

Part 2

Emerging Approaches and Practices in Higher Education Pedagogy

Chapter 2

Pedagogical Models of Digital Learning in the United Kingdom: Lessons for Africa

Paula Shaw and Sarah Rawlinson

Abstract

The chapter discusses pedagogical models of digital learning in the United Kingdom with a focus on online and blended learning, rolled out as a case study in one university. The chapter appraises the effectiveness of the model that implemented and foregrounded the evidence in the wider literature on models of digital learning in higher education. The chapter provides thematic analysis and methodological opportunities for the improvement of practice and presents a set of implementation implications and pitfalls to avoid for higher education institutions in Africa. Furthermore, a number of trends regarding the blending of learning and communication synchrony in digital learning have also been identified.

Keywords: COVID-19; digital first; flexible learning; module design; pedagogical models; African universities

Introduction

The COVID-19 pandemic has accelerated the digital transformation that has been taking place for decades in many societies around the world. Crucially, digital services ensure that the fundamental and economic needs of society continue, with effective physical space barriers. These manifest in online shopping and hybrid working environments. Furthermore, digital services add a ‘flexible’ dimension, enabling people to manage their time around other commitments. In the higher education sector, campus-based student education was quickly converted to digital formats in response to the COVID-19 outbreak in 2020 in many countries across the world. This shift to the remote or online model was done in order to avoid learning and teaching disruption as well as to facilitate social

**The Emerald Handbook of Higher Education in a Post-Covid World:
New Approaches and Technologies for Teaching and Learning, 39–69**
Copyright © 2022 by Paula Shaw and Sarah Rawlinson
Published under exclusive licence by Emerald Publishing Limited
doiPaula Shaw and Sarah Rawlinson

distancing. As the pandemic intensified and as ‘social-distancing’ placed a strain on physical infrastructures, many higher education institutions (HEIs) turned to their technology-enhanced learning teams to assist the academic staff to make the transition from classroom-based teaching practices to a fully digital experience online. For many, at the outset, the focus was largely on safeguarding learning engagement and teaching and learning access for students, as well as just-in-time development training for academic staff in order for them to complete semester two (January–June) of the 2019–2020 academic year.

Prior to the COVID-19 outbreak, the pedagogical model in the many HEIs in many countries in the northern hemisphere as well as in the southern hemisphere had been the face-to-face, in-person, model. In this model, students and academic staff engage and interact during the teaching and learning process largely on campus, face-to-face. However, studies have shown that, even before the COVID-19 pandemic, a number of HEIs in countries in the northern hemisphere had experienced enrolment problems, and many had already turned to online pedagogical models as a strategy to improve decreasing student numbers due to a decline in traditional on-campus enrolment (McKinsey, 2021; NCES, 2020). For these institutions, online pedagogy was their driver of enrolment growth. For instance, McKinsey (2021) reported that between 2012 and 2017, distance learning in big economies such as the United States increased by almost 40 per cent (from 2.2 million to 3.2 million students) over the five-year period. In the distance learning model that gradually emerged over the period from 2012 to 2017, the pattern of learning mode varied from studying exclusively online to a blended mode, whereby students opted for a blend of online and face-to-face delivery (McKinsey, 2021). Based on the NCES (2020) data analysed, McKinsey (2021) estimated that as much as about one-third of higher education students in the United States had some experience with studying online before the COVID-19 pandemic outbreak. This is true in general for many higher education students in the northern hemisphere.

The fact of the matter though is that, before the COVID-19 outbreak, student enrolment growth trends in distance learning, in many HEIs in the northern hemisphere were unevenly distributed. The United Kingdom pattern in 2018–2019, for example, revealed that 80 per cent of distance learning students were enrolled in just 10 per cent of HEIs, while about one-third of HEIs enrolled fewer than 100 students each (Kemp, 2019). While the University of Derby is among the providers of distance learning in the United Kingdom, the University of London accounted for one-third of distance learning enrolments overall in 2018–2019 (Kemp, 2019). Likewise, in the United States in 2018, the top ten HEIs combined accounted for 20 per cent of the distance learning education market, with large institutions such as Southern New Hampshire University, Western Governors University, and Arizona State University accounting for around 10 per cent of the overall distance education growth over the period 2012–2017 (McKinsey, 2021). The point here is that many HEIs in developed nations started building national and international brands for digital higher education before the COVID-19 outbreak.

While online-first pedagogy has been accelerated into the mainstream of higher education in the northern hemisphere, many HEIs in the southern hemisphere, which lagged behind on digital learning infrastructure and systems, and

had little interest in propagating digital learning as a modality of study, have had to respond to the COVID-19 health emergency. For many of these institutions, a pedagogical model that was never part of their delivery arrangement and thinking had to be scaled up within a semester, with remote teaching and learning and support services rolled out to facilitate learning continuity. The shift to the remote delivery model since March 2020 constitutes a 'new normal' for these universities and colleges. In the new normal in the southern hemisphere, the imperative has been to build the capability to provide remote or digital offerings as well as to invest in the right learning technologies and infrastructure. It is also to gain access to reliable internet connectivity. Fortunately, the literature reveals that there have been major shifts in government policy to support digital learning in many developing countries in the southern hemisphere, as a growing number of these nations are advocating for the roll out of digital teaching and learning materials in schools, colleges, and universities (Accilar, 2011; Kalolo, 2019). The evidence in a number of African countries is that education policymakers and legislators are recognising the value of digital and distance learning and the use of related technologies in higher education.

Higher education systems in countries in the southern hemisphere, such as in Africa, can learn best practice for pedagogical models in digital learning from HEIs in the northern hemisphere that have had an established history of delivering digital learning. Africa is a vast continent with more than 1,225 officially recognised HEIs, according to the UniRank (2020) database. Recognition is based on the fact that the institution is accredited by the appropriate regulatory body in the respective country and is offering degree courses. The proportion of African universities in the world is 8.9 per cent, with a fairly close match between the public and private institutions (UniRank, 2020). Many face the challenge of funding and are operating in contexts where a vast majority of the population does not have reliable access to the internet (Kalolo, 2019). Their challenge is also about discovering ways to integrate digital technologies in educational practice to transition students into the rapidly moving digital development space. As a strategy to meet these challenges and to address the primary question about effective integration, African universities can learn best practices from universities in the developed world.

In any higher education settings, providing an appropriate pedagogical model for all students is the main aim. The collaboration and teamwork between HEIs in the southern hemisphere (south–south cooperation), or between HEIs in the northern and southern hemispheres (i.e., north–south cooperation), and related services providers are important to improve education quality especially in a context of reform in pedagogy brought about by the COVID-19 health crisis. The internationalisation agenda of higher education must allow collaborative work with academic faculty, students, and institutions to improve interinstitutional alliances and pedagogical practices. Even during the testing times that the COVID-19 pandemic has unleashed on the higher education sector, academic faculty professionals are focussed on providing the best learning experience possible for all students who find themselves confronted by multiple modes of study that they had not anticipated.

This chapter offers an appraisal of pedagogical models of digital learning adopted in one university in the northern hemisphere: that is, in the United Kingdom. It highlights the pedagogical practices of digital learning in higher education and outlines key lessons for the higher education systems in the southern hemisphere, particularly Africa. The chapter is based on a research project on strategic approaches to support academic staff through the transition from face-to-face teaching to full online teaching, funded by the United Kingdom Quality Assurance Agency (QAA) for Higher Education. Insights from the project support the need for a more ‘flexible’ model of higher education in all modes of study. The outputs of this chapter include the provision of policy recommendations about how to appropriately harness the advantages of pedagogical models for digital learning and applying these advantages in addressing current efforts to roll out digital learning in higher education in the African contexts.

The Digital Era and Digital Learning

The context for this chapter is the higher education sector in the digital era, in which societies are confronted by the COVID-19 pandemic. Drucker (2002) alluded that the digital era is defined by a concentrated socio-economic transformation of a magnitude that is similar to the era of the Industrial Revolution. One of the biggest assets of the digital era is technology, which has transformed the rate of knowledge turnover not just within an economy but within the society in general. The digital era is often associated with evolutionary systems, according to evolution theory (Shepherd & Fraser, 2004). A trait of evolutionary systems is change. The digital era can be linked to an evolutionary system because, as Tsoukas (2003) contends, knowledge turnover is constantly changing pace and can shift from high to low rates – depending on the relative stability of the system. An unstable evolutionary system is linked to faster knowledge turnover. This implies that new knowledge is generated more frequently, leading to a quicker adaptation to the rapidly changing environment. While there are merits in having a stable evolutionary system due to the certainty it gives because new knowledge variations if produced are hardly ever retained, Tsoukas (2003) believes that fluctuating rates of knowledge turnover are ideal since this makes the world more dynamic. The important point is that the digital era is characterised by a knowledge explosion and advanced knowledge which technology has helped to create – leading to quick digital changes and fast-paced innovations (Kalolo, 2019).

The digital era is also characterised by rapid mobilisation of knowledge resulting from improved information and communication technology and functionalities. Digital natives and immigrants often find the functionalities and rate of receiving knowledge addictive (e.g., chat rooms and iPhone), productive (e.g., online learning and shopping), and even uncontrollable (e.g., cyber-attack and virus attack). In short, the era has transformed human lives and the way humans learn, work, and interact by producing a community, nation, and economy that are increasingly plugged into knowledge production and consumption, whether that knowledge is content-free (i.e., emotion driven), content-filled (i.e., scientifically factual), or a mixture of both (Shepherd & Fraser, 2004). Colleges and universities of higher

education are plugged into this knowledge system as well. They are not only the warehouses of innovative and analytical knowledge workers (e.g., students and researchers) but also the producers of these individuals. In various ways, higher education systems have contributed to moving the digital era forward by creating learning spaces not only for the production of new knowledge and new knowledge workers but also for knowledge workers (professors, researchers, and industry) to interact with, more and more knowledge. The functionalities of the information communication technologies that are produced make it possible for people to learn digitally every day through computer-mediated communication platforms and devices such as the internet, blockchains, and laptops, as well as mobile devices.

