and physical presence. *Distance learning* is the form of education institutionalized at the beginning of the twentieth century, which initially used the communication facilities offered by the mail, telephone, and then television (Brut, 2006; Dobre, 2010).

The concept of distance learning started in the late 1800s at the University of Chicago where a correspondence teaching department was established to break the boundaries of learning and create an avenue for distance learning via post to occur at a widespread rate (Jugănaru, 2020). The idea behind it was to create an alternative approach to higher education as a means of providing flexibility for students who needed autonomous learning opportunities either due to their respective schedules or inability to afford campus residence; this concept has now evolved into what the world now knows as online learning. With the evolution of the World Wide Web and the ease of access that the internet gives, it has been relatively easy to engage in online

learning as learning materials can simply be uploaded onto the cloud space, granting access to those authorized to use it.

Online learning has now taken different forms such as blended learning, and the virtual learning environment (VLE) which can all be encompassed under e-learning. *E-learning*, defined according to the Cambridge dictionary, is learning done through home study, by using a computer and courses provided via the Internet. E-learning is a virtual learning environment (VLE) and comprises of the use of an e-learning platform (web-based) for the delivery of courses in digital format and is usually integrated into educational institutions, this can either be done fully online or blended with the traditional in-person teaching approach (Jugănar, 2020).

E-learning platforms have evolved over time. In the 1980s, the introduction of the first MAC enabled individuals to have home computers, which made it easier for them to access learning materials electronically (Ruparel, 2021). The Electronic University Network, which was a build-up of ARPANET, the technical foundation of the Internet created in the 1960s, was launched in 1983 and allowed universities to utilize online courses by providing an online educational network (Tamm, 2019). By 1989, the World Wide Web which has evolved into the modern-day Internet was created and the growth of e-learning platforms was boosted. This in turn led to the first online university being opened (Jones International University), and also led to an increase in diverse e-learning platforms being established (Ruparel, 2021). For example, MIT started offering its OpenCourseWare project in 2002 – this idea was built upon by other proponents of e-learning that started having Massive Open Online Courses by 2008, which have progressed into more contemporary e-learning platforms such as Course Era and Khan Academy (Tamm, 2019). By 2014, most universities started using e-learning by way of either creating their own courseware platforms or utilizing platforms such as Moodle and CAMU to upload their personalized course content; these platforms also allowed online operations such as assignment submission, quiz slots, discussion forums etc (Tamm, 2019).

With the VLE, there are two basic functions; according to Dobre (2010), it includes: (1) interaction between tutors and students, including communication and information exchange, (2) content distribution, i.e. online publications, management and retrieval of documents and other information. In a broad sense, these forms aid in creating a medium of delivering knowledge to students by being able to suit every educational situation.

This gradual change in the traditional delivery of knowledge to students in recent times has been further advanced on a larger scale due to the COVID-19 pandemic which left the world at a standstill and caused an unparalleled shift in what the world viewed as “normal” in everyday life. Due to the pandemic, many institutions have shut down to prevent person to person contact and encourage social distancing to lower the chances of infections occurring.

Since the pandemic started in China in the early part of spring in 2020, many universities have undergone a massive migration from the traditional in-class education style coupled with online supplementary resources to moving fully online. In China, due to the government’s requirements of “non-stop teaching and learning”, millions of faculty members and students quickly migrated to fully online learning in a short timeframe (Bao, 2020). Beyond China, with the spread of COVID-19 across the world, as of March 13 2020, 61 countries in Africa, Asia, Europe, the Middle East, North America, and South America have stated or executed school and university closures and most of universities have implemented localized closures (UNESCO, 2020).

Ghana, an English-speaking West African country, was one of the countries that immediately implemented localized closures to maintain the safety of their citizens. On the 15th of March 2020, the President of the Republic, Nana Addo-Danquah Akuffo Addo, ordered that all university and schooling institutions be closed until further notice to limit the spread of the disease and to encourage social distancing (Ghana Ministry of Health, 2020). As with the rest of the world, Ghana came to a standstill and Ashesi University, a private Ghanaian university, was one of the first universities to heed to the directive stated by the Government of Ghana to ensure the safety of their students and equally abide by the law (Modern Ghana, 2020).

On the 18th of March 2020, Ashesi University started the process of shutting down its campus (Ashesi University, 2020). The fully residential private undergraduate university founded in 2002 with just over 1000 students, made the decision to switch to virtual learning in response to the directives of the President of Ghana. This led to a sudden shift in how operations, learning and teaching in Ashesi would be carried out as all resources had to now be remotely accessible to students as a means of avoiding a long pause in university operations and learning altogether.

Thus, this dissertation seeks to explore and examine the impact of moving online on the operations, teaching quality and student experience of Ashesi University and the stakeholders involved in an effort to understand the impact of these decisions that were made and how

effective they have been thus far. This knowledge will help other universities that are migrating online by giving them a blueprint by way of looking at the plights, successes and incumbent structures in place at Ashesi University, that enabled them to migrate online. Also, the information gathered by way of this dissertation will help Ashesi University better its approach to online learning, as well as draw cues for other universities to follow in order to ensure top notch teaching and learning quality.

1.2 Problem Statement

Ashesi University is a private non-profit liberal arts university located in Ghana which has a mission to drive a creation of an “African Renaissance” by educating and instilling a culture of ethics, entrepreneurship, and leadership (Ashesi University, 2020a). Ashesi University is a private, full-residency university located in the town of Berekuso in the Eastern Region of Ghana.

This institution is a co-educational, independent, non-profit institution that uses the Liberal Arts system, which integrates Citizenship, Scholarship and Leadership into the overall system of the institution (Ashesi University, 2020). The stated mission of the Ashesi is “*to educate ethical, entrepreneurial leaders in Africa; to cultivate within students, the critical thinking skills, the concern for others, and the courage it will take to transform the continent.*”

Founded in March 2002, Ashesi University gained accreditation from the National Accreditation Board (NAB) in September 2001 and gained its Presidential Charter in 2018, which made it a fully independent university, thus separating the institution from the Cape Coast University (UCC) as an affiliate (Ashesi University, 2020).

At inception, the university had 30 students and carried out its operations from rented houses in Labone ab initio, but currently has its own campus which has a full residence facility in which students from various backgrounds coexist. The student population is currently 1253, with 47% of the population representing females and 53% being males. There are 36 full-time faculty, 27 adjunct faculty, 10 academic support staff, 75 administrative staff, 19 operations staff, 34 faculty interns and 15 visiting faculty (Ashesi University 2020).

The university offers six undergraduate degrees, namely: BSc Business Administration, BSc Management Information Systems, BSc Computer Science, BSc Electrical and Electronic Engineering, BSc Computer Engineering and BSc Mechanical Engineering.

Over the years, the institution has engaged in the traditional teaching and learning style by having in-class face-to-face interactions while limiting online activities to student portals that provide learning materials remotely as well as other operational processes such as class registration and submission portals. However, since the outbreak of the COVID-19 pandemic, there has been a break in the traditional learning approach due to the government issuing of the closure of higher education institutions in Ghana – this led to Ashesi University fully migrating online (Ashesi University, 2020b).

While there exists a plenitude of research on the area of online learning and higher education in the international and global contexts, there is still a need to explore the scope of the subject in the African context. Further, the COVID-19 pandemic has brought on a new phase within the stream of online learning trends, as well as the future of many higher education institutions regarding how their learning processes and operations will be conducted. This dissertation seeks to assess how these changes have affected the operations, teaching and student experience of Ashesi University and the stakeholders involved.

Also, looking at Ashesi as an African university, there exists a need to also assess how they managed to migrate online, their motivations to do so, their capacity to sustain this migration and also an assessment of how other African universities who did not migrate online are faring with their decisions as well.

1.3 Research Questions

1. How has the online migration affected the operations, teaching quality and student experience at Ashesi University?
2. What can African universities who have not yet fully migrated online learn from Ashesi University and its experience so far?

1.4 Research Objectives

1. To interrogate how and why Ashesi moved online so quickly when all other Ghanaian universities closed.
2. To investigate how the move online has affected teaching conduct and quality.
3. To discuss and describe how the move online has affected university experience for Ashesi students.

4. To determine how moving online has affected the operations of the university including university programs, university finances, university departments and how the university managed the situation.

1.5 Relevance of Research

This research is significant addition to existing literature as there does not yet exist an abundance of current research in this subject area due to the COVID 19 pandemic being the first event that has impacted the world in a very long time. This is also the first time that schools have been forced to migrate online as opposed to choosing to be online. Moreover, it is the first time Ashesi University has fully migrated its operations and teaching online – this dissertation will provide insights into how other African universities can benefit from Ashesi’s method as well as shedding light on the pitfalls encountered, thus creating a clearer path for other universities who may be able to avoid those mistakes and have a smoother transition. Most importantly, it will add to the existing literature on online migrations in higher education institutions and equally provide insights for higher education institutions that may currently be in limbo regarding whether to migrate online or not.

1.6 Structure of the Dissertation

Chapter One focuses on the introduction to dissertation: overview and background, problem statement, research questions, research objectives, research relevance and the theoretical framework. Chapter Two will take a deep gaze into the literature. A literature review will be conducted where relevant existing information on online education in higher learning institutions will be assessed, and the gap in literature will be stated. Chapter Three will assess the methodology relevant to the study. Chapter Four will look at the data obtained and analyze it, and Chapter Five will draw conclusions from the insights gained.

