

Chapter 4:

Towards a Theoretical Framework for Teaching and Learning in Online Distance Education

Geesje van den Berg, University of South Africa

Introduction

Rapid developments in technology had a direct influence on education at all levels, specifically on higher education institutions (HEIs) which offer distance education. Education at a distance involves a teaching model in which student and instructor are separated, teaching and learning are mostly asynchronous, and it is always distributed (Anderson and Rivera-Vargas 2020). Currently, distance education is offered online, since it takes place in virtual environments in which users use various tools available on the internet to teach, learn, and communicate. For this reason, it makes sense that researchers such as Harasim (2017), Huang, Lin, and Huang (2012), and Kocdar, Karadeniz, and Bozkurt (2018) use the terms ‘distance education’ and ‘e-learning’ (electronic learning) interchangeably. For the purpose of this chapter, though, the term ‘online distance education’ will be used to distinguish it from traditional and earlier generations of distance education.

Although a plethora of research exists on topics related to distance education, new frameworks and perspectives on how teaching and learning are taking place within fast-changing environments are largely lacking. Rapid developments in the use of technologies for teaching and learning necessitate ongoing revisions of theories, interactions, roles, and strategies—as Anderson and Dron (2012) argued more than a decade ago. Karatas and Arpaci (2021) support this statement, noting that the Covid-19 pandemic has revealed that virtually all higher education systems require technological, theoretical, and/or pedagogical improvements.

Employing a theoretical and interpretative analysis, based on an integrative literature review (Hambaloyi and Jordan 2015) of relevant articles, chapters, and related documents, the present chapter reflects on current online teaching and learning practices. This approach is useful for reflecting an up-to-date body of literature and serves to summarise, synthesise, draw conclusions,

identify research gaps, and propose future theoretical underpinnings (Cronin, Ryan, and Coughlan, 2008). To contextualise this chapter, it commences with a brief history of distance education, before focusing on several pertinent changes in the domain of online distance education, with a view to put forward a theoretical framework to underpin current and future online distance education in a developing context. The chapter ends with a number of conclusions and recommendations for the future.

The history of distance education from a pedagogical and technological perspective

Distance education is not a new field; in fact, it dates back as far as the nineteenth century. Since then, it has evolved thanks to both social and technological developments. In its current e-learning iteration it represents the evolution of a model (characterised by rapid changes since the 1980s), from correspondence education (primarily reliant on printed materials) to the widespread use of digital technologies and devices (internet, online platforms) (Anderson and Rivera-Vargas, 2020).

58

Anderson and Dron (2012) note that, historically, distance education has accommodated three pedagogical approaches—namely, cognitive-behaviourism, social-constructivism, and connectivism. The cognitive-behaviourist approach defined the first generation of individualised distance education, allowing large numbers of students to obtain an education at lower costs than traditional education permitted. The technologies in use were mainly printed books, newspapers, and related mass media. The second generation, social-constructivism, evolved from the first and specifies that learning is socially constructed—it is similar to the former in that learning occurs as an internal process. According to Anderson and Dron (2012), second-generation pedagogy focuses on interactions between students and lecturers rather than on the mere transmission of knowledge, which is a characteristic of the first generation. Technologies mainly include teleconferencing and (basic) online modes (a later development). Advances in technologies which serve to facilitate teaching and learning have strengthened collaboration and led to the virtualisation of social environments through the creation of expansive networks. Whereas in social-constructivist learning models any social relations are established and collaborative learning takes place within individuals and in a social way, in terms of the connectivist approach (the third generation of distance education), learning is achieved through recognition and interpretation within technologically advanced networks, which can reside either in- or outside of human beings (Siemens, 2005).

Related technologies include the use of Web 2.0 tools (for example, social networking sites, blogs, and video hosting sites) and/or Web 3.0 tools (for example, the semantic web, learning analytics, and artificial intelligence [AI]). These tools should be seen as integrated communication systems rather than simply video-versus-audio-versus-data technologies. In summary, diverse technologies have largely contributed to, enabled, and even advanced the different generations of distance education. Also, due to such progress, both the definition and practice of distance education have changed and will continue changing as ever-newer technologies and pedagogies emerge.