The arguments outlined above are in harmony with those of Cantoni and Tardini (2010). They emphasised that notions of a digital era should not be located in a single context but rather should be situated in multiple contexts (Cantoni & Tardini, 2010). The multiple perspective implies that the digital era cannot be limited to smart phones, computers, tablets, Kindles, or related innovations arising from knowledge and innovation production but should also embrace the social responses to network informatics and mediated technologies (Cantoni & Tardini, 2010). In other words, the digital era is an alternative frame of reference from the analogue era – possessing new methods of pulling people together at the household, community, societal, or global level and capable of creating a horizontal community through knowledge sharing and digital technology (Accilar, 2011). Alternative educational tools such as the massive open online courses (Georgsen & Zander, 2013) as well as the creation of social categories such as what Prensky (2001) has called the digital natives (i.e., people born after 1980) and digital immigrants (i.e., people born before 1980) are outcomes of the digital era. Digital natives are the first generation to grow up with digital technology, and consequently they are fully conversant with, and confident about, using it (Cantoni & Tardini, 2010). Digital immigrants did not grow up with digital technology. In fact, digital immigrants have had to make a transition to learn about the digital technologies that became part of their everyday life after 1980 (Prensky, 2001).

The digital era has transformed the higher education sector in many countries around the world, especially in the northern hemisphere. The influence on pedagogical practices is evident at different stages of the teaching process, including, as Blankenship (2019) alludes, in the material development domain where cloud computing allows learning materials to be created by developers at either one or multiple institutions, and then shared with others in the cloud. As a result of cloud storage capabilities and internet speed, digital technologies are being harnessed to stimulate active learning and experiential learning whereby live streaming is used to funnel learning experiences from afar into the pedagogical process (Kalolo, 2019). The technologies are also being used to encourage knowledge production, inquiry, and discovery on the part of students – all of which permit remote communication as well as data mining and sharing among academics and between academics and students in different physical classroom locations (Blankenship, 2019; Kalolo, 2019).

One of the enduring outcomes of the digital era is digital learning. While there are different interpretations of digital learning, Davis (2020) offers one that is

concise by asserting that digital learning is a teaching and learning strategy that is supplemented by digital technology or by instructional practice that makes appropriate use of digital technology. Davis’s perspective highlights three fundamental points: first, digital learning ultimately aims to help students; second, digital technology is applied in, and integrated with – not replacing – traditional educational strategies to enhance the learning experience; and finally, digital learning makes use of information communication technologies to support student interactions across three main components: that is, people, technology, and digital materials encountered during the learning and teaching process. Fig. 2.1 shows a summary of the key parameters adapted to digital learning systems. The framework is a theoretical simplification drawn from the literature review on digital learning.

In the digital learning framework in Fig. 2.1, the three main elements listed above are reinterpreted as follows: people, technologies, and services. People interact with digital learning systems. The people include various stakeholders such as students, academic staff who facilitate learning, and digital material developers. Digital learning technologies aid both the direct and indirect interactions of the different groups that use the technologies. The main value of the technology components is that they enable the integration of content, foster communication, and offer collaborative tools. The digital learning services, however, are a component that integrates all the activities that correspond to pedagogical models and to teaching strategies.

Overall, the framework shows that digital learning involves a complex interaction system, facilitated by technology. The set of interactions among the components involved in digital learning systems led Kirkwood and Price (2013) to conclude that in digital learning, technology is the kingpin as it facilitates professors’ teaching and students’ learning. In many ways, one could argue that in a ‘networked society’, digital learning challenges the collective understanding of ‘learning’ in a traditional learning context in higher education. Both the professors and students take on the role of co-explorers and they are both using technology to construct and enable their learning practices.

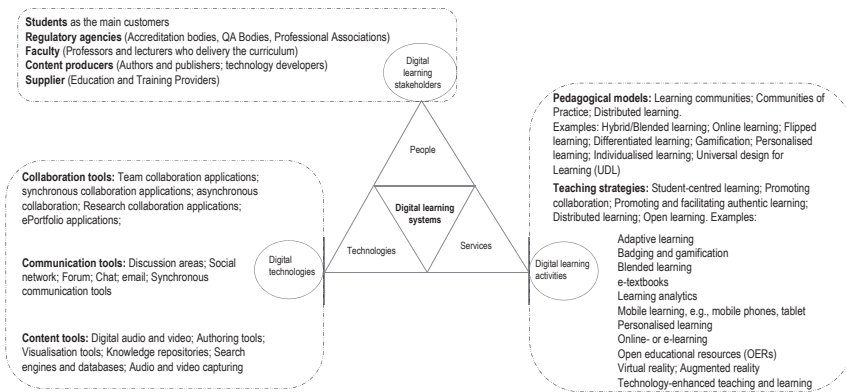


Fig. 2.1. Digital Learning Systems Framework. *Source:* Developed by authors based on literature – Aparicio, Bacao, and Oliveira (2016) and Kalolo (2019).

Why Digital Learning and Digital Technologies?

While underscoring the main message that digital learning is a practice that is facilitated by some form of technology that gives students a certain level of control over the learning environment and the lesson delivery (e.g., time and place and pace and pathways), Blankenship (2019) noted that in the recent past, different voices have been articulated on the linkage among education, technology, and human life. Two key strands of voices dominate the literature on digital learning as it relates to these relationships. One strand of the critical voice placed digital learning in the context of technology-enabled learning and concluded that it is a reductive debate serving demands that are outside pedagogical concerns (Bayne, 2014). Goodchild and Speed (2019) put it more concisely, stating that digital learning and related technologies, as disruptive innovations, have created more market shares than learning opportunities and pedagogical transformation. Selwyn (2016) has been swift in pointing at the downside to the use of technology in teaching and learning that has resulted in negative engagements for students.

The other strand of the critical voice, however, views digital learning more favourably, considering it as an opportunity for education practitioners and scholars to create and expand on current practices in self-directed and collaborative learning (Verdonck, Greenaway, Kennedy-Behr, & Askew, 2019). Temple (2008) believes that digital learning has shifted the emphasis away from teaching and placed it on learning, thereby giving students a greater voice on learning and about the space where they learn; for example, students can influence the forms of learning interactions and engage based on their learning styles. Undoubtedly, students in the digital era need to be adequately prepared for both higher education studies and professional careers in a world that is anchored on digital technologies. In a networked society, Georgsen and Zander (2013) allude that students need to be equipped with the competence to use digital tools as well as create digital content because modern careers, by and large, depend on digital tools not just for communication but also for business success. In both the developed and the developing world, digital learning and related technologies in higher education have been shown to add value in three dimensions, as follows: delivering support for social learning; reforming didactic methods to constructivist learning; and reinforcing multiple learning styles.

Support Social Learning

Kalolo (2019) has observed that digital technologies have assisted higher education to construct alternative ways for student engagement and interactions both synchronously and asynchronously in small groups and in ways that suit student learning styles. The pedagogical models that digital learning and technology enable result in a social learning environment that better prepares students for the networked, globalised workplace, compared to the traditional classroom models. But Miah and Omar (2012) questioned the readiness of the higher education environment in developing countries to roll out and drive full-fledged digital learning systems – highlighting that the learning environments in many of these countries still use traditional classroom models that treat students as separate and independent learners assigned to individually demarcated learning desks, books, and assessments.

Driving Constructivist Learning

Scholars have emphasised the influence that digital technology has been having on the traditional pedagogical role (Kalolo, 2019; Miah & Omar, 2012). Kalolo (2019) alludes that digital learning has redefined existing pedagogical roles for students because learning is approached in constructivist terms which elicit more participation and interaction from students. As a result, there is less control of knowledge dissemination by academic staff. Higher education in many developing countries in Africa will need to shift its teaching and learning process away from hardcopy-based textbook materials, oral presentations of lecturers, and note-taking because digital learning is a direct challenge to those methods. Digital learning encourages multiple forms of knowledge construction, and by so doing it has dispelled the myth that only the professor possesses the subject knowledge that students need to succeed in a course (Miah & Omar, 2012).

New research on student–student interactions affirms the idea that authentic collaborative work offers exceptional opportunities for productive learning. A typical example is the development of problem-solving skills, where a study by Forman and Cazden (1985) found that students who learned problem-solving strategies through group interactions, were able, at a later stage in the future, to internalise and hold those strategies. There are studies showing that student interactions in learning community groups are advantageous for cognitive growth. A number of scholars have advocated for higher education students to learn in collaborative or cooperative learning community settings, and digital learning services are designed to support such a structure (Kalolo, 2019; Prensky, 2001).

Responding to Varied Learning Styles Among Students

Jelfs and Richardson (2013) advocate that the digital learning environment offers multiple options towards understanding not just textual but also game and simulation-based methodologies of learning. Digital learning does not promote a uniform system of learning but focusses instead on embracing students who enter the learning environment with different learning styles, cognitive abilities and backgrounds. In contrast to traditional models of teaching and learning, the digital models have been shown to permit tailor-made learning in the higher education context (Kalolo, 2019). But a concern expressed in recent studies is that the learning environment in many higher education contexts in African countries has shown a prevalence of traditional teaching and learning styles which utilise a static approach of a single curriculum that fits all (Georgsen & Zander, 2013). Addressing this challenge and related ones linked to internet connectivity could go a long way to creating a digital learning friendly environment in these countries.

Development of the Empirical Evidence

The chapter is anchored on the literature reviewed around digital learning and pedagogy. In expanding the literature, the chapter makes use of data from an empirical study undertaken in one university in a country in the northern hemisphere. The purpose of this study was to appraise the contributions and challenges

of the university's pre-COVID-19 online learning model in driving the institution's transition to a 'digital first' model institution-wide. In relation to the latter point, an auxiliary purpose of the investigation was to discuss the strategies that the university employed to overcome reported gaps in digital services for students and in pedagogical practices and the key lessons in these for higher education in African countries.

