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Blended teaching and learning journey: Implementation in higher education institutions in Kenya

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Abstract: Education, like all the other sectors, was impacted significantly by the COVID-19 pandemic. In a report by UNESCO, in 2020 alone, learning for more than 1.7 billion children in over 188 countries was disrupted. This forced education institutions to seek for alternative means and strategies to salvage the situation. Crash programmes on course design and on how to move blended teaching were initiated. This research was therefore conducted to establish the adoption and effect of blended education in universities in Kenya. The study was hinged on the Technology Acceptance theory. Mixed method design which involved use of both quantitative and qualitative approaches of data collection was adopted. In quantitative, the study used a survey research design where 500 questionnaires were administered to students in three public universities and two private ones in Kenya. For qualitative data, interview schedules were served to 20 key informants who were university administrators, lecturers, education officers and parents. Selections of the sample sizes for the study were purposively done. The quantitative data collected was analyzed using SPSS while qualitative data was analyzed using content analysis. Findings revealed that higher learning institutions have adopted blended education albeit with a lot of challenges to students, lecturers and other key stakeholders. It recommended that Higher Education Institutions and governments should promote blended learning even after the COVID-19 pandemic as a way of leveraging on technological advancements. The information may also be used to enhance formulation of relevant policies or supplement the existing ones on matters education and technology.

Keywords: Blended teaching, COVID-19 pandemic, Learning, Online education, Remote education

1. Introduction

Teaching and learning in most of our educational institutions for a long time have remained face-to-face even when other sectors adopted and integrated the emerging technologies in their ways of doing business. However, with the advent of the novel Corona Virus Disease (COVID-19), which was later declared a pandemic, the world has been forced to shift its operations onto the digital arena. Educational institutions

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have not been left behind this time round, although the pace of adoption is argued to still be lagging behind other service sectors like the religious and leisure industries.

It is evident that the COVID-19 pandemic has disrupted all sectors of the economy including education. In Kenya, for example, physical teaching and learning in all educational institutions were disrupted after the presidential directive to close. This directive followed the pronouncement of the first case of COVID-19 in the country in March 2020. Learning institutions at all levels were closed for months and all sectors of the economy were heavily affected, eventually impacting negatively the learning activities in the country.

In an effort to contain the pandemic, the Ministry of Health provided protocols to be observed by individuals and institutions in order to minimize the spread and impact of the pandemic. These included: washing of hands, wearing of masks, keeping social distance and isolating or minimizing movement in areas with high infection rates. The requirement to minimize physical contact has on two occasions led to closure of educational institutions thus disrupting the academic calendar. According to the United Nations Educational, Scientific and Cultural Organisation (UNESCO, 2020), it is estimated that in 2020 alone, learning for more than 1.7 billion children in over 188 countries was heavily disrupted. The disruptions forced education institutions to seek for alternative means and strategies for continued learning and to salvage the situation. This is what eventually led to the introduction of Emergency Remote Teaching (ERT) as an initial response. The Ministry of Education advised institutions to embrace virtual teaching and learning.

Apart from Kenya, many other countries globally adopted blended education and learning. In fact, in countries such as the United States of America, organizations and companies dealing with technological devices such as the Samsung promoted the initiative. Samsung Newsroom US (2021) argues that Samsung Company in partnership with other technology companies such as the Boxlight Corporation, addressed the challenge of finding the right technology for blended learning in the US. The development of platforms like the MimioConnect by the Boxlight Corporation enabled faster online interaction between students and their teachers.

> MimioConnect enables real time collaboration between teachers and students on the same document, regardless of location; videoconferencing for face-to-face discussions-building stronger relationships in hybrid classes…when lessons are presented live, MimioConnect allows students to follow along on their devices while in the classroom and while they are at home (Samsung Newsroom US (2021; Online).

In Kenya, some universities including the University of Nairobi, resorted to Emergency Remote Teaching (ERT) to complete semesters which were halfway through their sessions. This was the beginning of an accelerated shift to adopt blended teaching and learning in Kenya and many other countries across the African continent to mitigate the disruptions of the COVID-19 pandemic.

However, important to note is that the transition to blended teaching and learning in Kenya has not been smooth due to the current status of inadequate preparedness by most of the institutions. In addition, Kenya released standards and regulations to ensure quality in the content and delivery of education under the prevailing circumstances. The Kenya Education Network (KENET) also provided guidelines to facilitate the transformation to virtual teaching and learning environments. However, it is clear that most institutions are still grappling with a number of challenges in their efforts to ensure continuity of education. These challenges include inadequate Information and Communication Technology (ICT) infrastructure to support online teaching and learning, economic constraints making it difficult to afford enough bundles to sustain continued teaching and learning online, skills to navigate the e-learning portal, inadequate capacity to design and develop or repackage content to make it appropriate for blended learning delivery (The Blog, 2020).