CHAPTER TWO

LITERATURE REVIEW

Chapter Overview

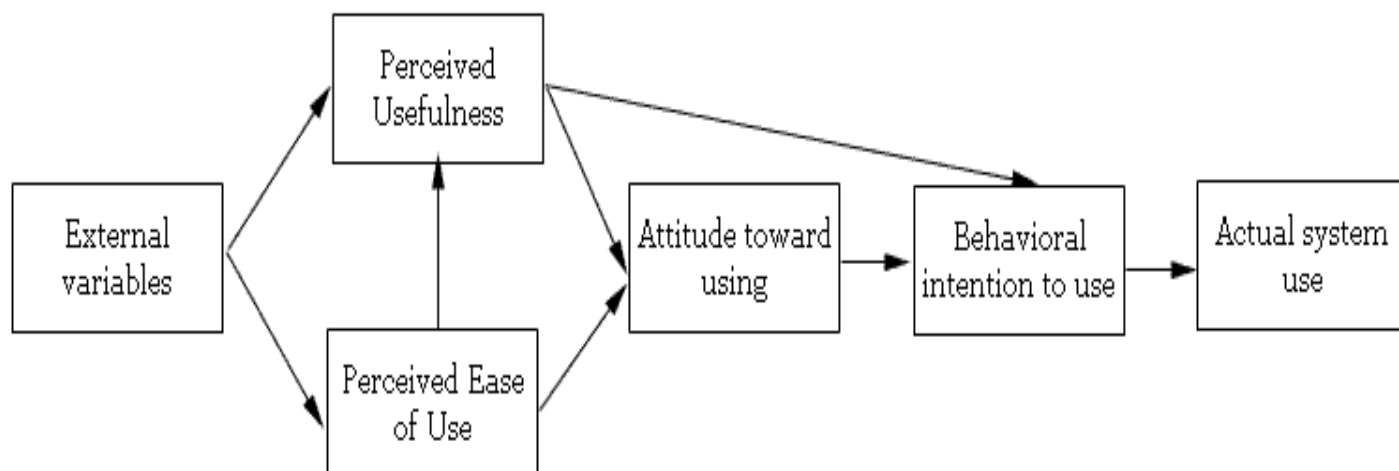
This chapter seeks to analyze and evaluate in depth the existing literature that is related to online learning in higher education institutions. It will provide a fusion of varying literature reiterating the theme of the scope being studied by investigating the challenges and benefits experienced by engaging in online learning in higher education institutions as well as assessing the relevant elements that show a difference between Ashesi University's experience in comparison to other universities. This chapter will consist of an empirical review which will focus on: (a) theoretical review, (b) a brief history on online learning in higher education institutions, (c) an evaluation on the benefits and pitfalls of online learning, (d) internet connectivity and its effects on online learning in Sub-Saharan Africa, (e) response of higher education institutions around the world to the pandemic, (f) response of Ghanaian universities to the pandemic (g) Ashesi's response, (h) literature gap.

2.1 A Discussion of Relevant Theoretical Models

The main theoretical framework guiding this research is based on the Technology Acceptance Model (TAM) developed by Davis (1989). This model asserts that when new technology is presented to a user, a host of factors influence their decision about how and when they will make use of the technology; some notable factors stated by Davis were *perceived usefulness* and *perceived ease-of-use*. *Perceived usefulness* is defined as the “degree to which a person believes that using a particular system would enhance his or her job performance”, meaning whether the user perceives the technology as useful to their tasks. *Perceived ease-of-use* is “the degree to which a person believes that using a particular system would be free from effort”, meaning that if the technology is user-friendly a barrier to desirability is conquered but if it is not user-friendly, the user will not have a positive attitude towards it (Davis, 1986). In essence, the main idea behind this theory is that the attitudes of users towards an interface is based on how the interface affects their performance which in turn creates a hypothesized linkage between perceived ease of use and perceived usefulness.

According to Davis (1986) “perceived ease of use also influences in a significant way the attitude of an individual through two main mechanisms: self-efficacy and instrumentality” – self-efficacy, a concept formulated by Bandura (1982), explains that the extent to which an interface

is user-friendly, increases the user's sense of efficacy which gives the user a feeling of control over their actions being carried out; this is said to create an intrinsic motivation. Regarding instrumentality, the deployment of less efforts into the tasks given by being able to show mastery



of the interface creates space for the unused effort to be used on accomplishing other activities.

Fig 1.1 (Technology Acceptance Model)

The secondary theoretical model guiding this research is the “Five High-Impact Principles for Online Education” by Bao (2020). The model is centred around sustainability and capability regarding online migrations and online education. The focal points are five principles which are said to effectively deliver large-scale education online and this was based on a study done on Peking University. These principles are, namely:

- high relevance between online instructional design and student learning
- effective delivery on online instructional information
- adequate support provided by faculty and teaching assistants to students
- high-quality participation to improve the breadth and depth of student's learning, and
- contingency plan to deal with unexpected incidents of online education platforms”.

(p.115)

These principles, based on the analysis, form a practical basis upon which online learning migration can be robustly implemented and sustained due to the manner in which they enhance the experience of educators, administration, staff and students alike. By choosing to focus on the essential aspects of the syllabus and teaching content, educators are able to match their teaching content to the online learning behavioural patterns of their students. Bao (2020) conveys that due to students experiencing low concentration and focus levels during online learning, it is

necessary to adjust the pace at which lessons are being taught as well as choosing core elements of the study syllabus. This is to ensure that the delivery of information is effective.

Also, providing sufficient support allows students to receive timely feedback as well as online tutoring as a means of guidance after classes. This is said to increase the motivation of students and boost teaching quality as well as enhancing student experience by creating a sense of interaction between students and their educators outside the virtual class schedule. This is also said to enhance the principle of high-quality participation, which improves the level and depth of participation from students; this acts as a mechanism to keep students in tune with class activities as well as helping their learning processes. Lastly, the principle of contingency planning allows accommodation for likely problems such as traffic overloads or troubleshooting needs that may arise due to the migration; contingency plans also act as a defence mechanism against eventualities regarding shifting the modus operandi of how processes are carried out without compromising quality with regard to student experience, teaching quality and overall operations.

Through this lens, this research seeks to understand how adaptability to online migration panned out for Ashesi University and its relevant stakeholders, as well as understanding what challenges they faced while migrating and assessing how far these challenges shaped their decision-making regarding the online migration. The research will also seek to understand how far the Five High-Impact principles are reflected in the actions of Ashesi University regarding their online migration, and how far the elements they may have applied from these principles have shaped their journey thus far.

2.2 Empirical Review

i) A Brief History on Online Learning in Higher Education Institutions

Over the last few decades, online learning in higher education institutions has become more prevalent due to the technological advances that the world at large has experienced. However, these technological advancements did not occur overnight – thus, this section seeks to look at the history of online education in higher education institutions.

The origins on online learning as we know it today stemmed from correspondence courses in the 1800s which sought to initiate distance learning methods for students who could not be physically present on campus. This method started at the University of Chicago where a correspondence learning department was established to break geographical bounds and

constraints to learning by allowing students to learn via post (Jugānaru, 2020). This idea further grew into the migration of learning from the classroom into the “telecourse”, which was initiated in the 1930s in the advent of the invention of television; this allowed television frequencies to be used for educational purposes (Jugānaru, 2020).

Online learning surfaced in 1982 as the Western Behavioral Sciences Institute in California began its School of Management and Strategic Studies which “employed computer conferencing to deliver a distance education program to business executives” (Rowan, 1983). This innovation in learning strategy grew across the United States gradually over time as universities such as the University of Phoenix and the University of Illinois started offering semi-online courses by the beginning of the 1990s with the debut of the World Wide Web, and by 1998, the first fully online programs were instituted in California Virtual University, New York University and Trident University International (Miller et al., 2014). With the continual progression of online education due to the expansion of the Internet and its functionality, it has been noticed that by 2013, nearly 30% of all higher education students worldwide were enrolled in some form of distance education course (Radford, 2011).

ii) *A Brief Juxtaposition The Benefits And Pitfalls of Online Learning*

Online learning has brought flexibility to higher education systems to a large extent, but there also exist pitfalls within the system (Jugānaru, 2020). These pitfalls were highlighted by Chu’s (2014) study on the potential negative effects of online learning on the learning achievements of students. The central theme was based on the “cognitive load theory” which is concerned with the manner in which the cognitive architecture of an individual handles learning objects during tasks along the learning process. This architecture is said to be split into long-term and short-term memory which affects the standard of an individual’s learning quality. Lower cognitive loads tend to reap better results with regard to learning quality, whereas higher learning loads tend to reduce learning quality in individuals. Baddley and Hitch (1974) found that the memory of humans can grasp just a limited number of new interactive elements (possibly, no more than two or three elements), meaning that improper structure of learning content and teaching strategies are likely to increase the cognitive load of students. This in turn overloads their working memory and reduces learning quality.

In addition, Zounek and Sudicky (2012) argue that online learning can lead to information and communication overload due to the continuous communication and variety of

channels through which this communication is given. This in turn leads to a dwindling in the focus levels of students when it comes to their task solving and concentrated learning. Also, improperly structured and delivered courses can lead to information overload due to the density of the content being given to the students. This overwhelming increase tends to lead to plagiarism as well as uncompleted tasks that eventually cause a dip in the grades of students due to them not being able to meet deadlines.

Sudicky (2012) also argues that various forms of online learning may have exacerbated disadvantages due to having a huge number of students to a smaller number of teachers, as providing individual support to each student may be close to impossible. This pitfall can cause poor communication and feedback channels between teachers and their students, which in turn can reduce teaching quality. Moreover, decreased motivations due to the poor communication and feedback channels in the long run can occur when students have negative resentments towards their inability to properly structure workloads – this in turn causes poor learning habits and decreased productivity that leads to lower grade attainments.

Another pitfall of online learning is that things can get lost in translation. Brown and Liedholm (2002) conducted a study on two groups of students (online and in-person) which showed that online students performed worse on assessments than those in the in-person class. This was due to students not properly understanding concepts in the assessments which was caused by them spending less time studying due to a lack of motivation to learn as compared to the in-person students. There existed a difficulty for teachers in preparing high quality multimodal study materials that did not include only texts, but also an opportunity for real-life application – this created a learning and teaching gap as practicality aids learning. This also added to the decrease in learning quality.

Figlio et al. (2010) also conducted a study that showed that although online education tends to bring flexibility to the schedules of those who opt for it, it has a less positive effect on students and learning quality. The study had two groups of students: (a) students who attended and in-person class and watched the same lecture online after the class, and (b) students who attended the lecture online. It was found that the in-person students had a better understanding of the teaching as compared to the online students due to being able to have access to two study materials (both online and traditional). Due to the in-person students being able to attend the

class and also have the lecture video to recap, there was a doubling of their understanding as they could pick up on concepts they may have missed while participating in person.

On the other hand, online learning has its benefits. Texts from Ellis and Goodyear (2009) show that the unrestricted access to information credited to the boom in the development of the internet allows students to tap into multiple streams of knowledge, which enhances learning. Due to the readily accessible materials online and the ability to store information for a learning community within a cloud space, online learning is beneficial as it allows students to be able to access learning content whenever, wherever. This flexibility gives time to students who may be actively engaging in employment or other duties that may disallow them from attending in-person classes.