The Case Study Context and Interventions

Context and Participants. The case study for appraisal was the University of Derby. The University of Derby established its University of Derby Online services in 2011. Since that time, the online offerings have complemented the traditional, face-to-face model of teaching and learning at the university. In 2018, the university introduced the PROPHET Framework (i.e., Pedagogic Realignment with Organisational Priorities and Horizon Emergent Technologies), which served as an enhancement of the online learning mode (Shaw, Rawlinson, & Sheffield, 2020). One of the values of the framework is that it has enabled a reculturing of faculty and staff as it relates to the formation of a common understanding of online learning and improved operational efficiency (Shaw et al., 2020). The PROPHET Framework aided faculty and staff of the university to realise that in order to offer a quality online service, four key parameters should be addressed, namely: interdepartment collaboration; quality assurance of procured products and services; monitoring of outsourced associate teaching quality; and measurement of online students' sense of institutional belonging. These parameters are interrelated and any deficits in one of these could result in a breakdown in communication and service.

The PROPHET Framework anchored the university and facilitated its transition to online learning and teaching in response to the COVID-19 outbreak in 2020. The university used its online experience to support the transition from the face-to-face and blended learning model to a fully digital learning model. At the university, digital learning has been conceptualised as the purposefully planned integration of online learning experiences, supported by face-to-face engagements, that blends the best of both worlds, thereby offering students the flexibility to experience the different learning environments, while actively engaging in the learning process and fostering independence and digital capabilities. The university's interpretation of digital learning is consistent with Davis' (2020) view of the concept. The project involved the university, plus two of its college partners, namely the Derby College and the London College. These groups were in the best position to share experiences related to the transition from the traditional model of teaching to digital learning pedagogical models as reflected in the 'digital first' approach.

Case Study Interventions. Pedagogical models of digital learning at the university are reflected in the university's digital first approach. There are two models in the intervention, namely the fully digital learning mode and the blended digital learning mode. Both of these models are in contrast to the traditional model of learning and teaching. The radical shift of the formal curriculum and student

learning to a 'digital first' approach assisted the university to address the fundamental physical distancing needs of the COVID-19 pandemic.

To implement the digital first approach, three key changes were made: (a) a review of regulatory instruments; (b) a reculturing of, and giving off-campus access to, faculty, staff, and students; and (c) a choice of framework for blending in digital learning. Each is further elaborated. Indeed, a substantial review of policies and practice had to be done. This work ensured that students had digital access to both the virtual learning environment (VLE) and the wider institutional services associated with university life off-site. The review included an assessment of the quality of digital teaching, assessing opportunities for peer engagement, the level of access to study materials, access to library resources, and the level of security of digital assessments. The principles of delivering successful fully digital learning in a few courses at the university were used as guidelines for the evaluation. The evaluation data helped to set new digital baselines (Mladenova, Kalmukov, & Valova, 2020).

The university also had to nurture academic and support staff behavioural change. In this regard, faculty and staff had to reconcile their well-established notion of 'blended learning' with the fully digital model in higher education. The digital first approach challenged the traditional concept of learning at the university, and highlighted previously hidden difficulties of accessing the university systems remotely. Digital poverty among faculty, students, and staff, which previously had little impact on the university's ability to function, became a major barrier that had to be confronted. To address identified barriers, three important changes were made at the meso and micro levels, respectively. At the meso level, the university created an 'off-campus digital learning course' which targeted faculty and staff reculturing and development. All faculty members were requested to participate in the course; this was a key step in the transition to digital learning. The aim of the digital learning course, which was delivered remotely online, was to develop the digital capability of the faculty; it was also to allow the faculty to experience being in an online learning environment. In addition to the training on digital learning, the university also trained the faculty through its postgraduate certificate of education course. The aim of the second training session was to expose the professors and lecturers to developments in pedagogy, and to encourage them to experiment and innovate with technology in the curriculum. Over 80 per cent of the faculty completed the training courses.

At the micro level, the university's intervention was to enable off-campus access to digital applications. Working remotely meant that students, faculty, and staff had to gain access to the university while off-site. To drive this intervention, the university launched all its software that was only accessible on campus on a new software portal that allows off-site access by students, faculty, and staff. While all of these decisions helped to drive the 'digital first' approach, they have theoretical support in the literature. Shaw et al. (2020) had previously reported that in the process of shifting from the traditional model of teaching to the digital learning model, barriers are inevitable and will need to be addressed at the macro, meso and micro levels of delivery.

In addition, the university adopted the four blends of digital learning identified by Littlejohn and Pegler (2007). These blends were (a) *the space blend*, that

is, blending virtual and/or physical space; (b) *the time blend*, that is, blending that accommodates synchronous or asynchronous communication; (c) *the media blend*, that is, use of different types of technology tools and resources; and (d) *the activity blend*, that is, the use of different learning activities and resources. These blends for online learning support professors and lecturers in identifying how they intend to use technology to enhance their programme (McPhee & Söderström, 2012; Means, Bakia, & Robert Murphy, 2014; Wang, 1975).

Four core principles were adopted in the blends of online learning interventions to guide the delivery of the student learning experience. The principle of a ‘digital rich experience’ was deliberately adopted because the university wanted to ensure that the digital experience provided to students matches the expectations and digital capability requirements that are associated with living and working in a digital society. The principle of ‘active learning’ is about delivering productive learning and this is achieved when students are actively engaged with the learning materials and their peers (Bailey & Lee, 2020). For the university, active learning was adopted to inspire innovations in the curriculum and in pedagogy that could make digital learning stimulating, challenging, and collaborative, as well as deep, authentic, and experiential. The principle of ‘flexibility’ was embedded throughout the curriculum – which had been planned from a ‘persona’ needs and business case perspective. Finally, the principle of ‘blended across delivery’ modes was infused in the process to ensure that all students benefitted from a mix of learning experiences.

Evaluation of the Digital First Intervention

The digital first intervention established a systematic approach to the transition from traditional learning to digital learning. The approach was launched and became functional in September 2020. Since that time, professors and lecturers, across the university and its affiliates, have focussed on self-development and on evolving their campus pedagogical delivery more and more towards a digital learning experience. In January 2021, the university evaluated the impact of its digital first intervention, along with its work-based learning mode. The impetus for appraising these modes came from the United Kingdom’s Quality Assurance Agency (QAA, 2011) findings that the COVID-19 pandemic has had the most impact on programmes containing practical elements such as work placements and practical assessments (QAA, 2020). Stufflebeam’s (2007) CIPP model (i.e., context, input, process, and product impact) guided the evaluation because it enables evaluation from the existing context, which informs any further intervention (see Fig. 2.2).

A digital ethnographic approach was used to capture the teaching and learning experiences of the faculty and students, through a series of video diaries (vlogs), field notes, and semi-structured interviews. Six modules were observed, and the groups observed were as follows: two fully online or digital learning sessions – covering postgraduate, undergraduate, and full/part-time delivery; two active blended learning sessions (in-person and virtual teaching); and two work-based learning sessions (i.e., degree apprenticeship). As shown in Fig. 2.2, working right to left,

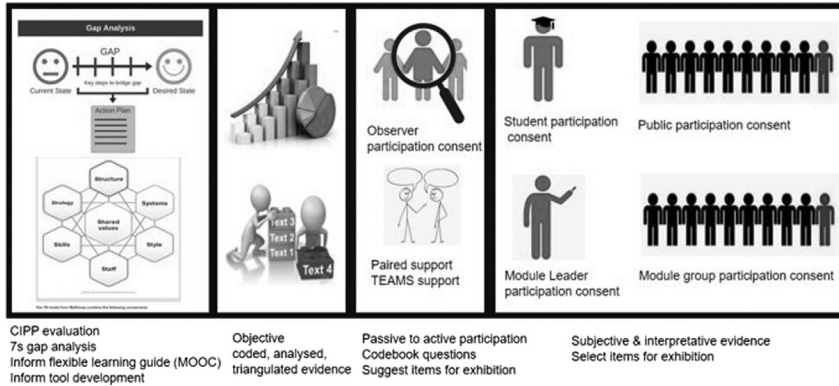


Fig. 2.2. The Digital Ethnography Process. *Source:* Authors' design.

students enrolled on the modules (public participation) and the faculty and support staff involved in the modules (module group) were informed of the research taking place. Participants' personal accounts of the learning taking place (e.g., in guided and independent learning sessions) were captured in video diaries. Observers recorded the incidence of students' flexible contact with faculty and staff as well as the independent learning session (including remote access to support facilities), and work-based application. Semi-structured interviews were used to extract a deeper understanding of the learning-analytic data and observed activity.

Discussion of the Evidence

One of the major lessons of the COVID-19 pandemic is that it has motivated the higher education sector to appreciate that the provision of effective digital learning can no longer be optional for institutions. The scaling of an effective digital learning offering is now a necessity. This necessity for digital learning has led the university to implement its digital first educational model and to evaluate it in order to understand the aspects that have been effective or not effective and the key lessons that can be extracted for planning and implementing quality digital learning pedagogy in higher education.

Digital Learning Pedagogy

Communication Synchrony: Synchronous, Asynchronous, and Blended. The goal of any digital first pedagogy intervention is to increase student achievement as measured by the standardised measures of academic performance. It empowers students academically by providing them with the digital learning tools of the twenty-first century and by so doing, offers digital technology equity to students in terms of providing meaningful access to learning technology resources for all regardless of their backgrounds. For the university, the digital first pedagogical approach is a commitment to preparing students for the workplace of the twenty-first century, and to enhancing local economic development by creating a technologically literate graduating labour force. Scholars have agreed that the

integration of digital technologies into the educational process can enhance the overall learning environment and experience for students and can help them to navigate the fast-paced digital development consciously and reflectively (Kalolo, 2019; Sherblom, 2010).

Although the use of technology and computer-mediated communication is fairly prevalent in the higher education classroom in the United Kingdom, many practitioners and education policymakers in higher education have asked whether that use is effective, and what university professors, lecturers, and IT support can do to foster an effective digital learning classroom learning experience? These questions certainly foregrounded the efforts to evaluate the digital first pedagogical intervention that the university rolled out. The pedagogy comprised two main pedagogical models: (a) full digital learning online and (b) blended digital learning, with an in-person and online hybrid.