But the question remains, how have the learning institutions picked up this blending learning? Has it been effectively implemented, and should it now be embraced even post Covid-19 pandemic? These are the questions this study has addressed; assessed how blending of learning-physical and virtual-has succeeded in Kenyan institutions.

2. Objectives of the study

The general objective of this study was to establish the adoption and effect of blended education and learning in universities in Kenya during and after Covid 19 pandemic.

The specific objectives were:

1. To identify the online/virtual platforms adopted for blended teaching and learning at the selected universities.
2. To establish the challenges experienced in the process of adopting blended teaching and learning at the selected universities.

3. Theoretical framework

The study has used Technology Acceptance theory that was developed by David Bangozi (Davis, 1989). This theory analyses how people come to accept and use technology in addition to how individuals accept or reject an information technology. It is thus relevant for this study as the research assessed how learning institutions are accepting or rejecting the use of new technologies for online/virtual education for effective blended learning.

4. Literature review

4.1. The effect of COVID-19 pandemic on education

Different sectors, including education, have been hit hard by the Covid-19 pandemic globally as many schools were shut down, and programmes therefore delayed. Such lockdowns that were put in response to the Covid-19 pandemic interrupted conventional learning globally (Schleicher, 2020). In some countries such as Kenya, schooling was interrupted for months-from pre-primary to the universities. The impact was felt in such higher learning institutions that were finally closed as a result of the disease (Schleicher, 2020). The pandemic affected more than 1.7 billion learners in more than 190 countries across the globe where 23 million additional children and youth could drop out of schools due to economic challenges necessitated by Covid-19 pandemic (UN Policy Brief, 2020).

The pandemic brought heavy pressure on education stakeholders and the institutions themselves so much that apart from just closing down the schools, exams were also postponed. In India, for example, according to UNESCO (The Blog, 2020), more than 320 million students in schools and colleges were affected by the corona virus disease. This was a burden to the country since many Indian students have chosen to pursue higher education in other countries. In fact, in India, travel bans affected the students who were studying in other countries; meaning the quality they have been looking for abroad won't be realized (Blog, 2020). Africa, when compared to other continents such as Europe, America, for example, has not been hit hard by the Covid-19 pandemic; however, if good containment measures are not put in place then the diseases will hit the continent harder (Darkwa, 2020). Over 1 billion children could drop out of schools in Africa because of the pandemic after schools closures and also due to economic disruptions (Darkwa, 2020). To help the situation, African countries have been implementing remote education programmes.

However, this has been a challenge to many countries on the continent such as Ghana because some children from poorer households cannot access internet, personal computers, TVs and even radios (Darkwa, 2020). Kenya was not spared by the impact of the pandemic. Schools were forced to close and students returned home when the pandemic first hit without knowing when to report back to school. Exams were also delayed and this affected learning calendar. Other problems include rising cases of pregnancies which actually threatened the future of girl child in the East African country, problem of nutrition since many students who were now not going to school had been depending on food provided in the school feeding programme (Wambui, 2021).

4.2. The concept of blended learning

The blended or hybrid model includes both physical and online instructions. It is where at times students are taught or learn virtually and on the other time can meet their instructors physically. It includes framing learning process that incorporates both physical teaching and virtual that is supported by Information Communication Technology (ICT). Generally, it involves direct and indirect instructions, collaborative teaching and the individualised computer assisted learning (Lalima & Dangwal, 2017). But this again became difficult for some learners globally especially those in the most marginalised groups since they lack access to digital learning resources. But this challenge did not stop governments from initiating and implementing distance learning, a solution that was also supported by other partners such as UNESCO for the realisation of education continuity (The Blog, 2020).

Therefore, blended learning, which is the online/virtual learning, mixed with face-to-face, has been developed to arrest the education challenge. If implemented in a well-planned and organized way, with the right type of attitudes, blended education can become the future of our educational system (Lalima & Dangwal, 2017). Blended learning can either be course specific or programme specific. However, as Perris, et al, (2020) argue, irrespective of the mode and or intensity that are chosen to use, there are far deeper considerations 'for institutions, faculties and individual instructors to consider when creating a viable and sustainable blended learning ecosystem' (Perris et al., 2020: 6). The intention here is to accord the learners conducive environments that allow them to explore and through experience, arrive at their conclusions and perceptions of the world around them. In essence, the learners are given greater responsibility over their learning experiences:

Both academic staff (faculty) and students (learners) are encouraged to capitalize on the opportunity accorded by blended learning to be change agents as they manage the challenges that arise in the course of teaching/ learning (Faculty Focus, May 24, 2021). It is critical for faculty to develop capacity to design and develop content which can be delivered effectively and efficiently through online teaching and learning technologies. There are countless logistic, technical, and planning issues to consider as you work, step-by-step, to build an effective and engaging experience for users (learners) (Thormann et al., 2012).