Changes

Several changes in society, in student behaviours and expectations, as well as in emerging technologies, have prompted a rethink of the pedagogies which are applied in or are applicable to online distance education. Although potentially there are myriad changes to discuss, based on the literature consulted and within the scope of this chapter, the following changes have been identified and will be interrogated in greater detail: the Covid-19 pandemic, the need for twenty-first century skills, social media and technologies for collaboration, and mobile learning and open educational resources (OERs).

59

The Covid-19 pandemic

The process of rethinking pedagogy has been accelerated by the Covid-19 pandemic, with news of a coronavirus outbreak, first widely reported in December 2019 after which the virus spread rapidly across the globe. National governments had to take radical steps, including imposing social distancing regulations, quarantine measures, and restrictions on travel and education (Hebebc, Bertiz, and Alan 2020). The sudden closure of universities, which was unexpected and unpredicted, necessitated a move to online distance education, leaving many students feeling overwhelmed, demotivated, and isolated. This has brought about significant changes in the way students learn and lecturers teach. Digital technology use in education has become increasingly important, with learning management systems (LMSs) playing a crucial role in managing teaching and learning.

As Bozkurt and Sharma (2021) point out, however, the pandemic has not only affected teaching and learning, but has also generated a social and psychological crisis which, arguably, created a

need to humanise pedagogy with care and empathy. The psychological impact of the pandemic has been confirmed in a study by Browning et al. (2021), with 2 500 student respondents across the United States— they found that the most frequently reported consequences of the pandemic were a lack of motivation, changes in the way students learn, a sense of anxiety, feelings of isolation, and symptoms of depression. Similarly, a comprehensive study with 13 000 respondents on the impact of the pandemic on higher education students in South Africa, found that 65 per cent of all students reported mild to severe psychological distress in 2020 (O'Regan 2020). Such psychological consequences confirm the need for a pedagogy of care, as confirmed in the study by Rapanta et al. (2020). When asked how university lecturers should think about themselves and their roles in a post Covid-19 reality, a participant predicted that the instructor's role will increasingly involve a complicated form of caring for both students and colleagues, which implies greater knowledge of these parties' lives and the challenges they face. In respect of post-pandemic learning communities, Bozkurt and Sharma (2021) mention that these have to be reconstructed with equity and social justice as underlying and overt values. The pandemic laid bare injustices and inequities, specifically in respect of the digital divide, in developing contexts in particular (Bozkurt and Sharma 2021; Leacock and Warrican 2020; Mathrani, Sarvesh and Umer 2021). In this regard, Peters and Rizvi (2021) argue that the pandemic offers an opportunity to rethink not only new digital, online, and pedagogical possibilities but also the basic purposes of education and how a renewed vision of education might assist in developing a more democratic and just society.

The need for twenty-first century skills

The second reason behind the proposed rethinking of current pedagogies, is the need for twenty-first century skills, notably those deemed necessary for surviving and thriving in the workplace and society of the twenty-first century. Although these skills are not necessarily new, they can be regarded as 'newly important', since students need them to analyse information from multiple sources before using the information to make decisions and germinate fresh ideas (Silva 2009: 631). Many of these skills are associated with deep learning, creativity, problem solving, and teamwork (Graham 2015), which have gained prominence in the face of the challenges presented by Covid-19. Various authors have identified the twenty-first century skills needed to adapt to fast-changing realities as collaboration, problem solving, creativity, the ability to use information and communications technology (ICT), information literacy, critical thinking, and independent learning

(Karatas and Arpacı 2021; Schleicher 2012; Senturk 2020). The acquisition of such skills requires active learning in rich and complex environments, with sufficient opportunities to develop, apply, and practice related skills. With regard to the twenty-first century skills needed for online learning, a study by Karatas and Arpacı (2021) found that the identified competencies were strong predictors of students' readiness for online learning, while Martin, Stamper, and Flowers (2020) found that students with the requisite skills benefitted more from online learning opportunities than those lacking these specific skills.