Digital learning communication synchrony is a key pivot and decision-making point in the design and effective implementation of any digital learning system. Synchrony signifies a point of congruence and harmony in the communication patterns of two or more people in interaction (Kim, 1992). Hall (1976) used the term, 'being in sync', to describe the phenomenon in which people when communicating move together, in part or in whole. In doing so, each interactant complements the other, in whole or in part. In digital learning, Means et al. (2014) talk of communication synchrony as being synchronous, asynchronous, and some blend of both, which ties in with the model of digital learning implemented by the university. Kim (1992) states that synchronic communication logically occurs when the individuals involved in the interactions share verbal and/or nonverbal communication in real time and the interactants are able to participate in discussion and give or receive feedback. Asynchronic communication does not occur in real time. In the robust body of research on communication synchrony, it is shown that each one of these synchrony types supports different kinds of interactions in the learning process (Hall, 1976; Kim, 1992; Means et al., 2014).

It has been observed that in the university's digital first pedagogy intervention both synchronous and asynchronous media have been used to support learning and teaching practices. In the university model, asynchronous digital learning has been facilitated by media such as e-mail, WhatsApp, frequently asked questions (FAQ), and discussion boards. It has been used to support work relations among students and with professors and lecturers, particularly in cases where the interactants in the learning community cannot be online in real time simultaneously. Asynchronous connection formed a key component of the flexible digital learning that the university promotes. One of the key ways that the university has applied the asynchronous mode of learning is to assist students to personalise their learning journey. Independent or 'self-directed' learning is a core element of higher education, especially as it relates to developing autonomous and critical thinkers (Means et al., 2014). It has been observed in the digital first intervention that a large part of independent learning was taken up by reading media and watching videos. Sometimes the work that is done independently during asynchronous learning sessions is guided by the professor or lecturer (e.g., an activity given to prepare for a synchronous session), while at other times, it is driven by the students' own

self-directed learning initiatives such as reviewing discussion boards and emails. In either case, the computer-mediated learning literature has shown strong support for asynchronous learning methods (Kim, 1992; Means et al., 2014).

For instance, as Hrastinski (2008) alluded, many students sign up for digital learning modes because of their asynchronous learning component – that is, their opportunity to combine education with work, family, and other commitments. It has been observed that the university students in the degree apprenticeship course embraced asynchronous digital learning because it allowed them to log on to the digital learning environment at any time and access the learning materials or messages shared by classmates and course professors and lecturers. Many of them also spent time on sending messages to their peers or professors and lecturers, and on refining their group contributions. Although Sherblom (2010) highlights that asynchronous learning tends to distance students from others in the learning community, Kim (1992) found that student contributions during the asynchronous learning sessions tend to be more thoughtful, compared to contributions given in synchronous interactions. The continuing success of the digital first pedagogical model that has been adopted is dependent in many ways then, on not only the careful planning and identification of the digital content to cover, but also the careful consideration of how to support different types of interactions.

The decision on whether to make a teaching and learning session asynchronous or synchronous is fundamental in any digital learning environment. For the university, the decision was influenced by student location. It has been observed during the evaluation of the digital first intervention that student locations provided the rationale for using predominantly the synchronous or asynchronous approach. Prior to the COVID-19 outbreak, many of the students enrolled in digital learning programmes were based overseas. The COVID-19 outbreak, and its related social distance health requirement disrupted on-campus activities and dispersed the student population to different locations locally and overseas. It has been observed that, consistent with the literature, synchronous learning sessions overcome student isolation through more continued contact and students becoming increasingly aware of themselves as part of a group (Jonassen & Land, 2000; Wenger, 1998).

The media that drive synchronous learning can vary. At the university, synchronous learning was largely supported by media such as the Blackboard VLE, video-conferencing, and Chat. Before the COVID-19 outbreak, significant investment had already been made in digital technologies for supporting synchronous learning and digital reading materials at the university. The successful roll out of the digital first pedagogical model is a result of the pre-COVID-19 investment in the learning infrastructure, because its infrastructure has supported the e-students across the institution to develop strong and vibrant learning communities. It has been observed that the students and academic teams experienced synchronous digital learning as more social and avoided frustration by asking and answering questions in real time (Hrastinski, 2008). In other words, synchronous sessions helped students and professors to feel like interactants rather than isolated individuals who communicate with the digital technology (Jonassen & Land, 2000; Wenger, 1998).

As Markus (1994) alluded, university practitioners need to hold a firm understanding of why, when, and how to deploy different types of digital learning arrangements and technologies. Using location as a pivot, the university found that the most logical model for grouping its student population was time zones, which generated three groupings: (a) face-to-face synchronous learning for students who were local – that is, with close proximity to the university; (b) digital synchronous learning for students who were located within the same country; and (c) digital asynchronous learning for a mixed cohort of students in different time zones. The observation therefore is that three types of grouping arrangements and communications are important for building and sustaining digital learning communities: face-to-face synchronous, digital synchronous, and digital asynchronous learning (see Table 2.1).

First, face-to-face synchronous learning occurs in the same time zone and is essential for learning. The communication occurs in real time, and just as in traditional education, the students are able to ask questions and share information and ideas in real time. Second, digital synchronous learning occurs online with the students dispersed in different locations within the same time zone. However, like face-to-face synchronous learning, it allows real time interactions and engagement, and supports planning tasks especially where students are expected to co-produce some kind of product, collaboratively with peers. Finally, digital asynchronous learning does not occur in real time, and suits learning communities that are in different time zones. At the university, it has been observed that a number of professors and lecturers who lead modules used asynchronous tools as activities during digital synchronous sessions, which mirrored a traditional campus-based blended class session. Campus-based students made little use of discussion forums and online private journals. Students in more dispersed and work-based locations, however, found scheduled digital synchronous sessions difficult to attend, and asynchronous sessions had to be designed for them. All the students benefitted from recorded lectures following the class sessions, which is an illustration of a desire for on-demand content (asynchronous) that can be accessed at a time that is suitable to students. These observations affirm the view expressed by Hrastinski (2008) that the users decide how to use a medium.

Table 2.1. Types of Digital Learning Synchrony Groups by Location.

Digital Learning Arrangements	Descriptions
Face-to-face synchronous	<ul style="list-style-type: none">• For students who are local, and within close proximity to the university• Same time zone
Digital synchronous	<ul style="list-style-type: none">• For students who are located within the same country
Digital asynchronous	<ul style="list-style-type: none">• For a mixed cohort of students in different time zones

Source: Authors' design.

In the digital learning context, it has been observed that student characteristics play a crucial role in communication synchrony choice. Students in the work-based learning context or in the full online mode often face employment related challenges that decrease their academic learning time. These kinds of students valued the availability of accessible content in advance of synchronous sessions because reading ahead helps them to succeed without penalties. Universities that have successfully implemented digital learning make it a point to explore and understand the challenges that emanate from having students in the same digital learning community working at a difference pace. It has been observed, for instance, that students who read and stay well ahead of the pace of the lesson facilitator trigger feelings of panic in other students. This psychological reaction is corroborated by Kock's (2005) media naturalness hypothesis which states that synchronous communication increases psychological arousal. The natural media can include a person's body language. It is also supported by Robert and Dennis's (2005) cognitive model of media choice which asserts that synchronous communication increases motivation. Maintaining awareness of 'soft' issues such as these can improve digital learning effectiveness.

Class Size. Class size significantly constrains the kinds of digital learning synchrony, tools, and strategies that a university can adopt (Means et al., 2014). In digital learning pedagogy, Means et al. (2014) assert, for instance, that the quality of feedback diminishes as the class size increases, which suggests that class size influenced practice and feedback tools and strategies. Class size should not be allowed to reach a point where a professor or lecturer would find it impossible to offer quality feedback to students. In the case of the university's digital first pedagogy, it has been observed that class size motivated the scaling of asynchronous activities. To drive an effective digital learning process, it is advisable that the amount of personalised communication decreases as the group size increases, and in discussion forums, it is more pragmatic to utilise a group-based scalable solution as well as peer learning and tutor response to the whole group instead of an individual student. Responding to an individual student in a discussion forum can be time-consuming for the professor or lecturer.

The digital media described in Table 2.2 have been key in shaping the class group arrangement options for the professors or lecturers facilitating a digital learning process. Understanding when, how, and why to apply synchronous and asynchronous learning media is essential for navigating around class size concerns. It can be deduced from Table 2.2 that when class size is over 30 students but is 60 students or less, it is ideal to utilise synchronous digital learning with periodic breaks in between session-blocks in order to allow students to reflect on complex issues, chat one-to-one with the facilitator or peers during the break, and plan tasks. Classes with smaller number of students (e.g., 30 or less) can use synchronous digital learning with a plenary and breakaway group structure. The breakaway sessions allow interactions in small groups which can be reported on during plenary. Breakaway sessions allow students to get acquainted and build social relations.

In the evaluation of the digital first pedagogy that the university implemented, it has been noticeable that asynchronous and synchronous digital learning media

Table 2.2. Professors and Lecturers Use Different Digital Learning Arrangements According to Group Size.