Also, Fee (2009) using online learning technology allows students and teachers to take advantage of the opportunity to easily collaborate and share information and a variety of tasks and projects. Online technology allows a peer-based network to be formed where students can receive direct feedback, evaluation and opinions on their work in order to guide their learning. Zounek (2012) argued that although online learning has its pitfalls, it may be more suitable for certain students as it may boost their performance and confidence as opposed to in-person classes due to helping them overcome the social anxieties that they may have since they communicate with others via chats and forums.

Personalization also forms a major part of the benefits of online learning as students may have better responses to situations that they have more time to give thought to. In addition to this, students may have the space to refine their ideas due to being able to edit their questions, contributions and comments, which in turn boosts their self-confidence (Zounek, 2012). The use of e-learning tools can also contribute to students' "digital intelligence and IT competencies" as well as giving students the opportunity to personalize their learning schedules to aid their time management in correspondence to the general guidelines and deadlines set by their teachers. Personalization in this sense can also boost results as it allows students to self-regulate and pace themselves according to their skills and capabilities (Fee, 2009).

iii) Internet Connectivity and its Effects on Online Learning in Sub-Saharan Africa

Within the Sub-Saharan region of Africa, it is estimated that as little as 39.3% of people have access to Internet connectivity as compared to the global average of 58.8% of people (IWS, 2020). Thus, in higher education institutions in this region, there is a great challenge with solely

using online modes of delivering lesson content as the information and communication technology infrastructure within the region has not greatly adapted to match up to the needs of engaging in solely online learning.

Currently, there are more than 50+ wireless operators in Africa, with CDMA-2000 being recognized as the appropriate technology to deliver wireless internet connectivity to Africa (Ilkan, 2014). This has made service provision more flexible, and undersea Fibre Optic cables were made accessible to a vast number of countries in Africa from 2009. These advances have created an “internet revolution” which has greatly contributed to the progression of online education in the region. The spike in internet usage from 2000 to 2011 was a major steppingstone for the progression of online education (Tagoe, 2012; Nkansah, 2001).

Regardless of these hindrances, online learning is still seen as a remedy to the problem of accessibility when it comes to quality higher education in the Sub-Saharan region. This is mainly because individuals who have participated in online learning (mostly in developed nations) perceive it to be beneficial due to the flexibility and convenience it offers along with a plethora of resources (Leasure, Davis & Thievon, 2000). This in turn increase the self-esteem, motivation, participation and interactivity of students which improves the overall quality of learning (Fjermestad, Hiltz & Zhang, 2005).

Thus, many institutions within the Sub-Saharan region are eager to explore means of equally embracing this mode of delivery to aid the growing demand for higher education within the region.

Narrowing down to the scope being explored in this study, it will be useful to also look at the challenges faced by Ghana relating to online learning. As with the above-mentioned constraints linked to inadequate infrastructure and institutional difficulties within the Sub-Saharan setting, Ghana faces challenges in fully implementing online learning as Internet connectivity is not yet available to all people of every socio-economic standing, and affordability of data bundles to use the internet is slightly expensive for most.

According to ILS (2020), Ghana has only 28.4% of internet users which are mostly concentrated in the urban areas. Nonetheless, in the Sub-Saharan region Ghana is rated as one of “the best countries for online education though the process is still in its infancy” (Kotoua, 2014). However, a study conducted by Kotoua (2014) suggests that although at least 5 out of every 10 higher education students in Ghana have access to the internet and most universities have 24-

hour access to the internet, the online education in Ghanaian universities still has some pitfalls as there is still a lack of adequate infrastructural facilities such as computers and reliable network connectivity.

iv) Response of Higher Education Institutions Around the World to the Pandemic

The COVID-19 Pandemic has been one of the greatest challenges faced by educational systems worldwide as many governments have issued directives to halt the traditional in-person method of teaching and learning, which has in turn forced some institutions to either go on an indefinite hiatus or migrate online almost immediately. This brief section explores the responses of higher education institutions in regions outside of Ghana to the COVID-19 pandemic.

In China, where the outbreak originated from, many universities responded by immediately shutting down institutions and quickly migrated online to continue teaching due to the government's requirements of "nonstop teaching and learning" (Bao, 2020). Universities in the country deferred the beginning of the spring semester and students were not permitted to return to campus without authorization. To ensure flexible online learning for over 270 million students, the Chinese Ministry of Education started an initiative which focused on 'disrupted classes, undisrupted learning' (Zhu, 2020). In addition, the Chinese government launched an initiative titled 'Guidance on the Organization and Management of Online Teaching in the Higher Education Institutions During Epidemic Prevention and Control Period', which focused on encouraging a joint implementation of online learning as a means of engaging in a collaborative effort (Ministry of Education China, 2020; Zhu & Lui, 2020).

These measures were promptly adhered to and by early February 2020, 24,000 online courses were made available by 22 major online curriculum platforms for high education institutions, along with 1,291 national excellence courses and 401 national virtual simulation experimental courses, covering 12 under-graduate programs and 18 tertiary vocational programs (Wang, 2020; Zhu & Liu, 2020).

For example, the Peking University in China, the institution launched a total of 2,613 undergraduate courses and 1,824 graduate courses fully online to ensure the continuity of teaching and learning operations (Bao, 2020; Lei, 2020). This led to 44,700 students migrating fully online in a matter of days and teachers having to coordinate novel lesson plans, designs, and materials as well as the university quickly developing technical support teams to aid the change in operations.

As with Chinese universities, universities in Ireland also followed similar directives in response to the pandemic outbreak. Trinity College Dublin was the first Irish University to have an immediate shutdown of its physical campus and quickly migrated online on the same day one of its students tested positive for COVID-19 in early March 2020 (Crawford et al., 2020).

University College Dublin also followed suit as the president, Professor Andrew Deeks, issued a statement informing students and staff of the closure of all their physical infrastructures taking effect from the 13th of March 2020 until the 29th of March 2020 to encourage social distancing and in turn reduce the risk of infections spreading (Crawford et al., 2020; UCD, 2020). In response, 21 higher education institutions disseminated messages giving guidance to students about how to cope with the pandemic as well as providing constant updates on nationwide procedures being instated to ensure that adequate innovative technologies will be used to aid their online migration (Deeks et al., 2020).

Whilst the pandemic spread across the globe, some African countries also experienced a rise in COVID-19 cases. By the 29th of March 2020, South Africa had 1,187 confirmed cases of the virus with one reported death (WHO, 2020a); in a bid to safeguard the lives of citizens, the government issued regulations that limited gatherings and implemented travel restrictions, social distancing as well as the closure of educational institutions (South African News Agency, 2020). The South African Union of Students (SAUS) incited a rapid wave of reactionary measures by the government which caused higher education institutions to undertake precautionary measures due to the union's concern of a lack of urgency being shown (Kyama et al., 2020). The SAUS also urged students to practice social distancing as they waited a formal decision from the Ministry of Higher Education; shortly after, many universities such as the University of Johannesburg, Wits, Cape Town and Fort Hare halted all in-person classes. Some other universities such as Witwatersrand and Rhodes also indefinitely halted their upcoming graduation ceremonies (Crawford et al., 2020; Sobuwa, 2020). The Minister of Higher Education also announced the closure of universities for two weeks and encouraged institutions to use the break period to explore "digital and online delivery methods for teaching and learning to support programs at a later stage" (Crawford et al., 2020; Chothia, 2020).

v) *Response of Ghanaian Government and Universities to the Pandemic*

On March 12, 2020, the first case of COVID-19 was recorded in Ghana (Ghana Health Service [GHS], 2020). Within a few days, cases started to increase and by the 16th of March, the

government of Ghana issued the closure of all schools as well as interdicting all public gatherings in a bid to encourage social distancing (Kokutse, 2020, Nyabor, 2020).

In order to ensure the continuity of education and academic activities, some universities in Ghana resorted to migrating online and engaging students via e-learning (Anaba, 2020). Universities such as the University of Ghana, Wisconsin University College and Kwame Nkrumah University of Science and Technology (KNUST) migrated online and inculcated directives to evacuate students from the campus in order to limit interactions and reduce the risk of infection. Since this directive was instated in March 2020, these universities have ensured that teaching and learning was done online for most courses, but not all courses could fully migrate online due to the lack of infrastructure.

vi) *Ashesi's Response*

Ashesi University was one of the first universities in Ghana to fully migrate online after the closure of campuses. Initially, after the government of Ghana issued campus closures on the 16th of March, Ashesi immediately restricted entry into the physical campus on the following day which was followed by the total closure of the physical campus on the 18th of March 2020 (Ashesi University, 2020c). International students were allowed to remain on campus until March 21, but Ghanaian students were required to fully evacuate on the 18th of March in order to ensure safety.

After the evacuations, a two-week break was initiated after which the semester resumed on the 30th of March 2020. This section of the semester was fully online as all teaching and learning materials were being disseminated via email, Canvas Instructure and Zoom classes. Faculty was being supported by the IT office to make needed preparations for online teaching as well as faculty working in tandem with the Office of the Provost and Academic Quality Assurance Committee to create a modified grading system for the new phase of operations they were undertaking.

Regarding operations of the university administration, these were some of the directives that were established according to Ashesi University (2020c):

- a. Various staff teams will prepare a plan for continued business operations. Heads of Departments should have discussions with their teams (via remote conferencing) to decide how work will be scheduled and distributed during this time. As much as possible,

we are moving to remote working. Only essential staff, as designated by Departmental Heads, should be commuting to campus.

b. Teams should designate leads and define team members who will step in as alternates. Should a team lead be unable to work, or need to go on sick leave, supporting staff will step in to ensure essential operations continue.

c. The Admissions Office will continue operating online. Prospective students must submit their applications via our online portal or by email. Until further notice, applications cannot be brought to campus. The Office will be communicating dates for webinars and online admissions sessions by Monday, March 23rd.

vii) *Literature Gap*

After reviewing a plethora of literature, it became evident that there is a gap in the literature available on online education in Ghana and in Africa as well as a lack of sufficient literature on the impacts of COVID-19 on Ghanaian universities. The existing studies look at the operations of universities in Ghana and the rest of the world prior to the pandemic and also briefly gives information on campus closures but does not adequately provide information as to how universities in Ghana are currently coping after they decided to close campuses and move online.

Per my research, I realized that online migration seemed to be easier for higher education institutions in the Western World due to having most of their operations online already and because they were in countries with reliable stable access to the internet. Thus, after assessing the literature I discovered that further studies on this topic is essential as it will provide information for African universities on how to conduct an online migration as well as understanding the impacts of how the move online has affected teaching conduct, student experience and operational quality. This study will also help in determining how moving online has affected the operations of Ashesi University including university programs, finances, departments, how the university managed the situation and also draw lessons from the management of Ashesi's move online for other Ghanaian universities.