Social media for technological collaboration

Over the past decade, social media have come to affect the lives of almost every individual in every society, and the education sector is no exception. Hew (2011), for instance, found that students spent between ten and 60 minutes a day on social media, even when studying. Many studies have shown that students use social media platforms to socialise (see Everson, Gundlach, and Miller 2013; Sharma, Joshi, and Sharma 2016) and for collaborative learning activities (Chugh and Ruhi 2018; Madhusudhan 2012; Vandeyar 2020). A notable finding is that HEIs are increasingly integrating social networks in their teaching and learning (Forkosh-Baruch and Hershkovitz 2012; Sarapın and Morris 2015).

Social media encompass a variety of internet-based social computing technologies that facilitate the creation and exchange of user-generated content (UGC) (Jang 2015). In recognition of the social affordances of social media, several researchers have argued for their integration in teaching and learning (Jang 2015). The availability of social media grants students' greater control over and access to information. These technologies also allow for academic collaboration, access to course content, and the (co-)creation of knowledge (McLoughlin and Lee 2007). By empowering students in this way, lecturers can use various technologies to increase the former's engagement and motivation to learn, given that social media are not only highly interactive but also social in nature (Bolanos and Ketola 2018). Jang (2015) adds that social media are valuable tools in creating networks which support collaborative learning, particularly amongst Generation Z students who grew up with various technologies as part of their daily lives. The increased focus on collaborative approaches to learning in higher education has precipitated a growing interest in online learning communities. A sense of community is deemed essential for engaging learners in collaborative learning activities, to provoke questioning and the sharing of experiences, and to effect interaction

not only amongst members of the student cohort themselves but also between students and lecturers as they construct knowledge. As Anderson and Rivera-Vargas (2020) point out, although it is challenging to completely eliminate the physical distance between student and instructor through the use of technologies, it is possible to build collaborative environments which do not reproduce distance between the different actors—or the actors and the content—in the educational process. Anderson and Rivera-Vargas (2020: 210) refer to this possibility as a ‘utopian learning environment reality’, which they hope to see unfolding in the near future.

Social media platforms such as Facebook, Twitter, and WhatsApp have further enabled and encouraged the development of communities of inquiry in which students can share knowledge, information, and experiences; discuss theories and practices; and learn from one another (Popescu and Badea 2020). Lecturers are no longer the only source of information but perform the roles of facilitator, guide, and assessor of learning. They can conceivably encourage contributions from the wider public or experts in the field outside their institution of learning, thereby providing students with essential contacts. A study by Ansari and Khan (2020) revealed that the online social media selected and used for collaborative learning had a significant impact on students’ interactivity with their peers and teachers and influenced their online knowledge-sharing behaviour and (consequently) their success. As an approach, collaborative learning requires a reconsideration of the diverse roles and authorities involved, and the ways in which learning can be achieved and assessed.

62

Mobile learning and open educational resources

With the advent of smartphones and other mobile devices, a new era of teaching and learning emerged, which allows for student interaction and communication at anytime from anywhere. As an example, Barhoumi (2015) explains that WhatsApp can enhance student learning in various ways: through discussion forums, the sharing of information, and the integration of learning resources. Artificial intelligence has taken (and will continue to take) mobile learning to new dimensions, as indicated in a study by Chassignol et al. (2018) who found that AI can result in better feedback, facilitate personal learning, and help to monitor student performance.

Information access, sharing, and creation are possible through, and supported by, mobile devices, with OERs facilitating these actions. Hylén (2021) confirms that the term ‘open educational resources’ was first used in 2002 at a conference hosted by the United Nations Educational,

Scientific and Cultural Organisation (UNESCO). At that event, participants defined OER as ‘the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes’ (Hylén 2021: 2). The use and production of OERs to address content-specific needs, generate discussion, and share multiple viewpoints, can result in deep learning experiences.

To assist in bridging the digital divide, several initiatives worldwide (for example, MERLOT, OER Commons, OER Africa, Share my lesson, Open Textbooks, and Wikimedia Commons) are facilitating access to OERs that can be used, re-used, adapted, and/or created—depending on the licence. This means that students and lecturers have access to material, course videos, and other resources, which they can share or adapt to suit their specific needs. Although not all materials may be of high quality, easily accessible on small screens, or free of charge, they offer opportunities for teaching and learning that were not previously available.