Communication Synchrony and Tools	Small Size (1–30 Students)	Medium Size (30–60 Students)
Synchronous learning	<ul style="list-style-type: none"> • Digital synchronous with breakout activities (e.g., whiteboards) • Cameras/microphones can be used • Chat can be enabled for group communication 	<ul style="list-style-type: none"> • Digital synchronous with breaks enabled; questions to be gathered; Chat during breaks can be directed to the professor/lecturer only • Use can be made of cameras/microphones • For general questioning during synchronous sessions, Chat can be used to enable group communication
Synchronous personalised learning	<ul style="list-style-type: none"> • Personalised task feedback (e.g., Padlet and journal) • Can review drafts of student work and provide personalised feedback 	<ul style="list-style-type: none"> • Personalised feedback is limited; it is time-consuming • Limited opportunity to review drafts of student work; long turnaround time
Blended asynchronous and synchronous learning	<ul style="list-style-type: none"> • Can provide asynchronous communication between class sessions (e.g., personal email and Chat) 	<ul style="list-style-type: none"> • Can scale personal communications but this requires a mixing of methods (e.g., scheduled office hours, drop-in tutorials, and email) • Use FAQ forums in order to limit the number of personal emails • Can host weekly group feedback in order to limit the number of personal responses in discussion forums
Collaborative synchronous learning	<ul style="list-style-type: none"> • Can use a collaborative task if the group is cohesive • Can use a collaborative task if the group members are comfortable with each other 	<ul style="list-style-type: none"> • Group cohesion is a challenge in the medium to large group size • When placing students in groups it is difficult to monitor their progress in the medium to large group size

Source: Authors' design.

were used to complement each other to facilitate student learning in groups of different sizes. Professors and lecturers used asynchronous means such as personal e-mail, discussion boards, and FAQ forums in the small class size, or synchronous means such as instant messaging and Chat, complemented by face-to-face meetings in the medium or large class size. These were used, depending on whether the learning experience required students to reflect and think deeply on the task before responding or required an immediate response from the students or tutor (Hrastinski, 2008; Means et al., 2014). Notwithstanding, while it is possible to organise students to work collaboratively on tasks in the digital learning environment, it has been observed that the tutors did not make much use of that strategy. It is speculated that inadequate information on student characteristics to determine group cohesiveness or group members' level of comfort with each other may have contributed to the low uptake of the strategy among tutors. The collaborative learning strategy recognises learning as both a social and a cognitive process, not just a matter of information transmission.

Opportunities for Self-assessment and Student Authentication and Work Authorship in Digital Assessments. Assessment is one of the central elements of teaching and learning. Educational practitioners and theorists often hold different opinions concerning the implementation of assessment strategies. Dikli (2003) asserts that assessment is anchored on information collected about what students know and can do. Although there are multiple ways of gathering information on the current knowledge that students possess (Law & Eckes, 1995), the delivery media determine the assessment strategy to utilise (Nouwens & Towers, 1997). In digital education, distributed and online assessment are two common assessment options, with the former being software downloadable from the internet or stored on CD-ROM, and the latter being accessible from a web browser in cyberspace. Improvements in technology have made a variety of computer-based testing systems available in digital education, with many having built-in features that can give immediate feedback to students (Dikli, 2003).

In the evaluation of the university's digital first intervention, a wide range of assessment practices were observed – from replicating authentic work experiences (e.g., environmental impact assessment) to practices that could not replicate practical work due to social distancing requirements. In one case, a project to produce a dance exhibition began online, with the envisaged outputs being either a digital show or an in-person performance. In the digital education environment at the university, it has been observed that considerable effort and long hours have had to be put into preparing students for assessment, with both synchronous and asynchronous sessions being used. These observations reinforce Dikli's (2003) assertion that multiple factors must be taken into consideration when designing and implementing assessment in digital education. These factors include the fairness of the assessment and ensuring that it is reliable and valid, ensuring clarity of the assessment brief, and allowing students to assess their progress (Nouwens & Towers, 1997). The onus is on the academic practitioners to ensure that students are accustomed with the digital technological tools for the assessment strategies planned (Nouwens & Towers, 1997). The evaluation found that while students commented positively on the clarity of the assessment brief, and on the use of

third-party tools to prepare for the exam, they did not comment on the time it takes to prepare for digital assessment because they are no doubt unconcerned about the pre-assessment phase.

Providing students with opportunities for self-assessment and ensuring student authentication and work authorship for digital assessments are among the major concerns when assisting students digitally. In the evaluation of the intervention, many academic practitioners reported having no solution to guarantee student authentication and work authorship in digital assessments. The lack of solution is a result of the university policy provision of 'anonymous marking of assessment scripts', which makes it difficult to compare the authorial voices of students during the process phase of teaching and learning in a subject area with the authorial voice during the assessment phase. The policy concern implies that there is a need for development in the institutional approaches to academic integrity in e-assessment. Peytcheva-Forsyth, Mellor, and Aleksieva (2019) are of the view that growth in digital learning and e-assessment has given rise to new concerns for academic integrity, as well as the technology and tools that drive academic integrity. Universities that have successfully implemented e-assessment have adopted an integrated approach involving a range of interrelated measures, including induction and learning support provision; the use of authentic assessment tasks that deter plagiarism; the use of penalties to discourage contract cheating; detection through technology; and the roll out and monitoring of formal policies and procedures (Higher Education Academy, 2010; QAA, 2016). The QAA (2016) has admitted that there is no single solution for tackling the threat of academic misconduct in e-assessment and has called for a multifaceted approach to guarantee student authentication and authorship checking. Focussing efforts on assessment design and on the use of technology to detect cheating should form major components of an e-assessment approach in universities (Morris & Carroll, 2016; Newton & Lang, 2016).

But some scholars questioned the general focus on merely the assessment design as a strategy to manage contract cheating (Harper, et al., 2018; Peytcheva-Forsyth, Harvey, & Lyubka, 2019). Peytcheva-Forsyth et al. (2019) assert that contract cheating is the outsourcing of assessment tasks to a third-party to complete. They contend that the design of the assessment alone may not be the 'silver-bullet' to stem contract cheating because, regardless of assessment type, they found that it still featured as a problem (Peytcheva-Forsyth, et al., 2019). In another study of contract cheating done by Bretag et al. (2019), students confessed that certain assessment tasks such as in-class assessments, dissertation vivas, unique and personalised tasks, and reflections on practical work in industry attachments were the most difficult activities to outsource. Yet in the university's digital first pedagogical approach evaluated, few tutors considered some form of automated self-assessment, and few had considered using in-class tasks, unique and personalised tasks, dissertation vivas, or reflections on practical work in their pedagogy. Among the university tutors, the common assessments were those with short turnaround times and heavily weighted (e.g., paper-pencil test and structured takeaway tasks with detailed assessment briefs). It appears that the kinds of assessment activities that the university tutors designed for their modules are among those that are most vulnerable to contract cheating or outsourcing (Bretag et al., 2019).

In addition to offering approaches that can address cheating (e.g., plagiarism detection), technology can detect student authentication and authorship. Authentication is about ensuring that the person taking the assessment is the right person. A university can use the user-password paradigm and the biometric data paradigm to strengthen its digital assessment regime (Apampa, Wills, & Argles, 2010). Digital proctoring systems can provide reliable authentication for online assessment (Karim & Shukur, 2015). Although universities can use these approaches, many – especially in the northern hemisphere – shy away from doing so due to the potential expense as well as the data privacy, security, and storage concerns. By contrast, text-matching software is a common way of ascertaining whether a document was created by the student who presents it. Juola (2007) proposes linguistic analysis tools as an alternative approach for checking authorship. The fact is that there are technologies available which allow a university to determine student authentication and work authorship in digital assessments. In the evaluation of the digital first pedagogical intervention at the case study university, plagiarism software such as Turnitin was the main approach used to detect authorship, and the user–password method was the main approach for checking authentication.

Digital Technology and Pedagogy

A fundamental piece of any digital learning model is the digital technologies and digital learning services deployed in the pedagogical process. Our evaluation has demonstrated that implementing digital learning as an education model must be anchored solidly on a stable and accessible digital platform. The stability and accessibility of the digital platform and the accessibility of the digital tools and technologies were reported as being most important for students. Our evaluation has shown that in some cases, institutionally supported digital tools have had to be abandoned, for the sake of the student experience. Professors and lecturers who delivered modules across the fully online and blended learning modes evaluated, quickly learnt that teaching digitally requires additional preparation time, which was used to test out technologies and to rehearse their own digital skills. An observation during the evaluation process, however, is that a greater understanding of the technology’s capabilities led to better pedagogical applications.

Although Prensky (2001) has categorised students in higher education today as digital natives, the evaluation of the university’s full-scale digital learning approach revealed that reculturing students to learn digitally was a necessity. This was particularly the case for the students who opted for the blended learning format of teaching. ‘Setting the scene’ and pointing out key tools and spaces comprised an important step in creating a good first impression. One of the ways reculturing was achieved is through student orientation to the use of the infrastructure and digital technologies that they had to access during their learning process. Providing orientation by module in a learning programme reduced the anxieties and stresses that students encountered because the digital learning technologies (e.g., communication tools, collaboration tools, and content tools) and services (pedagogical models and teaching strategies) (see Fig. 2.1) that teaching

staff deployed differed across modules. It was common, for example, that one module would emphasise learning activities that required the use of a 'discussion forum' digital tool, while in another module emphasis would be placed on journals or a purchased digital resource. Although these subtle changes may not be evident to students in the modules, best practices demonstrated that they help to set expectations for the individual module (Bailey & Lee, 2020).

A poignant observation in the evaluation is that students who opted for the blended learning model of teaching showed a higher affinity for reculturing to the digital format. While it is not immediately clear why this was the case, it is speculated that it may be related to the fact that full digital learning was not the preferred environment for these students. Consequently, the university's orientation approach for students in the blended digital learning format involved an extended time devotion and standardisation. Professors and lecturers took extra care in orientating students in the blended learning modality to the VLE and digital learning because their immediate need was to learn how to use the synchronous meeting tools. The standardisation of the orientation support for these students was paramount as, when navigating between modules, the students expect to see the same layout. The danger of not standardising the practice is that inconsistency can lead to despondency and a feeling of being lost among students as they access learning tasks in different modules of a learning programme. A typical case is that if academics over-compensate in simplifying the navigation in one module but create less detailed navigation in the other module, the students may feel lost, and they may never develop the skills to support themselves. Standardisation ensures that the same reculturing support practices are adopted by the whole programme team (Georgsen & Zander, 2013).