> …at the heart of all teaching and learning are instructional decisions. The online format requires instructors and students to engage with new and different approaches to learning. The curriculum we teach face-to-face has essentially the same content when taught online, but requires that we use strategies that are effective and feasible online) (Thormann et al., 2012: 35).

Learning for many decades globally has been known to be face-to-face activity where students meet their teachers or instructors in the same location at the same time (Samsung Newsroom US, 2021). However, with the technological advancements and the existence of COVID-19, there are concerted efforts by the education stakeholders to introduce blended learning. Advances in technology such as Zoom, Video Conferencing, Google Meet, among others, have promoted virtual learning (The Blog, 2020).

Blended learning, being spending time at college for in-person lessons, and remote online learning, allows students safe learning environment. This makes them feel supported and therefore successfully learn (Kaplan, 2021). This kind of learning has been witnessed in different parts of the world since the invasion of Covid-19. In the United Kingdom (UK), even as lockdown was easing, universities had resorted to adopting blended learning. Cambridge, for example, fully embraced online teaching during this time (International Staff, 2020). In Africa, blended learning has been embraced though it has faced a number of challenges. For example, in Nigeria, blended learning is taking shape and is still in its infancy (Ololube, 2011), but there are certain challenges such as lack of adequate infrastructure that the country is still grappling with in order to have a well-organized learning.

Public institutions such as universities in Nigeria are still facing barriers to the use of new technological expertise in promoting blended learning (Okocha et al., 2016). However, private universities have not been much affected by these barriers and limitations, and therefore, implementation of blended learning has also

been successful in private learning institutions (Ololube, 2011). Kenya's virtual learning has also faced some challenges such as limited supply of internet, shortages of power supply, lack of skilled personnel, poverty, among others. But, learning institutions, especially universities, both public and private, are embracing blended learning in Kenya. This was heavily implemented when the COVID-19 pandemic affected physical learning and therefore, the universities and the government had to find a solution.

For example, Kenya's Kenyatta University, which enrolls about 70, 000 students, has promoted its blended learning by initiating a number of measures through its Digital School of Virtual and Open Learning (DSVOL) (Perris et al., 2020). Blended teaching and learning have been adopted in Kenya by all public and private universities where students access their course outlines, notes, and reading materials online. They also meet their teachers online through platforms such as Zoom, Google Meet. When the institutions are shut down, universities give exams online. But still lecturers organize face-to-face meetings with their students and during group discussions. Even though blended learning is picking up in Kenya, there are still challenges faced, not only by the students but also by lecturers. Challenges such as poor internet connections, poverty, lack of computers, among others to some extent, affect both instructors and students. This is because some universities do not provide the lecturers with the devices and internet. In fact, in some institutions, lecturers are not even trained on matters online/virtual learning and therefore are regarded as Information Technology (IT) incompetent.

5. Methodology

Mixed method design which involved use of both quantitative and qualitative approaches of data collection was adopted. In quantitative, the study used a survey research design where 500 questionnaires were administered to lecturers and students in three public universities (Rongo, Machakos and Moi) and two private ones (Strathmore and United States International University (USIU)) in Kenya. For qualitative data, interview schedules were served to 20 key informants who were university administrators, education officers and parents. Selections of the sample sizes for the study were purposively done. The quantitative data collected was analyzed using SPSS while qualitative data was analyzed using content analysis.

6. Results and discussions

The quantitative data gathered for this study were analyzed using descriptive statistics and qualitative data were subjected to thematic analysis. Both quantitative and qualitative results were then converged to obtain a comprehensive assessment of the adoption and effect of blended teaching and learning at selected universities in Kenya. The study received a total of 338 responses, which was 68 per cent.

6.1. How universities in Kenya have enhanced capacity for blended teaching and learning

From the study's findings, universities in Kenya have enhanced capacity for blended teaching and learning through acquiring ICT infrastructure both hardware and software. Based on the study findings from key informants interviewed, 17 out of 20 (85%) agreed that universities have implemented the use of Learning System Management which is a software used to manage both teaching and learning online. The study also found out that four out of the five (80%) sampled universities management had partnered with mobile service providers in Kenya such as Safaricom, Airtel and Orange to acquire subsidised rates for teaching and learning purposes.