Proposed theories for a theoretical framework in online distance education

63

The aforementioned developments in online distance education confirm the need to reconsider current pedagogies and the theories underpinning them. Cognitivist and socio-constructivist approaches (where communication mainly exists between lecturers and students) are no longer sufficient in a highly connected networked and knowledge-based society. A different set of theories is necessary, as it must provide the basis for understanding how students learn and how lecturers teach. Those theories further have to accommodate a way of explaining, describing, and predicting learning, in addition to guiding lecturers in making informed decisions on learning design. Given its complexity, no single theory can sufficiently underpin online distance education. Based on the recent changes outlined in this chapter, three relevant theories are proposed as theoretical frameworks. As Grant and Osanloo (2014) argue, a theoretical framework should be derived from a tested and validated theory/theories. This does not mean, however, that these are the only teaching and learning theories that could or should underpin online distance education. Rather, they should be seen as pertinent for advancing our understanding of the role of the instructor/educator and the student, and the manner in which learning takes place.

The following theories were identified, and will be discussed in more detail:

- Connectivism
- The revised Community of Inquiry framework
- Ubuntu

Connectivism

64 Authors such as Goldie (2016), Jung (2019), and Korkmaz and Toraman (2020) argue that current online learning is mainly based on the theory of connectivism. This is in line with the assertion by Anderson and Dron (2012) that connectivist learning can be categorised under the third generation of distance education. According to Siemens (2005), traditional theories such as behaviourism, cognitivism, and constructivism are unable to fully explain how learning takes place in a digital age, hence connectivism is proposed as an alternative. Siemens (2005), who developed the theory in collaboration with Downes (2006), asserts that connectivism is a learning theory for the digital age, given the impact of concepts such as globalisation, technology access, and digital information where knowledge has come to reflect a wealth of diverse opinions. Kivunja (2014) adds that the shift towards connectivism in the current pedagogy, emphasises the development of twenty-first century skills such as problem solving, critical thinking, and digital literacy.

In a connectivist learning environment, knowledge may reside in humans as well as in non-humans—for example, in libraries, websites, or journals thereby contributing to the notion of openness. Kivunja (2014) further argues that nurturing and maintaining connections is imperative for facilitating continuous learning, which is where the ability to see connections between fields, ideas, and concepts becomes a core skill. The aim of all connectivist learning activities is to have accurate, up-to-date knowledge being disseminated across a network, both in the human brain and in the memory of AI (Barnett, McPherson, and Sandieson 2013). Goldie (2016) argues that the starting point of learning occurs when knowledge is activated by students who are connected and contribute to a learning community or node, which is always connected to a larger network. In such connections students need to be self-directed and connected in order to share ideas and think together, which in turn results in the creation (or removal) of, or an adjustment in, the strength of connections (Goldie 2016). Connectivism implies the need to be distributed; in other words, it is not located at any given time or in any given place but is fluid and comprises distributed connections which can occur outside the boundaries of place and time (Goldie 2016).

As with all theories, criticism of connectivism exists, such as the fact that it might not be a unique

or new theory but rather one whose principles flow from existing learning theories, such as social constructivism (see, for example, Bell 2011; Clara and Barbera 2014). Kop (2011) raises the question whether students would manage to be self-directed learners, while Pando (2018) found that students were largely disconnected from their online learning experience. Notably, the literature on connectivist learning is not clear on the role and responsibility of the instructor, and it appears to be dismissed as 'just another human connection'. Despite its limitations, however, most authors recognise the potential of connectivism for explaining how learning takes place in a digitally connected world (Bell 2011; Clara and Barbera 2014).

Based on the principles of and literature on, connectivism, clearly learning depends on the self-directedness of students, the connections they establish and maintain, and the manner in which knowledge is accessed and understood in such connections. In this regard, Ravenscroft (2011: 155) argues that to embrace connectivism new designs need to be added to explain future learning 'that place[s] the person, their social behaviour and their community at the centre'. Downes (2008) also foregrounds the importance of community in describing connectivism. For these reasons, the community of inquiry (CoI) framework was deemed necessary to establish the theoretical underpinning of online distance education.