CHAPTER THREE

METHODOLOGY

3.1 Overview and Research Purpose

According to Kumar (2010), research methodology is important as it shows the path the researcher takes to conduct the research as well as the means of collecting and analyzing the data. The importance of this study is to provide insights into how other African universities can benefit from Ashesi's method of full online migration, as well as shedding light on the drawbacks that were met during the process. This will create a clarity for other universities who may be able to evade those missteps and have a smoother transition. Most importantly, it will be an addition to the existing literature on online migrations in higher education institutions and likewise provide insights for higher education institutions that may currently be deciding whether to migrate online or not.

This section will explain how the information gathered for answering my research questions was gained, as well as zooming into whom the information was gained from and how it was analyzed for a conclusion to be drawn at the end of this study.

3.2 Research Design

According to Sacred Heart University (2020), a research design “refers to the overall strategy that you choose to integrate the different components of the study in a coherent and logical way, thereby, ensuring you will effectively address the research problem; it constitutes the blueprint for the collection, measurement, and analysis of data”. Petre and Rugg (2007, p. 60) also state that using a good research design helps the researcher to acquire more and better results with the same effort input used on a subpar research design. Thus, the research design is basically a blueprint that acts as a guide towards finding valid answers to the research question – the ‘roadmap’ attribute of the research design makes it a viable compass that guides the researcher to show who, where, when and how data is collated, refined and processed to bring an output of credible information.

Due to the research objective of this study scope, the study is categorized under a sequential explanatory research as the data collected is expatiated upon by way of gaining general results through a quantitative research that is then expanded upon during the qualitative research period. Using this method helps in answering the research questions by finding out the surface details about the migration and its impacts on the respective bodies to be studied

(students, staff and lecturers) as well as more in-depth details that looks into their personal experiences in a bid to produce a wholesome research.

Regarding the sequential exploratory method, as stated by Terrell (2012), the sequential exploratory method focuses on having two strands of data: the first strand being **the qualitative strand** and the second being the **quantitative strand**. A strand in this case is a “basic part of a design encompassing either the qualitative or quantitative component” (Terrell, 2012).

Strands are related by “interactions” through which the result of one strand may have an influence on the result of the second strand. Generally, exploratory research is typically carried out by interviewing “experts” in the subject matter, conducting focus group interviews and thorough an investigation of the existing literature (Saunders et al, 2007). This data collection method is used when an in-depth understanding of a problem and/or phenomena is needed (Saunders et al., 2007).

However, in a sequential exploratory approach, the needed data is collected in two phases - qualitative data is gathered first and there is more emphasis placed on the qualitative strand. Thus, this approach will aid in shedding light on the gaps in the existing research and in turn bring out a new, holistic contribution to the study, as well as providing an in-depth understanding into the experiences of the interviewees and questionnaire respondents.

The fundamental reason for conducting in-depth interviews was to gain insights into the effects of the online migration to each respective group (students, faculty and staff), as well as assessing if the ease or difficulty they experience with the technology they have to use due to the online migration has a positive or negative effect on their outlook towards the migration. The results from the interview were then used to design an online questionnaire to collect quantitative data and a little bit of qualitative data as the questionnaires had two open-ended questions. The questions for the in-depth interview were designed to obtain information on the experiences of students regarding their learning quality and how far the lack of in-person interaction has affected their overall student experience. It also sought to gain information on how the staff and faculty have managed their work processes online and how the migration has affected their work processes, as well as how far they think students’ learning quality has been affected by the migration.

Also, using this approach aids in gaining insight into how the technology acceptance model theoretical framework proves to be true in the case of Ashesi University and how far they

have been able to migrate online and sustain their online operations. The technological acceptance model argues that the degree to which a person believes that the ease or difficulty of using a particular system would enhance his or her job performance – this approach aims to shed light on how far this theoretical framework fits into the case of Ashesi University and how far it will be useful to other universities that would want to follow Ashesi’s steps. It also aims to shed light on the experiences of those within the study scope in relation to how far they find ease or difficulty in adjusting to the migration based on their personal acceptance of the technology being used. Moreover, this approach will also shed light on the shortcomings of online operations in the case of Ashesi University and how far those involved have experienced pitfalls in their productivity due to the lack of in-person interaction. It will also help to assess whether online learning is more or less favourable for certain groups such as senior students compared to junior students or international students compared to local students.

3.3 Research Method

This study employed mixed methods research, as it used both qualitative and quantitative data collection techniques. Qualitative data collection methods (e.g. interviews) are used to generate non-numerical information which focuses on the “why” aspect of behavior by drawing insights from the opinions, experiences and feelings of those involved in the study (Saunders et al., 2009; University of Surrey, 2016). This was done by conducting in-depth interviews and conducting questionnaires to collect data – both elements were used in conjunction with secondary existing literature in order to answer the research questions and reach a sound conclusion. The primary data was gathered from interviews and online questionnaires that will be conducted from a sample of selected faculty, staff members and students. The secondary data was drawn from existing literature around the study topic.

3.4 Research Scope

A study population refers to “the universe of people to which the study could be generalized”, or a “group from which the sample is drawn” (Johnston & VanderStoep, 2009, p.26; Studenmund, 2017, p.139). Students, staff and faculty from Ashesi comprised the population for this study. The sample composed of sophomore (second year or level 200), junior (third year or level 300) and senior (fourth year or level 400) students, as well as campus administrators from the staff and a few lecturers from the faculty – the choice of using these individuals to draw insight is based on the need for this study to effectively assess the impact of

the migration on all essential facets of the institution. There were 75 people in total, in order to avoid exceeding saturation level which may decrease the quality of the study (Fusch & Ness, 2015).

3.5 Sampling Strategy and Data Collection

The strategies that employed in this study were in-depth interviews and questionnaires. The interviews were structured and in-depth in nature, but participants were permitted to add on any supplementary information they deemed important. The questionnaires consisted of a mix of open and closed-ended questions aimed to gain as much information as possible from the participants.

The sampling approach used in this research was purposive sampling. The purposive sampling method is a “non-probability sampling procedure in which the judgment of the research is used to select the cases that make up the sample” (Saunders et al, 2007). This was employed as the research sought specific, internal respondents who are part of Ashesi and experienced the online migration during the start of the pandemic. Four students from each year group were interviewed (i.e. 2021, 2022 and 2023) and the online questionnaire was set to target 60 students within the same year group range but received 55 respondents. Two members of administrative staff and two lecturers were also given an in-depth interview in order to draw insights from their experiences. The lecturers were chosen on the basis of them being full-time lecturers who have worked with Ashesi for more than four years.

3.6 Data Processing and Analysis

The data analysis method used was thematic analysis. Thematic analysis is a data analysis method that aids in gaining a wholesome comprehension of participant viewpoints. This type of analysis identifies patterns within the data, thus enabling the researcher “a detailed understanding of the research data” (SAGE Publications, 2021). It is a valuable technique for analyzing qualitative data as it picks out significant recurrent themes from participant responses – thus, this is a useful method for assessing the content of the gathered responses from the open-ended questionnaire questions as well as the in-depth interviews.

Interviews were recorded with the permission of respondents to ensure that the obtained data had been replicated accurately. Also, Microsoft Excel graphs were used for the questionnaire data presentation. This was done to ensure a more organized representation of the collected responses from the online questionnaires.

Also, the research proposal for this study was approved and reviews by the Institutional Review Board of Ashesi University. The review board assessed the intentions of the researcher and approved of the data collection procedures. Moreover, full consent of the participants of the study was obtained prior to the interviews and questionnaires being given. The researcher had also informed participants that they had the option and ability to terminate the interview if they desired to. All details of the respondents were treated with confidentiality as the interview and questionnaire respondents had the option to either remain anonymous or not. Consent forms that explained the scope of the research and also gave options to respondents to remain anonymous or not were given out to prospective respondents under no coercion – once they consented, their interview dates were set and those who opted for questionnaires also had an electronic version of the consent form to sign prior to proceeding to answer the questions.

3.7 Summary

- This research was a sequential exploratory research as it employed the use of both quantitative and qualitative data collection techniques, with the qualitative aspect being of more importance.
- Eighteen (18) respondents were interviewed and fifty-five (55) students responded to the online survey, which was designed and administered after the interviews.
- The interviews were recorder for quality assurance purposes and thematic analysis was used to analyze the gathered data.

CHAPTER FOUR

DATA ANALYSIS

Overview

This chapter comprises of an analysis of the collected data for this study in respect to the research objectives. The chapter has been split into two parts: the first part analyzes the data obtained from the in-depth interviews conducted (qualitative research strand), while the second part analyzes the findings from the online questionnaires (quantitative research strand) and presents the relevant data in graph and tabular form. All the presented findings are based on the theoretical framework (technology acceptance model) and the research objectives. Also, Bao's (2020) five high-impact principles for online learning will be used as a lens through which the sustainability of the migration will be upheld.

4.1 Qualitative Research Results (In-depth Interview)

The fundamental reason for conducting in-depth interviews was to gain insights into the effects of the online migration to each respective group (students, faculty and staff), as well as assessing if the ease or difficulty they experience with the technology they have to use due to the online migration has a positive or negative effect on their outlook towards the migration. The results from the interview were then used to design an online questionnaire to collect quantitative data and a little bit of qualitative data as the questionnaires had two open-ended questions. The questions for the in-depth interview were designed to obtain information on the experiences of students with regard to their learning quality and how far the lack of in-person interaction has affected their overall student experience. It also sought to gain information on how the staff and faculty have managed their work processes online and how the migration has affected their work processes, as well as how far they think students' learning quality has been affected by the migration.

4.1.1 Outcomes of Research Questions

4.2.1.i – Research Question 1: *Effects of the Migration: “How has the online migration affected the operations, teaching quality and student experience at Ashesi University?”*

Respondents were asked to give their opinion on how far they feel the online migration has affected the operations, teaching quality and overall student experience at Ashesi University. The questions spanned across their perspective on how processes have been affected by the migration and how these changes have affected them. These questions were asked to three

different groups, namely: lecturers (faculty), administrative staff and students. Below are the results for each group.

- **Ahesi Student Responses**

The student respondents indicated how they felt their experiences as students had been greatly affected by the pandemic and the online migration. Respondents said that the online migration put a huge burden on them as students due to having to work from home, which was new to them, as well as having challenges with not being able to effectively learn at home as compared to their time on campus.