There are hardly any surprises in the observation in the analysis that inadequate technical proficiency hindered students' adjustment to the two pedagogical models (full digital learning and blended digital learning) of digital learning that the university rolled out. McKinsey (2021) and others (Jelfs & Richardson, 2013; Miah & Omar, 2012) have long alluded to the negative impact of digital poverty on the scaling up of digital learning in higher education. But the surprising aspect of the issue for Kalolo (2019) is that digital poverty has surfaced as a concern in a university in the northern hemisphere. Work-based degree apprentice students at the university expressed their apprehension about the digital infrastructure and related technologies 'not working for them' because they had encountered this in other modules. It shows that even young adults nowadays, that is, the so-called digital natives, struggle with the use of technology for educational purposes unless they receive adequate guidance and support (Sherblom, 2010). Notwithstanding, the university has embraced the evidence reported above in two ways: first, as feedback and invaluable insights to improve the infrastructure, but second, and more importantly, as an opportunity to develop targeted digital skills training to improve the capability of all students to function effectively in a digital world. The downside of inadequate technical proficiency though is that it causes the synchronous learning space to become a 'clunky environment' which ultimately takes time away from students' learning. The downside reinforces the need for time at the beginning of guided teaching, to acquaint and reacquaint students with

the VLE tool's main functions. The secret source to successful digital learning operations, McKinsey (2021) reiterates, is a responsive student advising division and a vigilant online academic team. HEIs that have successfully operated digital learning strategies have excelled in digital learning because they have put student support mechanisms in place to ensure that students successfully complete their courses (McKinsey, 2021; Verdonck, Greenaway, Kennedy-Behr, & Askew, 2019).

Student Support Mechanisms to Build Digital Learning Community

The goal of the university's digital first pedagogical approach is to support students to successfully complete their learning programme. Supporting students in digital learning to succeed is a practice that can manifest in different forms, including those that are socially, academically, and technology related (Brown & Forchheh, 2021). Social support can be described as the kind of exchange and interaction between support suppliers and receivers that decreases uncertainties and empowers relationships and roles that improve support receivers' perspective of personal control in their life experience (Lam, 2019). In the digital learning space, student classmates' social interactions and scaffoldings involve the students functioning in a community for academic and friendship purposes, and the HEI as a whole produces an environment to nurture students' academic, moral, and social development (Lam, 2019; Wentzel, Battle, Russell, & Looney, 2010). At the same time, digital learning pedagogy is an interactional process between students and professors or lecturers in the university or college environment (Ford, 1992; Lam, 2019; Wentzel, 1997). Digital learning in higher education relies on a multidimensional support.

The evaluation of the intervention at the university has demonstrated that the institution ensured that students in the digital learning mode had digital access to both the VLE and the wider institutional support services associated with university life off-site. The university staff and faculty put in place three types of student support mechanisms to assist students to succeed. The student support mechanisms formed part of the student-centred approach that the university devised. These cover interaction with online communities, bespoke counselling and guidance, and 24-hour information technology support to improve the learning experience. The students rated these support services and this revealed that a vital part of the student success in digital learning relied strongly on cultivating robust ties with peers and faculty. Peer-to-peer interactions were actively encouraged in the digital learning process at the university, and there was not a 'one-size-fits-all' policy. To ensure student participation in the digital learning process, the university enhanced peer-to-peer interactions through video calls (e.g., meeting technology such as Microsoft Teams, Zoom, and Blackboard Collaborate for small breakout groups or plenary), access to in-person engagement events (e.g., blended sessions), and the formation of digital communities online (e.g., a student-led society at the module level). It was observed that students encouraged each other with positive reinforcement using digital functionality in the VLE like emojis – illustrating that the faculty and students are taking advantage of the ability that the computer-mediated communication system provides to build 'hyperpersonal'

relationships (Sherblom, 2010). This use of 'chat' gave an interesting perspective on democratising student contributions to learning and student engagement (Wentzel, 1997). By allowing these channels for academic and social interactions, the teaching faculty liberated the learning and teaching process by relinquishing some control over what was discussed and by whom (Wentzel, et al., 2010) which encouraged personalised feedback sessions between students and faculty.

Although interaction with student peers in digital communities online has been argued as a crucial mechanism in assisting students to accomplish academic, social, and emotional outcomes (Connell & Wellborn, 1991), the evaluation analysis revealed that it was also associated with certain negative outcomes. It was positively associated with misunderstandings among students working in a written second language (i.e., asynchronous communication), and was found to heighten students' sense of privacy and confidentiality. It was observed during the evaluation work, for instance, that work and home distractions, pets, family, office noise, and a reluctance to disturb others around them were among the main reasons that students gave for muting their digital device microphones or their cameras. In other words, while many students valued seeing their peers on the device screen, they were reluctant to share their screens due to their environments – illustrating that online privacy is quite important to students (Tu, 2002) but also that an uncondusive learning environment can be a hindrance to student learning interaction in the digital space (Sherblom, 2010). Social identity recognises that student anonymity is also an important influence. Communication experts acknowledged that anonymity concerns shift the focus in communication away from the individual to the word choices and language style which can lead to impersonal digital communication (Costley & Lange, 2016; Sherblom, 2010).

In general, the concerns that students expressed about their interaction behaviour in the digital learning context are similar to what has been discussed on social presence, privacy, and computer-mediated communication in the digital environment literature (Gunawardena & Zittle, 1997; Tu, 2002; Walther, 1992). That literature shows, for instance, that technology and computer-mediated communication, if not used appropriately, decreases shared meaning, promotes misunderstanding, separates students from the professor, and erodes social connections vital to learning (Sherblom, 2010). It is perhaps unsurprising then that second language users in a culturally diverse digital learning environment would report written communication challenges (Hata, 2003). The literature also shows that the level of privacy in digital learning environments affects social presence, that is, person-to-person awareness, or a sense of closeness and intimacy with others in the community (Kozar, 2016; Tu, 2002). Several researchers who have published on social presence in the digital learning context and related themes (Costley & Lange, 2016; Gunawardena & Zittle, 1997; Hata, 2003; Sherblom, 2010; Tu, 2002; Walther, 1992) have indicated that the student level of social presence is shaped by three key factors, namely students' perceptions (i.e., social context), the activities in which the students are engaged (i.e., interactivity), and the attributes of the communication media (i.e., online communication – synchronous and asynchronous). The way in which the different forms of digital communication or media are perceived – that is, public versus private; personalised versus group;

real time versus recorded – affects the level of social presence. As such, to increase student interaction and meet their unique needs in the digital learning setting, it is acknowledged that the most appropriate digital communication forms must be selected. This reinforces the need to set expectations about digital codes of conduct or ‘netiquette’. In supporting student interactions in digital learning, Sherblom (2010) emphasises that professors and lecturers should recognise that they should make use of different communication strategies for different digital media and proactively engage the medium (i.e., carefully select it, discuss its purpose with students, and reculture students in its use); should communicate with immediacy; and should foster a positive learning community identity.

HEIs that have succeeded with digital learning have put in place bespoke guidance and an academic counselling support mechanism to enrich the student experience off campus. The digital first intervention rolled out and evaluated, both café forums and FAQ forums to help students to navigate in-module study requirements, social isolation, and work placement concerns. Professors and lecturers took on roles as counsellors and employed analytics to identify students at risk of struggling academically and to make referrals or provide the required interventions. The café forums served the role of a circle of friends that mobilises in-module peers or classmates to provide assistance to, and enhance the inclusion of, individuals experiencing difficulties because of social isolation, loneliness, or distance (Goldstein, 2013; Taylor, 1996). The café forum approach encourages the development of coping skills among students in the digital and work-based learning schemes who report difficulties in socialising with their peers due to their dispersed locations. Another use that was made of the café forums is that of a space for social introduction and a source for sub-culture groupings for studying purposes. The key vehicle that sustained the café forums was social media, with WhatsApp being the most popular – especially for driving the study support sub-groups. It should be noted that the FAQ forum was central to the student support mechanism (Goldstein, 2013), with students using it to post questions for the group to respond. In the FAQ forum, the relationship between the students and the professors or lecturers (as module leaders) was non-hierarchical, and many of these academic leaders believed that the forum helped students at various stages of their academic programme to bond.

Despite the limited empirical research on the café and FAQ forum, there has been some evidence to suggest that these approaches are beneficial to the students involved. They are powerful in enhancing the inclusion of students in digital learning with social or isolation difficulties into the larger digital learning community setting. On the one hand, research has shown that these kinds of support mechanisms play a positive role in the development of cognitive competencies such as student listening skills, problem-solving skills, and peer acceptance skills (Goldstein, 2013; Lam, 2019), and can improve communication skills (Lam, 2019), thus enabling interactions with others in the learning community. The isolated or lonely student(s) can thus experience feelings of inclusion, worth, and greater happiness (James, 2011), which ultimately provide an essential network of social support for them as they learn, or adjust to university life without physical access to activities such as careers and library drop-in sessions, conferences, and

visiting speakers, or extra-curricular activities like the Union of Student's sports, societies, and events – that normally complemented their planned learning programmes prior to the COVID-19 era.

On the other hand, the literature on inclusion in digital learning has cautioned against allowing the technology and related tools that support the café and FAQ forums to become points of exclusion in higher education (Kalolo, 2019). While these forums provide students, faculty, and staff with new mechanisms to mitigate feelings of isolation and improve the sense of belongingness (James, 2011; Lam, 2019), they can also instigate alienation for students in digital poverty (Jelfs & Richardson, 2013; Kalolo, 2019; Miah & Omar, 2012). An observation from the data is that while WhatsApp was mentioned frequently as a vehicle for the study groups, there were students who felt 'excluded' in instances where they did not or could not use WhatsApp. In this example, the WhatsApp communication medium does not alleviate students' sense of isolation or powerlessness in the learning community. Universities that have been successful in using social media as a vehicle to support digital learning make it a point to review their social media policy, codes of conduct, and student charter to ensure technology access is not a hindrance to participation in digital education (Cantoni & Tardini, 2010; Kalolo, 2019). These universities discourage the decentralisation of solving digital technology problems whereby students try to resolve technology-related problems among themselves in the group, but instead, encourage a centralisation approach whereby the learning programme and support team is engaged so that group messaging can be consistent and seamless (McKinsey, 2021).