Community of inquiry

The CoI framework, first proposed by Garrison, Anderson, and Archer (2000), emphasises social learning in the creation of a community of inquiry. Garrison (2009) states that the concept of inquiry is used extensively to understand and guide online learning design and delivery. The framework proposes three interrelated presences for deep learning to take place, related to teaching, the social, and the cognitive. Later research on the CoI revealed that insufficient emphasis tends to be placed on the role, involvement, and experience of students in the online learning process, and this led to a fourth presence being identified, namely learning presence (Shea and Bidjerano 2010; Shea et al. 2012). That will also serve as an important presence in the current discussion, as the learning presence changes the paradigm from one that is primarily based on teaching to a teaching and learning theory which aligns with a student-centred approach.

Learning presence relates to students' responsibilities in the educational process, which include their proactive use of specific processes such as goal setting, strategy selection, and personal monitoring and effectiveness (Shea et al. 2012). According to Shea and Bidjerano (2010), this presence

articulates popular beliefs about the importance of self-direction and has significant implications for the design of learning communities. Teaching presence contributes to learning presence by developing learners' self-direction skills. Additionally, teaching presence is essential in creating a social presence in the online teaching and learning environment to establish a sense of meaningful communication and connection (Pool, Reitsma, and Van den Berg 2017), and enable purposeful discourse and reflection. Pool, Reitsma, and Van den Berg (2017) argue that social presence in turn is a mediating factor that provides context for the educational process, while the study by Rapanta et al. (2020) mentions the role of social presence in improving student motivation. Once students are engaged, teaching presence has an important influence on the facilitation of their learning. In this way learning presence becomes an important mediator between the teacher and social and cognitive presences (Pool et al. 2017). Garrison (2009) argues that cognitive presence is at the heart of the CoI, as it is defined by a process whereby students are tasked with a problem or issue at hand, and, through discourse and reflection, construct meaning and confirm their understanding thereof. Without collaboration, according to Garrison (2009), discourse is very likely to consist of fragmented personal comments, which will not serve the purpose of the CoI. Collaborative learning activities are what set online learning apart from traditional distance education. Bozkurt and Zawacki-Richter (2021) confirm that social and collaborative learning are trending while Karakaya (2021) emphasises that if students are to be at the centre of the learning experience, human-centred approaches are needed. For this reason, the final theory which this chapter proposes in underpinning current online distance education, is that of Ubuntu.

Ubuntu

Ubuntu, which holds that a person is a person because of other people—*motho ke motho ka batho* (SeSotho) or *umuntu ngumuntu ngabantu* (isiZulu)—is an African philosophy that prioritises the welfare and well-being of others and articulates social interdependence (Letseka 2011). For these reasons it was deemed suitable to complement connectivism and the CoI framework in underpinning current online distance education. Additionally, this aligns with the viewpoints of academics such as Metz (2011) and Letseka (2016) who refer to Ubuntu as a moral theory, which promotes critical reflection on beliefs and practices to trigger and improve practice and innovation.

In describing Ubuntu, Coetzee and Roux (1998) refer to sympathy, care, sensitivity, the needs of others, and respect as social traits, while Teffo (1992) refers to the value of social responsibility.

Of further relevance is the notion of Makhudu (1993:40), that Ubuntu encompasses ‘the ability to communicate, [and to effect] open communication and interaction’. Closely linked to the notion of communication is the observation by Metz (2011), that Ubuntu values participation, inclusion, equity and respect—traits that are similar to those of social justice, showing the close link between these concepts. Letseka (2011) adds justice and generosity as Ubuntu values, noting that knowledge should be shared generously to benefit the development of society. Despite limited research on the intersection between Ubuntu and social justice within the higher education context, Leibowitz and Bozalek (2016) explored these concepts in the scholarship on teaching and learning. Importantly, Ngubane and Makua (2021) identify a compelling connection between Ubuntu and social justice, stating that these concepts are in harmony, since living in a socially just, respectful, and harmonious environment is a central tenet of Ubuntu.

As regards Ubuntu and the online distance education environment, Letseka (2016) mentions connectedness and conviviality as two core values which have the potential to relieve feelings of loneliness and isolation. For this reason, students and lecturers should be able to interact on various platforms (for example, discussion forums) and/or by making use of technologies which foster collaboration. As another core value of Ubuntu, Broodryk (2002) documents humanness, which aligns with Bozkurt and Sharma (2021) advocating for the humanising of education.