A senior student from the class of 2021 who was interviewed said: *“I miss being on campus because I have problems with remembering deadlines. Being at home makes it hard to keep track of my schoolwork because I have to balance both being home at managing my final year schoolwork. I feel like I don’t have any spare time to zone out and have privacy to work like I used to on campus”*.

A junior student from the class of 2022 also said: *“Handling the pandemic is hard enough. Having to move online so quick was nerve-racking for me because I struggle with my grades and I used to get tutorial help from colleagues. Working from a distance has made my courses harder for me to sail through because I feel I don’t have the support I used to have on campus, and home is not conducive for schoolwork”*.

One sophomore student from the class of 2023 also iterated: *“I don’t think I mind schooling from home for now, but I just miss my friends. I fear that if the pandemic stretches out until I get to final year, I will be more worried because the workload will be more, and I would probably need extra help from my lecturers and FIs. My main problem is the distractions at home and internet access. Being on Zoom all day sometimes gets unbearable and I find it hard to focus”*.

The research revealed that most students had problems with the shift from traditional learning methods to online learning methods mostly due to the workload and the breakdown of in-person communication that they were used to. Other concerns raised were that the students felt teaching quality had not reduced per say but grasping certain concepts (especially math or engineering-based concepts) were harder due to not being in person, workloads seemed to be greater than they were in person, and hitches in internet connectivity affected the quality of learning. They also stated that they did not necessarily have an issue with using online methods

as they were seemingly used to using online tools such as Canvas and Zoom, but more so had problems with keeping up with the online methods due to the breaks in internet connectivity.

According to Ke (2010), cognitive presence in adult learners is linked to how they perceive their learning satisfaction. This shows that the learning satisfaction or dissatisfaction of the students is linked to how present they feel during their learning periods and vice versa – thus, teaching presence is an essential piece that seems to be lacking for students since the migration as they feel isolated, which has in turn affected their outlook towards their learning quality.

- **Administrative Staff Responses**

The administrative staff respondents expressed that the online migration caused a significant shift in their work processes due to the break in in-person interaction, which formed a major part of their work prior to the pandemic. Respondents said that the online migration brought about flexibility in their work schedule as they did not have to commute to work any longer, but also found themselves working for longer hours as they had to juggle their work with their affairs at home. The respondents expressed that they had to care for their children who were equally at home as they worked, which caused disruptions in their flow of work.

One main concern that the respondents had was the break in communication between them and their colleagues due to having to either call to follow up on emails or tasks as compared to simply walking to their colleagues' office to pick up what was needed. One respondent said: *“Working from home is fine because I now have the liberty to manage work with my side business and I can also work from anywhere. I do not miss the long commute to and from Berekuso to Accra. But one problem I have is with keeping up with work because of the distractions – my baby is at home and I must help care for her as I work. And sometimes when the electricity goes off or the network goes bad, work becomes harder to deal with because of the inconvenience”*.

Another respondent said: *“Sometimes reaching colleagues via phone is hard because they may not answer their phones or check their emails as frequently due to being preoccupied at home. It sometimes slows down work and causes us to work longer hours because we may have to postpone certain tasks for a later time”*.

Regarding the operations of Ashesi, respondents conveyed that the university incurred a lot of cost by closing the campus and migrating online. The research revealed that a lot of cost was incurred by way of providing data for students at home as well as providing aid to less

fortunate students who either lacked accommodation and could not return to their home countries because of the lockdown or those who could not afford adequate internet connectivity – engineering students were also supplied with certain equipment needed for their learning, which had to be shipped to their respective homes even outside of Ghana, which added on to the costs. Also, the university incurred costs by granting janitors, cafeteria staff and other staff paid leave, in a bid to avoid leaving those staff unemployed during the lockdown where no other opportunities to make a living would be available for them.

The research also revealed that the topmost priority of the university was ensuring the safety of the community – thus the reason why they closed the campus and issued a two-week hiatus in order to schedule how to fully migrate online.

To further probe, respondents were asked whether they thought the online migration was an easy or difficult call. One respondent said: *“It was relatively easy for Ashesi to migrate quickly because most of our tools were already online – for example, we have the Office 365 system that everyone in the Ashesi community is conversant with, as well as the students being knowledgeable about how Zoom, Canvas, CAMU and other tools work. So, moving was easy to an extent, but adjusting to the move is where the problems lie”*. This response showed that Ashesi had the capacity to migrate online and had contingency plans in place – more interestingly, the response shows proof of the technology acceptance model’s theory being relevant to this study as the fact that the community had prior knowledge on how to use these online platforms aided the online migration in being rapid to an extent, as the university did not have to go through training their community on how to use these platforms.

Also, another responded further reiterated the idea of Ashesi having a contingency plan in place by stating that: *“Ashesi had in place a system and a reserve to absorb shocks in case of a rainy day. Due to the Ebola crisis of 2014, Ashesi had already put in place measures for an emergency closure and evacuation in case of an event where an epidemic/pandemic was to outbreak. This is why we found it easy to quickly close and restructure our teaching/learning system to suit an online learning system”*.

- **Faculty (Lecturers) Responses**

The faculty members who were respondents shared similar sentiments with the student respondents as they felt that student experiences have been greatly affected by the pandemic and online migration in an adverse manner to an extent – however, this is not due to a decline in

teaching quality but rather a decrease in the learning quality of students. The respondents also shared similar sentiments with the administrative staff respondents who iterated that their work processes have now become blended with home affairs, which tends to make it difficult to keep up with work sometimes or work without disruptions either by family, electricity outages, drops in internet connectivity or a lag in response from colleagues.

One respondent stated that: *“There have been no significant changes in my general work processes because most of my work was done on my computer. The only thing missing is the in-person interaction I had with my students and colleagues. It takes adjustment to enjoy as one misses the classroom. Face to face interaction makes building rapports easier, but unfortunately that has been taken away. Zoom fatigue is so real, being behind the screen gets tiring”*.

Also, when asked reasons why the respondents thought Ashesi migrated online faster than other universities, one recurring answer was that Ashesi wanted to ensure the safety of students and also ensure continuity in their learning processes. One respondent stated: *“The university wanted to do their best to avoid any delays in the school schedule that would cause uncertainties for final year students and incoming students as well. They made sure to move online quickly to keep the ball rolling”*.

The respondents stated that the online migration caused them to “focus more on the needful” aspects of the courses they were teaching as opposed to teaching beyond the core aspects of the courses as they did prior to the pandemic. They believe that this has made courses less bulky and more concise, thus improving the quality of teaching and teaching content. However, they also conveyed that they believe the quality of learning has dwindled due to students having a false sense of time, which causes them to procrastinate and end up being overwhelmed by their coursework. Also, they said that they believe distractions in the home of the students has caused a decline in learning quality as well as the students’ wellbeing due to the students finding it hard to balance school and home. The idea of a lack of extrinsic motivation was also mentioned as the respondents believe that due to not being in a school environment, some students lack extrinsic motivation due to not having colleagues as direct or indirect accountability partners.

4.2.1.ii – **Research Question 2:** *What can universities who have not yet fully migrated online learn from Ashesi University and its experience so far?*

- Contingency Plans

One response that was recurrent was the idea that because Ashesi had a contingency plan in place to absorb shocks in case of any unforeseen circumstances that would cause them to be forced to migrate online, they found it easier to do so. Having a contingency plan and a reserve fund pool to fund the migrations made it easier for Ashesi to close the campus and move its operations online fully.

Thus, this showed that universities who have not yet fully migrated need to put plans in place for unforeseen circumstances in order to be able to shift gears effectively when need be.

- Hybridization of Teaching Methods and University Operations

The need for hybridization in teaching methods and operations also proved to be a recurring idea, as the respondents stated that it was easier for Ashesi to migrate online fully due to having most of their process online to begin with. Class content and other operations like registration, online communication via email and online portals for engaging important offices such as the finance office were already fully online – students only had to attend lectures for physical interaction but had most of their content online. The same is true for faculty and staff as they also did most of their work virtually except for their meetings and in-person communication processes which were easily able to be converted into the online space.

Thus, this aspect of the research showed that universities who have not yet migrated online or who are considering doing so need to start off by first engaging in hybridization, which helps the stakeholders involved (students, faculty and staff) become conversant with the technology being used – once there is a positive perceived ease of use and perceived usefulness built up, migrating online will be fairly easy due to those involved being able to keep up with the changes being made.

4.2 Analysis of Quantitative Data (Questionnaires)

Overview of Structure

This section looks at the quantitative responses gathered from the research. This quantitative portion of the study only sought responses from students. Thus, this section is split into three parts. First, a short section on the demographics of the respondents is given. Subsequently, the results obtained from the questionnaires are gathered and the findings are put under specific themes, namely: Basic Information, Evaluation of Students' Attitudes to Online Learning, Impact of Online Migration on Students, Student Perceptions about Teachers' Performance and

Student Perspective on Enhancements Needed. Finally, a brief discussion of the findings closes the chapter.

4.3.1 Demographic Data of Quantitative Strand Respondents

The questionnaires were issued online and had a cap of sixty (60) respondents, with fifty-five (55) respondents fully completing the questionnaires at the end of the study – hence, the response rate is 91%. As a result, only the fifty-five (55) fully completed questionnaires were analyzed. The use of *total population* subsequently in this analysis is in reference to these 55 responses.

The respondents were in the following proportions: 51% females and 49% males. Senior students represented 37.8%; Juniors, 32.4% and Sophomores, 29.7%. Figure 4.1 shows the details on the collected gender and year group data. It would be useful to note that other demographics such as age and degree course were not collected to ensure the anonymity of the respondents.

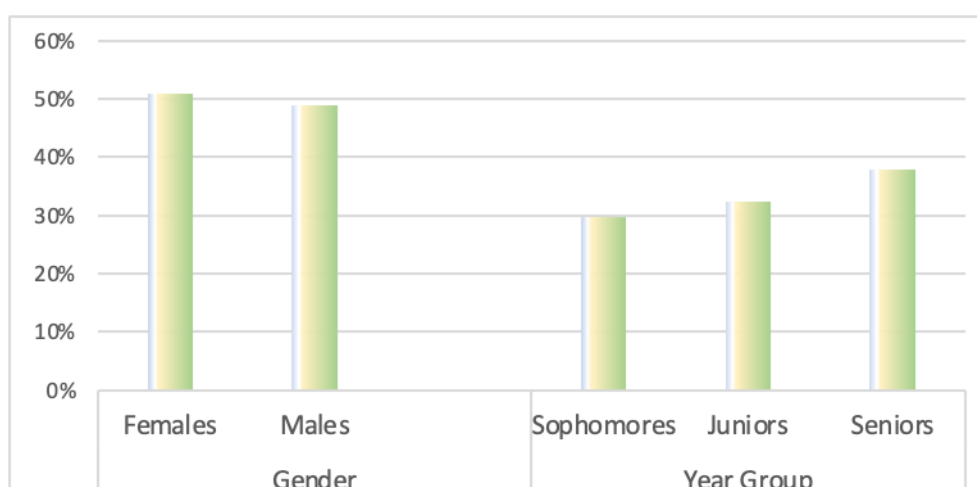


Fig 4.1: Demographic Data in Percentages of the Total Population.