One of the problems identified during the digital first intervention evaluation was the inconsistency of the programme and module messaging flow in the digital learning community. Some messages were provided verbally, whereas others were posted in the digital spaces. Messages posted digitally were sent in various ways: formally through the VLE platform that hosts the learning programme and module information, or informally through email and chat. The multiplicity of message channels resulted in exclusion and inconsistency and gaps in the messaging. Messages about the course or about co- and extra-curricular opportunities conveyed verbally, for instance, were not posted digitally (asynchronous) for students who did not attend the synchronous class session to access. The university has had to circumvent these institutional constraints in the student support mechanism. It had to promote a well-planned communication policy, which mandates the use of a centralised space for formal message dissemination to students or by students, at a designated frequency, and the use of designated digital tools, or in the case of an out-of-class consultation with faculty – the use of an appointment schedule system. The discussion of digital system improvement and user socialisation in the literature recommends the active management of communication interaction and messaging (Costley & Lange, 2016; Sherblom, 2010). Sherblom (2010) emphasised that participants in the computer-mediated learning community should use the medium effectively, which includes focussing on its governance aspect. It plays a role in providing certainty in the information flow throughout the community, and more importantly, helps students to gradually develop an internal mechanism to self-regulate.

Lessons for Universities in Africa

A number of important lessons can be drawn from the experience of the University of Derby and its digital first pedagogical model for establishing and sustaining models of digital education in HEIs in other countries including Africa. Indeed, the chapter is relevant to all HEIs as they establish robust pedagogical and student digital services across all modes of study amidst the impetus from the COVID-19 outbreak to shift to a digital learning policy that is inclusive of all students. First, it is evident from the discussion that while the motivation to operate a digital education arrangement is important in fostering buy-in and ensuring business continuity in crisis, a solid infrastructure on which to build the digital system and to provide academic support services from off campus is equally important. The university was able to build on its PROPHET Framework that it had established prior to the COVID-19 outbreak to extend digital learning across all its programmes subsequent to the COVID-19 outbreak. The ability to forge vertical and horizontal linkages is also found to be a critical factor in digital learning success. The university's online learning and its centre for excellence in learning and teaching support and staff development initiatives helped to shift academics away from a blended model to a fully digital experience. This highlights the value of training in times of change, the need to guard against digital poverty, and the need to ensure a reliable internet connection for access to learning. Such linkages are particularly important as they serve as a conduit towards changing established mindset and practices.

Second, the evaluation suggests that the adoption of the four blends identified by Littlejohn and Pegler (2007) as the university's 'best of blends' approach and digital learning model, resulted in increased flexibility in active learning and in stimulating professors and lecturers to explore and enhance flexible learning in their practice. The willingness of the academic and non-academic staff to experiment and try out new ideas and to seek out alternative practices in times of crisis and change, and the support from university leadership, especially from the vice chancellor, contributed towards this state of affairs. The university's 'digital first' approach of inverting the value of physical attendance, reducing issues of cultural identity, and supporting student welfare at a distance was a critical success factor that triggered the development of a common understanding of digital learning. Reviewing university policies and regulations and crafting new ones were key inputs for this realisation. An important lesson for university systems in other countries especially in Africa is that the policy and regulation side of the business is just as important, if not more important than the digital infrastructure and technology side.

Third, the nature of digital learning and how it is communicated or marketed to academic and non-academic staff and students are another area of interest. The marketing of the university digital first pedagogy and services may have overshadowed the complexities inherent in staff workload planning for the implementation of the digital learning approach. The staff workload has to be considered because at the meso level, work needed to be done in digital pedagogy, digital skills, and curriculum design. The staff workload also has to cover a review of

the institution's policies and student charters to provide guidance on the institution's social media policy and codes of conduct. Institutional quality measurement tools had to be recrafted and service agreements regarding staff-student communications and expectations had to be signed off – all of which takes time to complete. At the micro level, all learning materials – both synchronous and asynchronous learning – had to be prepared in advance so that students could work ahead and flex their time around other commitments. The teaching engagement schedule for in-class contact learning time and independent learning time had to be harmonised so that students could plan their self-directed learning. All of these burgeoned the workload of faculty and staff.

Fourth, universities in Africa interested in adopting a digital first pedagogy across their entire institutions should note that an elaborate digital first framework such as the one set up by the University of Derby, has budgetary implications in terms of setting up, maintenance, and running costs. As such, more streamlined digital learning systems implemented on a phased basis, with clear performance indicators and targets could be a more ideal starting point. One of the key issues that emerged from this analysis is the management of student authentication and authorship in digital learning assessment practices. Universities must have a clear digital assessment plan with strategies for the assurance of student authentication and authorship. Investment in the technologies that support student authentication and authorship should be a high priority.

Likewise, in constructing an academic integrity policy, HEIs need to recognise that the institutions' perspectives may be different from those of the academic-practitioners or students. It emerged in this evaluation that some professors/lecturers had relatively different views about the best approaches to addressing student authentication and authorship as well as automated self-tests with automated feedback at the institution. In fact, academics were generally resistive to the idea of automated self-assessment, but they did not have a solution to students' requests for faster feedback on progress-related assessments. This shows a need for further dialogue and greater consultation with the academics as well as between the institutions and students. It shows a need for institutional policy socialisation among students. The resistance among some academic staff indicates a lack of uniformity of approach at the institutional level, with tutors developing their own approaches. A lesson for other HEIs is that inconsistency in the application of the academic integrity policy can contribute to staff and students forming different perceptions of policies and support, and the adoption of different approaches on how to address student authentication and authorship as well as automated self-tests with automated feedback. It will be essential to address these varying views rather than to address the academic staff as if they are a homogenous group. A robust academic integrity governance framework is vital for building confidence in digital education.

Conclusion

The adoption of the four blends identified by Littlejohn and Pegler (2007), as the university's 'best of blends' approach, within the digital first pedagogy, was

instrumental in moving students from the traditional learning mode to the digital learning mode during the pandemic and enhancing the student's digital experience. The university's transformation of its pedagogical approach is an indication of its association with evolutionary systems and its identification with being a learning organisation. It must be noted that developing successful digital education systems from scratch is a daunting and complex task that cannot be achieved over a short period of time. As the University of Derby experience shows, many factors influence digital education development and there is no one-size-fits-all model, at least in the short to medium term. HEIs in Africa can draw on the experiences of the University of Derby in implementing its digital education approach.

References

- Accilar, A. (2011). Exploring the aspects of digital divide in a developing country. *Issues in Informing Science and Information Technology*, 8(1), 231–244.
- Apampa, K., Wills, G., & Argles, D. (2010). User security issues in summative e-assessment security. *International Journal of Digital Society*, 1(2), 1–13.
- Aparicio, M., Bacao, F., & Oliveira, T. (2016). An e-learning theoretical framework. *Educational Technology and Society*, 19(1), 292–307.
- Bailey, D., & Lee, A. (2020). Learning from experience in the midst of COVID-19: Benefits, challenges, and strategies in online teaching. *Computer-assisted Language Learning Electronic Journal*, 21(2), 176–196.
- Bayne, S. (2014). What is the matter with “technology enhanced learning”? *Learning, Media and Technology*, 40(1), 5–20.
- Blankenship, R. (2019). Introduction: Advancing digital equity through transformative teaching and learning. In R. Blankenship & C. Baker (Eds.), *Cases on digital learning and teaching transformations in higher education* (pp. 1–14). IGI Global.
- Bretag, T., Harper, R., Burton, M., Ellis, C., Newton, P., van Haeringen, K. ... Rozenberg, P. (2019). Contract cheating and assessment design: Exploring the relationship. *Assessment and Evaluation in Higher Education*, 44(5), 676–691. <https://doi.org/10.1080/02602938.2018.1527892>
- Brown, B., & Forchheh, N. (2021). Pedagogical and academic service responses to the COVID-19 impact in colleges and universities. *European Journal of Education and Pedagogy*, 45(23), 102–122.
- Cantoni, L., & Tardini, S. (2010). Generation Y, digital learners, and other dangerous things [special issue]. *QWERTY – Interdisciplinary Journal of Technology, Culture and Education*, 5(2), 11–25.
- Connell, J. P., & Wellborn, J. G. (1991). Competence, autonomy, and relatedness: A motivational analysis of self-system processes. In M. R. Gunnar & L. A. Sroufe (Eds.), *Self-processes and development* (pp. 43–77). Hillsdale, NJ: Erlbaum.
- Costley, J., & Lange, C. (2016). The effects of instructor control of online learning environments on satisfaction and perceived learning. *The Electronic Journal of e-Learning*, 14(3), 169–180.
- Davis, L. (2020). Digital learning: What to know in 2020. Retrieved from <https://www.schoolology.com/blog/digital-learning>. Accessed on September 20, 2021.
- Dikli, S. (2003). Assessment at a distance: Traditional vs. alternative assessments. *The Turkish Online Journal of Educational Technology*, 2(3), 13–19.
- Drucker, P. (2002). The discipline of innovation. *Harvard Business Review*, 80, 95–100, 102, 148.
- Ford, M. (1992). *Motivating humans: Goals, emotions, and personal agency beliefs*. Thousand Oaks, CA: Sage Publications.