6.2. The online/virtual platforms adopted for blended teaching and learning at the selected universities

From the study findings, all the five sampled universities have adopted the use of online platforms for teaching and learning. The study received 338 responses, which is 68 per cent of the response from the questionnaires administered using Google forms as follows:

Table 1: Online/virtual platforms adopted for blended teaching and learning at the selected universities

	Frequency	Percentage
Google meet	56	16.6
Zoom	65	19.2
LMS	83	24.6
Microsoft Teams	17	05
KENET Big blue button	104	30.8
Skype	13	3.8
Total	338	100

The findings indicate that since the onset of the Covid 19 pandemic, universities have embraced the use of online platforms for teaching and learning combined with face-to-face learning as a means of ensuring continuity despite the disruptions arising from shutting of universities as a result high cases of Covid-19. KENET Big Blue Button was the most used platform at 104, which is 30.8% followed by LMS at 83, giving 24.6%; Zoom at is at 65 giving 19.2% then Google Meet at 56, which is 16.6%, among others. This shows how different platforms are being embraced for online learning.

This concurs with findings from qualitative approach where out of 20, 17 (85%) key informants interviewed agreed that universities have implemented the use of Learning System Management which is a software used to manage both teaching and learning online. *Participant A,* who is a university administrator, argued that time is coming when universities in Kenya will be blending learning and education: "for the time being we are still experiencing some technical and network challenges, but once these are sorted out, many institutions and students would automatically embrace blended learning" (*Participant A*). For *Participant J,* who is a lecturer in one of the universities under this study, argued that he doesn't frequently meet students physically, but only when introducing a course and during presentations: "most of the learning we do online using Google Meet. I give students assignments, course outlines, reading materials using the Learning Management System (LMS)" (*Participant J*).

This agrees with what another *Participant B,* who is also a lecturer in one of the institutions studied above. During the interview, *Participant B* said, she is already fully blending learning in the classes she is teaching since she has few students. "I have few students, including PhD and Masters students. And I teach them from the comfort of my house at home and meet them once or twice in a month physically and during exams' (*Participant B*). This agrees with argument put forward by scholar, Simon (2021) that even though there have been challenges in implementing blended learning, governments and educational institutions have not stopped initiating and implementing distance learning. Simon (2021) further argues that in 2017, there were 6.6 million students who enrolled for distance learning globally. However, the number increased to over 400 million students from 2020 due to Covid-19 pandemic (ibid). The recommendation for mainstreaming blended teaching and learning supports what Ololube (2011) argues should be encouraged in all learning institutions post COVID-19 pandemic.

Table 2: Challenges experienced in the process of adopting blended teaching and learning at universities in Kenya

Challenges Experienced	**Frequency**	**Percentage**
Internet connectivity	58	17.2
Lack of data bundles	65	19.2
Inadequate navigation skills	42	12.4
Lack of access devices	43	12.6
Inadequate content	15	4.4
Limited library resources	53	15.6
Interruption from family members	12	3.6
Low uptake of online learning	10	3
Covering a lot of content within a short period of time	10	3

Uploading similar content to different groups of students	10	3
Timing. Online classes clash with other classes/activities	10	3
Fee payment thus locked out from accessing LMS	10	3
TOTAL:	**338**	**100**

From the 338 (68%) responses above, blended teaching and learning experiences a myriad of challenges that need to be managed case by case to ensure its effectiveness. This has affected many countries in their efforts to implement blended learning. From Table 2, above, lack of data bundles is the main challenge at 65, giving 19.2%, followed by internet connectivity at 58 (17.2%) then limited library resources at 53 (15.6%); lack of access devices remains at 43 (12.6%), among others. From the 20 key informants interviewed, 14 (70%), agreed that challenges are so huge that universities have to find lasting solutions. For example, *participants D & C* admitted that there are cases they failed to attend online classes because one lacked data bundles while the other one had poor internet connection. *Participant D*, a part-time lecturer in one of the public universities studied, admitted that he once cancelled a class because he didn't have bundles for the whole lesson. "For sure I could not manage to teach. I did not have enough money and had inactive data bundles for free WhatsApp only. I cancelled the class and told students I was unwell" (*Participant B).*

On the other hand, *Participant C*, a student leader in one of the universities, agreed that he had missed classes when he was at home in Garissa, a remote town in North Eastern Kenya because of poor internet connectivity. "This happened to me on many occasions. So blended learning is good but the challenges should be addressed for it to be more effective even after Covid-19 pandemic" (*Participant C).* These are some of the challenges that have been experienced also in other countries such as Nigeria that is still facing barriers to the use of new technological expertise in promoting blended learning (Okocha *et al.,* 2016: 40).

7. Conclusion and recommendations

From the findings, it was concluded that higher learning institutions have adopted blended education despite constraints to parents, students and lecturers. Therefore, the study has recommended that educational institutions need to enhance their Information Communication Technology (ICT) budgets to cater for the increased demand due to the shift to digital working and service delivery environments. Continuous capacity building for faculty to ensure adaptation to emerging delivery technologies and confidence in managing the new teaching and learning environments.

It recommended that Higher Education Institutions and the governments should promote blended learning even after the Covid-19 pandemic as a way of leveraging on technological advancements. The information may also be used to enhance formulation of relevant policies or supplement the existing ones on matters education and ICT.

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