Source: Field Data

4.3.2 Quantitative Research Findings (Online Questionnaires)

i) Basic Information

The questionnaires were administered online with attached consent forms. Respondents could opt to remain anonymous or not. 75.7% of respondents opted to be anonymous and 24.3% opted to remain anonymous. Out of these respondents, 89.2% stated that they were first timers when it comes to engaging in fully online learning, and 10.8% stated they had engaged in fully online learning prior to the migration. Fig 4.2 gives a graphical representation of Ashesi students who were inexperienced in fully online education.

Percentage of Students That Have Engaged in Online Learning Prior

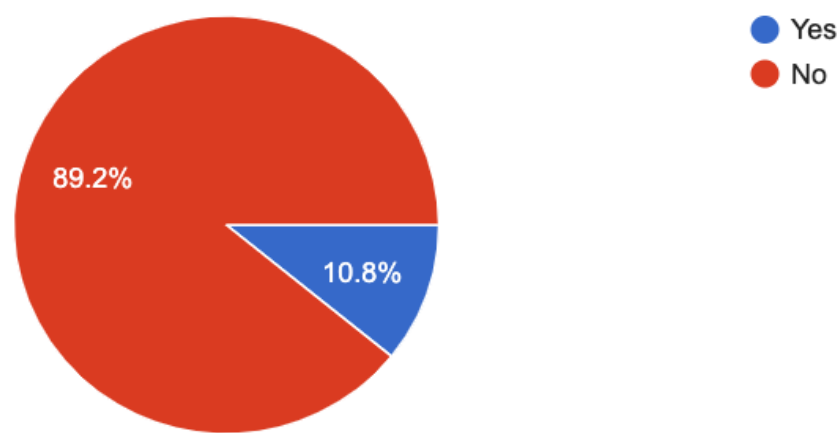


Fig 4.2: Percentage of Students That Have Engaged in Online Learning Prior

Source: Field Data

Also, 89.2% of respondents stated that they did not fail or drop any course due to the change of the traditional assessment method since the online migration, while 10.8% stated that they had failed or dropped courses due to the migration. Also, 35.1% of students stated that they had strong, reliable internet connectivity, while 32.4% also stated that their internet connectivity was fairly strong with minor hitches. 2.9% of respondents said they had poor internet connection and 29.7% stated that their internet connection was partially stable.

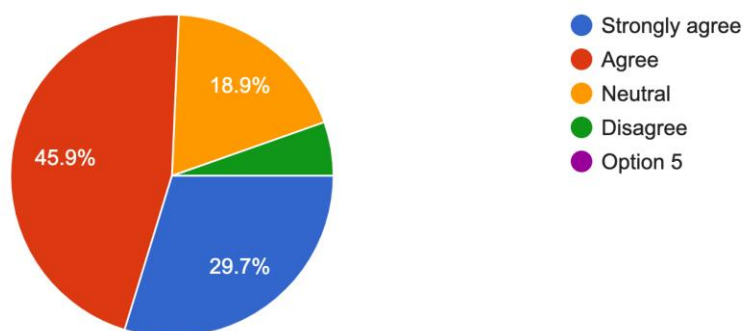
When respondents were asked in an open-ended question whether they believe lessons are delivered better through online platform than through face-to-face, Josephine Amankwah from the class of 2021 stated that: *“I enjoy learning when I can see the lecturer in-person, it makes me more attentive and seeing some of my mates too encourages and pushes me to learn harder. There's usually no motivation if I'm sitting behind my laptop alone looking at slides and hearing someone talk from somewhere”*. Another anonymous respondent stated: *“Online learning gives me the opportunity to learn at my own pace when lectures are recorded. However, there are negative sides because I find myself more likely to be lagging behind in the class topics. Reaching teachers is also potentially more difficult since we don't get to simply see them. Unless the lecturer is open to receiving Whatsapp messages or phone calls”*. Many of the other respondents had similar responses along the same theme, which goes to show that many students prefer the traditional face-to-face interaction as opposed to the online method.

ii) Evaluation of Students' Attitude to Online Learning

When asked how many hours on average the students spent after class on academic activities per day, 51.4% stated they spent 3-4 hours daily after class on academic activities

whiles 21.6% stated they spent 1-2 hours. 10.8% spent 5-6 hours and 16.2% stated they spent more than 6 hours. 56.8% of the respondents also stated that they had seen an improvement on their GPA since the migration, whiles 43.2% stated their GPA has not improved since the migration. Also, the results for their willingness to learn and assessment of their own self-discipline and motivation to study were very similar – the results showed that majority believed that online learning created less of an intrinsic motivation for them to study and majority (45.9%) were also neutral on the stance that online learning improved their willingness to learn. The same 45.9% of respondents also felt that they were less attentive during online lessons. Also, 32.4% of respondents were neutral on the stance that lessons were delivered better through online platforms as opposed to face-to-face, whiles the second majority (29.7%) disagreed that lessons were better delivered on online platforms as opposed to face to face.

I was less attentive during online lessons.



Online learning improved your willingness to learn.

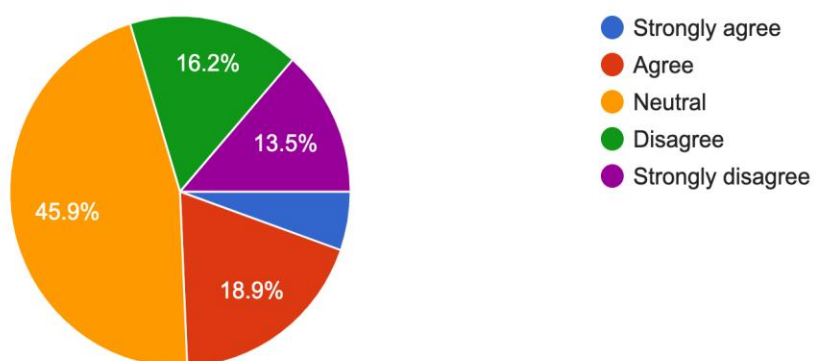


Fig 4.3: Measuring Intrinsic Motivation

Source: Field Data

iii) Impact of Online Migration on Students

To find out the personal impact of the online migration on the students, they were asked to choose from a set of answers that ranged from *Strongly Agree*, *Agree*, *Neutral*, *Disagree* and *Strongly Disagree* to answer the questions asked. From the responses, 35.1% (which was the majority) indicated that they were neutral when asked if they could not get focused during online lessons due to interruptions at home. 32.4% and 24.3% agreed and strongly agreed respectively, when asked if they could not get focused during online lessons due to interruptions at home. Figure 4.4 depicts this data.

I could not get focused during online lessons due to interruptions at home.

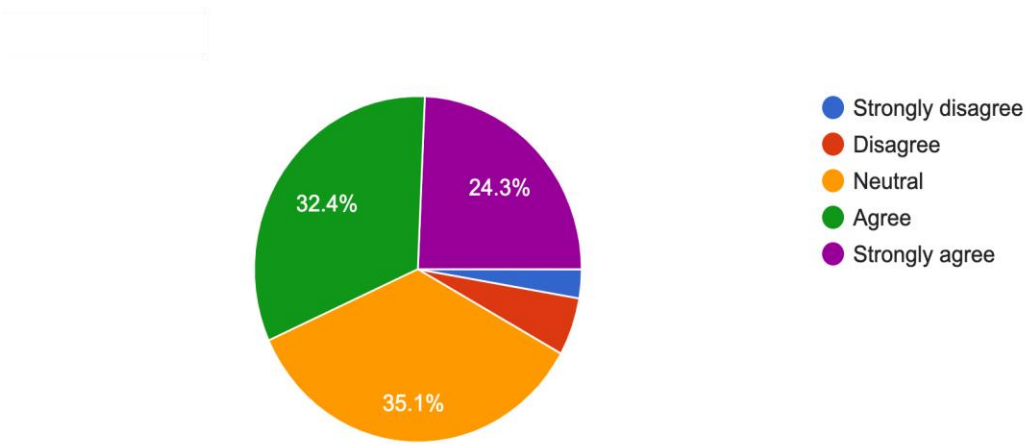
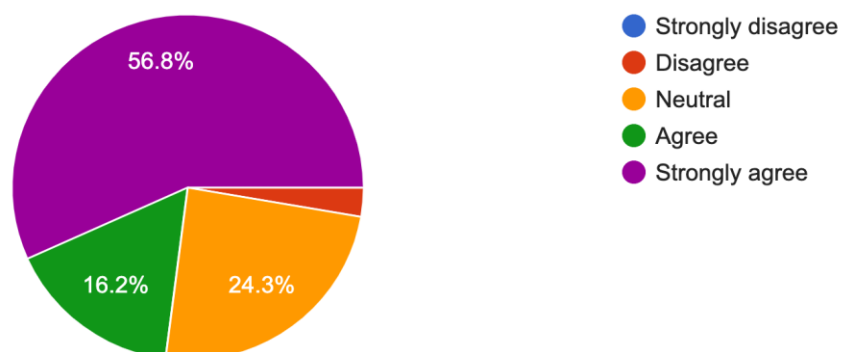


Fig 4.4: Distractions and its Effects on the Students.

Source: Field Data

Also, more than 50% of students reported strongly agreeing that the online workload is more strenuous, and the classes are more stressful online. Also, a large proportion agreed that they had less motivation to study. Figure 4.5 depicts this data.

The online workload workload is more strenuous.



I had less motivation to study.