- Forman, E. A., & C. B. Cazden. (1985). Exploring Vygotskian perspectives in education: the cognitive value of peer interaction. In: Wertsch, James V. (Ed.), *Culture, communication, and cognition: Vygotskian perspectives*. Cambridge: Cambridge University Press.
- Georgsen, M., & Zander, P. (Eds.). (2013). *Changing education through ICT in developing countries*. Aalborg: Aalborg Universitetsforlag.
- Goldstein, H. (2013). Circle of friends. In F. R. Volkmar (Ed.), *Encyclopedia of autism spectrum disorders* (pp. 641–645). New York, NY: Springer.
- Goodchild, T., & Speed, E. (2019). Technology enhanced learning as transformative innovation: A note on the enduring myth of TEL. *Teaching in Higher Education*, 24(8), 948–963.
- Gunawardena, C., & Zittle, F. (1997). Social presence as a predictor of satisfaction within a computer-mediated conferencing environment. *The American Journal of Distance Education*, 11(3), 8–26.
- Hall, E. T. (1976). *Beyond culture*. Garden City, NY: Anchor Books.
- Harper, R., Bretag, T., Ellis, C., Newton, P., Rozenberg, P., Saddiqui, S., & van Haeringen, K. (2018). Contract cheating: A survey of Australian university staff. *Studies in Higher Education*, 44(1), 1857–1873. <https://doi.org/10.1080/03075079.2018.1462789>
- Hata, M. (2003). Literature review: Using computer-mediated communication (CMC) in second language classrooms. *Osaka Keidai Ronshu*, 15(3), 115–125.
- Higher Education Academy. (2010). *Supporting academic integrity: Approaches and resources for higher education*. York: The Higher Education Academy. Retrieved from https://www.heacademy.ac.uk/system/files/supportingacademicintegrity_v2_0.pdf. Accessed on July 4, 2020.
- Hrastinski, S. (2008). Asynchronous and synchronous e-learning. *EDUCAUSE Quarterly*, 31(4), 51–55. <https://er.educause.edu/-/media/files/article-downloads/eqm0848.pdf>. Accessed on September 2021.
- James, R. (2011). *An evaluation of the “Circle of Friends” intervention used to support pupils with autism in their mainstream classrooms*. Doctoral dissertation, University of Nottingham, Nottingham.
- Jelfs, A., & Richardson, J. (2013). The use of digital technologies across the adult life span in distance education. *British Journal of Educational Technology*, 44(2), 338–351.
- Jonassen, D., & Land, S. (2000). Preface. In D. Jonassen & S. Land (Eds.), *Theoretical foundations of learning environments* (pp. iii–ix). Mahwah, NJ: Lawrence Erlbaum.
- Juola, P. (2007). Authorship attribution. *Foundations and Trends in Information Retrieval*, 1(3), 233–334. <https://doi.org/10.1561/1500000005>
- Kalolo, J. (2019). Digital revolution and its impact on education systems in developing countries. *Education and Information Technologies*, 24, 345–358. <https://doi.org/10.1007/s10639-018-9778-3>
- Karim, N., & Shukur, Z. (2015). Review of user authentication methods in online examination. *Asian Journal of Information Technology*, 14(5), 166–175.
- Kemp, N. (2019). Higher education’s distance learning delivery dilemma. *University World News*. <https://www.universityworldnews.com/post.php?story=20190926083339425>. Accessed on September 2021.
- Kim Y. Y. (1992). Synchrony and intercultural communication. In D. Crookall & K. Arai (Eds.), *Global Interdependence* (pp. 99–105). Springer, Tokyo. https://doi.org/10.1007/978-4-431-68189-2_11
- Kirkwood, A., & Price, L. (2013). Missing: Evidence of a scholarly approach to teaching and learning with technology in higher education. *Teaching in Higher Education*, 18(3), 327–337.
- Kock, N. (2005). Media richness or media naturalness? The evolution of our biological communication apparatus and its influence on our behaviour toward e-communication tools. *IEEE Transactions on Professional Communication*, 48(2), 117–130.

- Kozar, O. (2016). Perceptions of webcam use by experienced online teachers and learners: a seeming disconnect between research and practice. *Computer Assisted Language Learning*, 29(4), 779–789. <https://doi.org/10.1080/09588221.2015.1061021>
- Lam, B. (2019). Social support, student outcomes and teaching strategies. In B. Lam (Ed.), *Social support, well-being, and teacher development* (pp. 135–192). Singapore: Springer Nature. https://doi.org/10.1007/978-981-13-3577-8_4
- Law, B., & Eckes, M. (1995). *Assessment and ESL*. Manitoba: Peguis Publishers.
- Littlejohn, A., & Pegler, C. (2007). *Preparing for blended e-learning*. New York, NY: Routledge.
- Markus, L. (1994). Electronic mail as the medium of managerial choice. *Organization Science*, 5(4), 502–527.
- McKinsey. (2021). Scaling online education: Five lessons for colleges [online]. Retrieved from Scaling online education: Five lessons for colleges | McKinsey. Retrieved from <https://www.mckinsey.com/industries/education/our-insights/scaling-online-education-five-lessons-for-colleges>. Accessed on March 2021.
- McPhee, I., & Söderström, T. (2012). Distance, online and campus higher education: Reflections on learning outcomes. *Campus-Wide Information Systems*, 29(3), 144–155. <https://doi.org/10.1108/10650741211243166>
- Means, B., Bakia, M., & Robert Murphy, R. (2014). *Learning online: What research tells us about whether, when and how*. New York, NY: Routledge.
- Miah, M., & Omar, A. (2012). Technology advancement in developing countries during the digital age. *International Journal of Science and Applied Information Technology*, 1(1), 30–38.
- Mladenova, T., Kalmukov, Y., & Valova, I. (2020). Covid-19 – A major cause of digital transformation in education or just an evaluation test. *TEM Journal*, 9(3), 1163–1170.
- Morris, E., & Carroll, J. (2016). Developing a sustainable holistic institutional approach: Dealing with realities “on the ground” when implementing an academic integrity policy. In T. Bretag (Ed.), *Handbook of academic integrity* (pp. 449–462). Singapore: Springer.
- NCES. (2020). Undergraduate enrolment. Retrieved from <https://nces.ed.gov/programs/coe/indicator/cha>. Accessed on September 20, 2021.
- Newton, P., & Lang, C. (2016). Custom essay writers, freelancers, and other paid third parties. In T. Bretag (Ed.), *Handbook of academic integrity* (pp. 249–271). Singapore: Springer.
- Nouwens, F., & Towers, S. (1997). Assessment in distance education. In S. Dixon, G. Lefoe, F. Nouwens, & S. Wills (Eds.), *Teaching at a distance* [CD-ROM]. Melbourne. Retrieved from <http://cedir.uow.edu.au/programs/flexdel/resources/AssessmentDistEd.html>
- Peytcheva-Forsyth, R., Harvey, M., & Lyubka, A. (2019). Using a student authentication and authorship checking system as a catalyst for developing an academic integrity culture: A Bulgarian case study. *Journal of Academic Ethics*, 17, 245–269.
- Peytcheva-Forsyth, R., Mellar, H., & Aleksieva, L. (2019). Using a student authentication and authorship checking system as a catalyst for developing an academic integrity culture: a Bulgarian case study. *Journal of Academic Ethics*, 17, 245–269. <https://doi.org/10.1007/s10805-019-09332-6>
- Prensky, M. (2001). Digital natives, digital immigrants. Retrieved from <https://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf>. Accessed on May 2020.
- QAA. (2011). Explaining contact hours: Guidance for institutions providing public information about higher education in the UK. Retrieved from <https://www.qaa.ac.uk/docs/qaa/quality-code/contact-hours-guidance.pdf>. Accessed on June 30, 2021.
- QAA. (2016). *Plagiarism in higher education: Custom essay writing services: An exploration and next steps for the UK higher education sector*. Gloucester: QAA. Retrieved from <https://www.qaa.ac.uk/docs/qaa/quality-code/plagiarism-in-higher-education-2016.pdf>. Accessed on July 3, 2020.

- QAA. (2020). Preserving Quality and Standards Through a Time of Rapid Change: UK Higher Education in 2020-21. Gloucester: QAA Retrieved from <https://www.qaa.ac.uk/docs/qaa/guidance/preserving-quality-and-standards-through-a-time-of-rapid-change.pdf>. Accessed on August 3, 2020.
- Robert, L., & Dennis, A. (2005). Paradox of richness: A cognitive model of media choice. *IEEE Transactions on Professional Communication*, 48(1), 10–21.
- Selwyn, N. (2016). Digital downsides: Exploring university students' negative engagements with digital technology. *Teaching in Higher Education*, 21(8), 1006–1021.
- Shaw, P., Rawlinson, S., & Sheffield, D. (2020). Exploring the problem of establishing horizon emergent technologies within a higher education institution's operational framework. *European Journal of Open, Distance and E-learning*, 23(1). doi:10.2478/eurodl-2020-0002.
- Shepherd, J., & Fraser, S. (2004). What is the digital era?. In G. Doukidis, N. Mylonopoulos, & N. Pouloudi (Eds.), *Social and economic transformation in the digital era* (pp. 19–28). Hershey, PA: Idea Group Inc.
- Sherbloom, J. (2010). Can computer-mediated communication (CMC) really facilitate learning?. Retrieved from <https://www.natcom.org/communication-currents/can-computer-mediated-communication-cmc-really-facilitate-learning>. Accessed on September 20, 2021.
- Stufflebeam, D. (2007). CIPP evaluation model checklist. West Michigan University. Retrieved from https://wmich.edu/sites/default/files/attachments/u350/2014/cippchecklist_mar07.pdf. Accessed on July 27, 2021.
- Taylor, G. (1996). Creating a circle of friends: A case study. In H. Cowie & S. Sharp (Eds.), *Peer counselling in school* (pp. 73–86). London: David Fulton.
- Temple, P. (2008). Learning spaces in higher education: An under-researched topic. *London Review of Education*, 6, 229–241.
- Tsoukas, H. (2003). A dialogical approach to the creation of new knowledge in organizations. *Organization Science*, 20(6), 941–957.
- Tu, C. (2002, April–June). The measurement of social presence in an online learning environment. *International Journal on E-Learning*, 1(2), 34–45.
- UniRank. (2020). Snapshot of Higher Education in Africa (2020 data). Retrieved from <https://www.4icu.org/Africa/>. Accessed on October 10, 2021.
- Verdonck, M., Greenaway, R., Kennedy-Behr, A., & Askew, E. (2019). Student experiences of learning in a technology-enabled learning space. *Innovations in Education and Teaching International*, 56(3), 270–281.
- Walther, J. (1992). Interpersonal effects in computer-mediated interaction: A relational perspective. *Communication Research*, 19(1), 52–90.
- Wang, W. (1975). The unbundling of higher education. *Duke Law Journal*, 24, 53–90. Retrieved from <https://scholarship.law.duke.edu/dlj/vol24/iss1/3>
- Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge: Cambridge University Press.
- Wentzel, K. (1997). Student motivation in middle school: The role of perceived pedagogical caring. *Journal of Educational Psychology*, 89(3), 411.
- Wentzel, K., Battle, A., Russell, S., & Looney, L. (2010). Social supports from teachers and peers as predictors of academic and social motivation. *Contemporary Educational Psychology*, 35(3), 193–202.