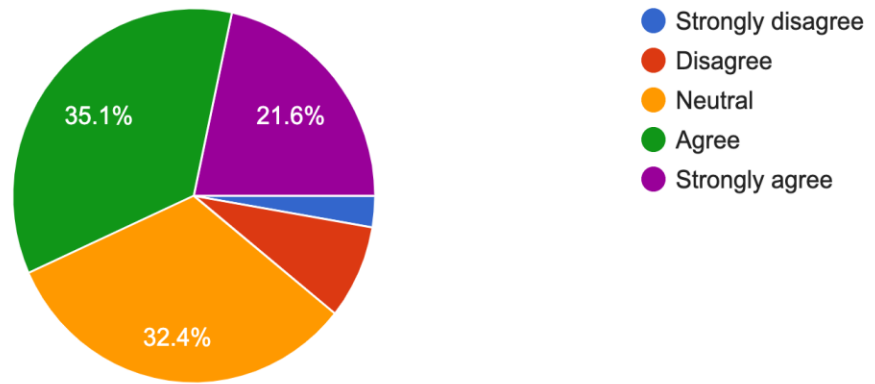
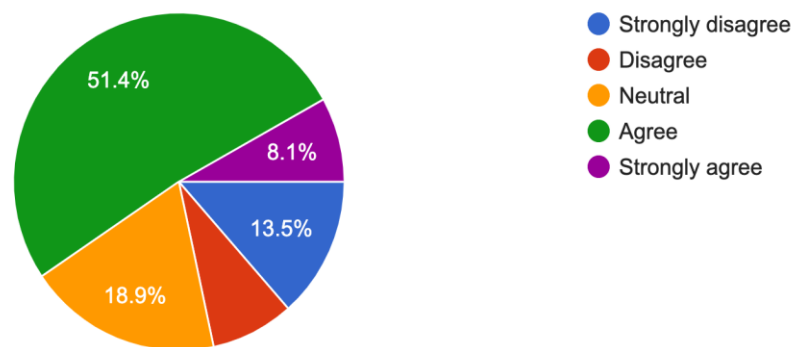


Fig 4.5: Impact of Workload on Students.

Source: Field Data

Furthermore, in a bid to assess the strength of inter-personal relationships between students, respondents were asked questions about their interdependency on their course mates. Majority agreed that they received emotional and academic support from their course mates. Figure 4.6 depicts this data.

I received emotional support from my course mates.



I received helpful comments about my work from my other course mates.

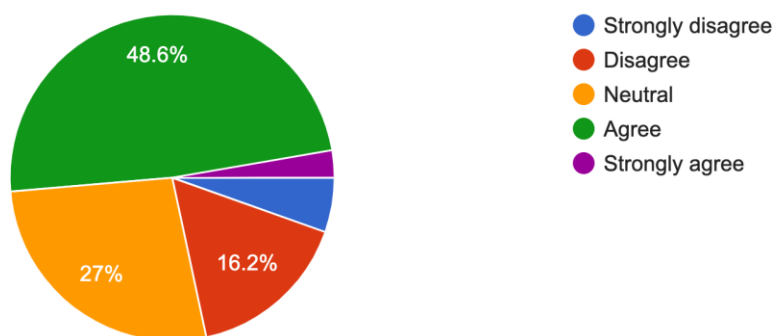


Fig 4.6: Interpersonal Relationships Between Students.

Source: Field Data

iv) Student Perceptions about Teachers' Performance

To understand the students' perceptions about the performance of their teachers in a bid to assess teaching quality, respondents were asked whether teachers prepared online teaching materials adequately – 73% of the total population agreed that teaching materials were prepared well. 48% of the respondents, however, disagreed that lessons were interactive whereas 45.9% of the respondents agreed. To assess the effects of the theoretical framework (technology acceptance model) on the research, respondents were asked if teachers were familiar with the online teaching platforms; majority of them agreed that the teachers were familiar with the online teaching platforms. This shows that the quality of teaching did not decline due to the teachers having a positive perceived ease of use and perceived usefulness, which allowed them to effectively teach their students despite the shift in normalcy.

v) Student Perspective on Enhancements Needed

To understand how far students felt enhancements were needed to boost their online learning experience in the future, students were asked to either respond *Yes* or *No* to a series of questions. More than 80% of respondents answered *Yes* when asked whether they believed additional counseling services and IT hardware support services were needed for both teachers and students. 100% of respondents felt that providing suitable teaching or learning environments (on-campus) for teachers and students with reasonable justifications would be a way to enhance their learning experience. This idea can be linked to the responses gained from students that stated they had distractions at home that affected their studies.

4.3 Discussion of Findings

The research questions stated in chapter one sought to ascertain how far the online migration has affected the operations, teaching quality and student experience at Ashesi University, as well as identifying lessons that universities who have not yet fully migrated online can learn from Ashesi University and its experience so far. From the research, it was found that the online migration has affected each group being studied (lecturers, staff and students) in similar ways. Per the responses gained, these were the recurring themes that were identified from the research, which were consistent with the five high-impact principles as stated by Bao (2020):

Importance of Safety and Continuity

The research showed that Ashesi University closed faster than other universities in Ghana and set in motion plans to move online quickly due to wanting to ensure continuity of lessons for

students and ensure safety for the university community. The responses from staff and faculty conveyed that Ashesi University prides itself in delivering quality education to its students, which shows up in its policies.

Contingency Plans

The research showed that Ashesi University was able to migrate fully online due to having existing contingency plans. The university administration had structured plans for a disease outbreak and had reserve funds in case of an emergency. By having contingency plans in place, it showed that Ashesi was able to migrate online faster than other universities in Ghana due to being adequately prepared for any unforeseen circumstances. Being able to have foresight in order to set in place plans for every scenario shows the emphasis Ashesi places on quality.

Breaks in Communication Between Colleagues

The main problems faced by all groups in terms of their experience is the difficulty of adjusting to the new “normalcy” due to having to combine both work and home activities. The breakdown of fast communication between colleagues was also a problem as the lack of in-person interaction sometimes caused lags in reaching colleagues and finishing tasks.

Zoom Fatigue, Distractions and Nostalgia

Zoom fatigue, as explained by Legg (2021), is exhaustion felt after any kind of video call or conference, which is caused by “increased cognitive strains of video conferencing communication”. The research showed that Zoom fatigue was experienced by all groups and in turn made them feel stressed to a large extent. This problem is intertwined with the breaks in communication between colleagues, as hitches with internet connectivity or delayed responses added to the effects of Zoom fatigue on the respondent groups by causing them to spend longer time periods on Zoom in order to thoroughly communicate or work in tandem with their colleagues.

Looking at learning and teaching quality, it was seen that many student respondents believed that their learning quality has decreased due to Zoom fatigue, distractions and nostalgia; however, they felt that teaching quality was still upheld in good standards but their own personal motivation to study had dwindled. This can also be linked to Chu’s (2014) theory of “cognitive load” as the students’ interaction with the online teaching materials seemed to overwork their cognitive loads and in turn caused a decrease in learning quality because they were overstimulated. As seen in the depiction of the results of this study, many students felt that their

work was strenuous and had a bigger load due to having to work remotely and not having the chance to interact in person. The isolation caused by learning online caused less participation in class and in turn increases the burden on the cognitive load by causing students to have to refer more to materials after class than they would if they were actively participating, as participation tends to boost memory.

Also, distractions and nostalgia were recurring themes. Many respondents from all groups (i.e. students, staff and faculty) stated they had challenges working/schooling from home due to interruptions by family members or those within their household. These interruptions caused distractions, and these distractions in turn caused nostalgia as they started to miss having a separation between the workspace and the home environment. Also, student respondents lamented on the fact that they were having nostalgic sentiments about the closure of campus due to the pandemic – they felt they were missing out on the benefits of interacting with their colleagues and faculty on campus which added a sense of ease to their social lives.

CHAPTER FIVE

CONCLUSION & RECOMMENDATION

5.1 Introduction

This study sought to find out how far the online migration affected the operations, teaching quality and student experience at Ashesi University, as well as what universities who have not yet fully migrated online learn from Ashesi University and its experience so far. The results revealed that the online migration had various effects on each group (i.e. students, faculty and staff). This chapter summarizes the findings and offers recommendations intended for universities who have not yet migrated online to learn from Ashesi University's experience.

This research and its findings showed similar results to that of Bao (2020), which researched the effects of the pandemic causing campus closures on Peking University. It was shown that there are five impact principles that help to sustain online education, and Bao's (2020) study found the following:

(a) a high relevance between online instructional design and student learning, (b) effective delivery on online instructional information, (c) adequate support provided by faculty and teaching assistants to students, (d) high-quality participation to improve the breadth and depth of student's learning, and (e) contingency plan to deal with unexpected incidents of online education platforms. (Bao, 2020, p. 115)

These impact principles proved to be true in this study as it was found that each of these elements played a major role in Ashesi University's rapid migration online, as well its ability to sustain the migration. The remainder of this chapter will highlight the key findings linked to these impact principles and the technology acceptance model, as well as recommendations and suggestions for further studies.

5.2 Summary of Key Findings and Limitations

The research findings revealed several answers for the research questions and objectives. With regard to *Research Question 1* (*How has the online migration affected the operations, teaching quality and student experience at Ashesi University?*), it was seen that the online migration affected operations by dampening the efficiency of communication between colleagues (be it student, staff or faculty) due to the lack of in-person accessibility to others. This caused slower communication patterns between these groups. Also, Zoom fatigue adversely affected students, staff and faculty alike as they had to carry out most of their communication

and classes via Zoom for long periods, which caused an increase in stress levels. This also caused a decrease in the learning quality of students but did not affect the teaching quality of the faculty, according to the respondents (i.e. students, staff and faculty).

Equally noteworthy was that the research showed that distractions at home adversely affected students' learning quality, as well as staff and faculty operations alike as they sometimes had to cope with sharing spaces with family or handling unforeseen circumstances while having to deal with duties at home. Majority of the respondents (i.e. students, staff and faculty) suggested that it caused them to sometimes lag in their work/academic duties. Majority of student respondents also suggested that nostalgia caused the student experience in terms of socializing at Ashesi to be dampened due to many individuals experiencing sadness caused by the lack of interaction with their colleagues.

However, the research showed that students felt that teaching quality had not decreased, but rather their own personal motivation to study had dwindled. 75.6% of students felt that they were less attentive during online classes, and 45.9% stated that they were unsure of their willingness to learn was improved since the migration. Majority also stated that they had less motivation to study and felt the workload was more strenuous online. Conversely, majority stated that teaching materials were well prepared, and lessons were interactive; also, majority agreed that enough guidelines and after-class academic support was provided to aid learning. Thus, this showed that teaching quality was still upheld, but students rather faced challenges with remaining intrinsically motivated.

Insights gained from the results for *Research Question 2 (What can universities who have not yet fully migrated online learn from Ashesi University and its experience so far?)*, showed that universities that have not yet fully migrated online can learn some lessons from Ashesi University and their experience so far, such as putting in place contingency plans. Contingency plans allowed Ashesi University to be able to migrate online rapidly. Other universities can put in place contingency plans and funding in case of eventualities in order to be able to quickly adapt to an unforeseen circumstance. Respondents (i.e. staff and faculty) stated that Ashesi University had set up plans to combat alternate scenarios and had a pool reserve fund which was kept for emergencies. They also stated that Ashesi University had planned out these structures during the 2014 Ebola Crisis, which caused them to see an epidemic as a plausible occurrence.

By doing this, the university was adequately prepared to migrate online and shut down its traditional learning and working methods, for the most part.

Furthermore, the findings also showed that Ashesi University already had many online platforms through which students, staff and faculty alike were engaging on to carry out their due processes. Platforms such as Outlook, Canvas and CAMU were already being used by these groups, which made it less of a burden to migrate online as all members of these groups were already connected to these platforms. This links to the technology acceptance model as it shows that the attitudes of users towards an interface is based on how the interface affects their performance which in turn creates a hypothesized linkage between perceived ease of use and perceived usefulness. The extent to which an interface is user-friendly, increases the user's sense of efficacy which gives the user a feeling of control over their actions being carried out; this is said to create an intrinsic motivation.

The main limitation faced during this study was due to accessibility. The pandemic was rife and social distancing made it slightly difficult to reach out to a wide group of people; but nonetheless, an ample group needed to conduct the study was found.

5.3 Recommendations

As seen in the findings, Zoom fatigue had a major effect on the groups involved (i.e. staff, faculty and students), thus reducing the frequency of Zoom calls will give room for the problem to be ameliorated to an extent. For students, in place of Zoom sessions, pre-recorded lessons can be uploaded onto the Canvas Instructure platform for both faculty and students alike to avoid missing important information or coursework due to having poor internet connection or simply being too overwhelmed to go forth. This will help to improve both teaching and learning quality as it ties into the problem of students and lecturers alike having distractions at home during class times – uploading pre-recorded content allows students to be able to access the class content at convenient times when there is less commotion within the home space. Also, this will create flexibility for lecturers as they will not have to cancel class lessons due to power outages or poor (or lack of) internet connectivity. These in turn will rightfully serve the need for continuous learning that Ashesi aims to uphold. Universities who are yet to migrate fully online can also benefit from this recommendation to alleviate the strain of being able to keep up with being online for both students and educators.

Also, in order to ensure smoother operations and ameliorate breakdowns in communication between staff members and even between students and lecturers, implementing a ticketing system would be essential. This ticketing system could be an online form or website through which staff, faculty or students will be able to leave feedback or questions for whomever they are trying to reach – the ticketing system will arrange the requests in chronological order with timestamps and labels that indicate level of urgency. This will allow individuals not to miss out on information or tasks due to a high influx of emails and will allow them to assess and respond to problems more effectively.

5.4 Further Research

Further research may be conducted to assess the effects of the pandemic on other universities in Ghana that did not have the capacity to migrate online as fast as Ashesi University managed to. This will give insights into the pros and cons met by other institutions who did not have the advantages that Ashesi had, and how far they were able to recuperate from the effects of long closures. Also, further research may be conducted on the long-term effects of online migration of initially traditional institutions on students' learning quality and evaluation of value ethics regarding doing independent work.

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APPENDIX

INTERVIEW QUESTIONS FOR ASHESI STUDENTS. UNDERGRADUATE THESIS:

EXPLORING THE IMPACT OF MIGRATING ONLINE ON HIGHER EDUCATION IN GHANA: THE CASE OF ASHESI UNIVERSITY

1. Which class year group do you belong to?
2. Did you transfer from another university to Ashesi? If yes, was it an online university or a hybrid university?
3. What challenges have you had with online learning?
4. How has the shift from the in-person classroom to the online classroom impacted you psychologically?
5. How has the shift from the in-person classroom to the online classroom impacted you academically?
6. Have some courses proven to be more challenging because they are online?
7. Has group work become easier or more difficult to coordinate?
8. Do you think you learned more effectively in person?
9. How accessible have internet and computer resources been readily available to you to partake in online class?
10. How difficult or easy is it for you to use the online resources (Zoom, Canvas, CAMU etc)?
11. Are you satisfied with the technology and software you are using for online learning?
12. How often do you have a 1-1 discussion with your teachers?
13. How peaceful is the environment at home while learning?
14. How concerned are you about your social and emotional well-being?
15. Has the workload increased or decreased since the migration?
16. How has the workload affected your experience as a student?

INTERVIEW QUESTIONS FOR ASHESI ADMINISTRATIVE STAFF. UNDERGRADUATE THESIS:

EXPLORING THE IMPACT OF MIGRATING ONLINE ON HIGHER EDUCATION IN GHANA: THE CASE OF ASHESI UNIVERSITY

1. Which office do you work for within the Ashesi Administration?
2. Have you been working remotely or on campus?
3. If you have been working remotely, how has the online migration affected your work processes?
4. Why do you think Ashesi rapidly migrated online?
5. How have the finances of the university been affected?
6. How did you aid in mobilising departments for migration?

8. How easy or difficult has it been to work from home?
9. What has changed about your workspace since the online migration?
10. How difficult or easy has it been to keep track of administrative duties remotely?
11. Which aspects of your work processes were affected adversely by the online migration?
12. How have you coped with mixing home affairs with work by working remotely?
13. How has the university aided teachers in conducting their work processes effectively?
14. What resources are available to students to ensure proper learning and emotional

support?

INTERVIEW QUESTIONS FOR ASHESI FACULTY. UNDERGRADUATE THESIS:**EXPLORING THE IMPACT OF MIGRATING ONLINE ON HIGHER EDUCATION IN GHANA: THE CASE OF ASHESI UNIVERSITY**

1. Which department do you belong to within the Ashesi Faculty?
2. Have you been working remotely or on campus?
3. If you have been working remotely, how has the online migration affected your work processes?
4. Are you enjoying teaching your students remotely?
5. Why do you think Ashesi rapidly migrated online?
6. How far do you think teaching quality has been affected by the migration?
7. How easy or difficult has it been to work from home?
8. What has changed about your workspace since the online migration?
9. How difficult or easy has it been to keep track of your duties remotely?
10. Which aspects of your work processes were affected adversely by the online migration?
11. How have you coped with mixing home affairs with work by working remotely?
12. *Do you think you taught more effectively in person?*
13. *How accessible have internet and computer resources been readily available to you to partake in online class?*
14. *How difficult or easy is it for you to use the online resources (Zoom, Canvas, CAMU etc)?*
15. *Are you satisfied with the technology and software you are using for online teaching?*
16. *How often do you have a 1-1 discussion with your students?*
17. *How peaceful is the environment at home while teaching?*
18. *How concerned are you about your social and emotional well-being?*
19. Has your workload increased or decreased since the migration?
20. How has the workload affected your experience as a teacher?
21. Which aspects of the migration do you think adversely affected students? How do these in turn affect you as a teacher?
22. Do you feel that academic performance has improved or dwindled since the online migration?
23. What are some of the complaints you receive from students?

Student Survey Questions

Basic Information

1. Which year group do you belong to?
 - 2021
 - 2022
 - 2023
2. Did you drop or fail any course due to the change of traditional assessment method since the online migration?
 - Yes
 - No
3. Did you have a stable internet connection for your online lessons?
 - Yes, strong for the most part.
 - Sometimes.
 - Fairly strong with minor hitches.
 - Poor internet connection
4. Did you have a suitable environment for your online lessons? If yes or no, kindly explain.

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5. Is this your first time engaging in fully online learning?
 - Yes
 - No

Evaluation of Students' Attitude To Online Learning.

6. What was the average time you spent after class on academic activities per day? (Hours)
 - less than 1 hour
 - 1-2 hours
 - 3-4 hours
 - 5-6 hours
 - 6 hours or above
7. Online learning made you less self-disciplined to study at home.
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
8. Did you show any improvement in your GPA last academic year online (2019-2020) compared to last year?
 - Yes
 - No
9. Online learning improved your willingness to learn.
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
10. I was less attentive during online lessons.
 - Strongly disagree
 - Disagree
 - Neutral
 - Agree
 - Strongly agree
11. Lessons are delivered better through online platform than through face-to-face interaction.
 - Strongly disagree

- Disagree
- Neutral
- Agree
- Strongly agree

Kindly explain your

answer:.....

Impact of Online Migration on Student Experience

12. I could not get focused during online lessons due to interruptions at home.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

13. I had to attend lessons in a different time zone than Accra.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

14. My classmates and I were more willing to actively work together.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

15. I received emotional support from my course mates.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

16. I received helpful comments about my work from my other course mates.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

17. I experienced negative emotions due to the suspension of in-person classes.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

18. I feel online classes are more stressful.

- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

19. The online workload workload is more strenuous.

- Strongly disagree
- Disagree
- Neutral
- Agree

- Strongly agree
- 20. I had less motivation to study.
- Strongly disagree
- Disagree
- Neutral
- Agree
- Strongly agree

Students' Perceptions About Teachers' Performance

21. Do you agree with the following statements regarding online teaching? (1=Strongly disagree, 2=Disagree, 3=Agree, 4=Strongly agree)

	1. Strongly disagree	2. Disagree	3. Agree	4. Strongly agree
21.1. Teachers were familiar with online teaching platforms. (e.g. ZOOM, Canvas, etc.)				
21.2. Teachers were familiar with the use of computer software. (e.g. PowerPoint, Microsoft Word)				
21.3. Teachers prepared the online teaching materials well.				
21.4. Lessons were very interactive.				
21.5. Teachers gave prompt feedback on coursework.				
21.6. There was sufficient IT support for teachers. (e.g. network connection, camera resolution)				
21.7. I was given enough guidelines regarding the assessment methods.				
21.8. Teachers failed to provide sufficient after-class academic support when compared to normal				

teaching at school.				
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22. Do you think the following suggestions are necessary to enhance online teaching and learning experience in the future? (1=Yes, 2=No)

	1. Yes	2. No
22.1. Provide IT training for teachers.		
22.2. Additional IT support for students and teachers. (e.g. technical or hardware support)		
22.3. Provision of additional counselling service (academic/mental).		
22.4. Provide suitable teaching or learning environments (on-campus) for teachers and students with reasonable justifications.		