Synthesis and discussion

The need for a paradigm shift in education, specifically in a post Covid-19 era, is confirmed in studies by Hebebcı et al. (2020), Jones and Sharma (2020), and Rapanta et al. (2020). From the literature, it is clear that no single theory can describe the complexity of online teaching and learning (Saykılı 2018).

Different theories relate to recent changes that have had an impact on teaching and learning. In the table below, the key concepts pertaining to these changes and related teaching and learning theories are indicated, based on their principles and research from the literature consulted.

Table 1: Key concepts and applicable proposed theories

Key concepts of recent changes necessitating different pedagogical approaches	Relevant theories
Covid-19 pandemic Social distancing Isolation Compulsory move to online distance education Feelings of isolation, anxiety, and depression A need to humanise pedagogy A need for social justice and equity Digital divide The need for new pedagogical approaches	Connectivism Community of Inquiry Ubuntu
Need for twenty-first century skills Collaboration Problem solving Creativity Digital literacy Teamwork Independent thinking Deep learning Critical thinking	Connectivism Community of Inquiry Ubuntu

<p>Social media and collaboration The need for user-generated content Student control and access to information Social learning Interaction Network creation Collaborative learning Questioning Sharing of experiences The development of communities of inquiry The facilitator as guide and facilitator</p>	<p>Connectivism Community of Inquiry Ubuntu</p>
<p>Mobile learning and OERs Student interaction and communication, anytime and anywhere Access to information Sharing, adapting, and creating knowledge Openness Addressing context-specific needs Artificial intelligence Addressing the digital divide</p>	<p>Connectivism Community of Inquiry Ubuntu</p>

It appears that the proposed theories of connectivism, CoI, and Ubuntu are all closely related to recent changes which have necessitated a rethinking of current pedagogies. For this reason, by combining with and supplementing one another to serve as a more holistic base, these theories are relevant and are proposed to serve as a theoretical framework or lens for current pedagogies. This unique combination of Western and African theories also shows how theories from different contexts can enhance and strengthen a theoretical base.

Aligning theories and pedagogies with appropriate technologies is an ongoing challenge in online teaching and learning. Technologies allow lecturers to teach differently and to meet student needs. It also allows students to learn differently thanks to access to digital content, mobile learning,

new forms of learning analytics to guide their choices and progress, and through interaction with their peers, lecturers, and content from around the world. Current social trends—specifically in higher education—show that students should take an active role in, and responsibility for, their own learning. The role of the lecturer is to create a caring, fair, and open learning environment in which s/he acts as a facilitator in guiding students to become responsible learners, who are ready to face the demands and opportunities of the twenty-first century.

Conclusion and Recommendations

The current body of literature bears testimony to the wave of change taking place in higher education environments, specifically regarding the pedagogy, underpinning theories, and new technologies. Innovative applications in the use of technology for teaching and learning are being researched and evaluated as they change and/or become available. The experience of remote learning because of the Covid-19 pandemic has contributed to this process, leading to the identification of both best practices and failures, as well as the need for frequent learning, un-learning, and re-learning to improve current practices. The disruption of our educational experiences, caused by various factors and recent changes, has prompted researchers and practitioners alike to critically reflect on, and make the necessary changes to address, the needs of a rapidly changing society.

For an effective learning experience, different theories need to be considered. Although the cognitive-behaviourist and social-constructivist approaches are still in use and have a role to play, connectivist learning took hold at a time when technology began entering the social domain in a seamless manner, and the distinct role of technology in teaching and learning reached its peak, such that extant learning theories lost prominence and gave way to new generations of distance education approaches. The CoI framework highlights teaching presence, learning presence, cognitive presence, and social presence, facilitated by technology, in online distance education environments. Ubuntu as an African moral philosophy has been added as an underpinning theory because of its appropriateness, specifically in the context of Covid-19. It is regarded as a human theory, being concerned with the well-being of others and because it is grounded in social justice, interdependence, and connectedness.

Different theories have influenced pedagogy in the past and will continue to do so as contexts and technologies change and develop. Lecturers should be aware of this and select the most

appropriate theories to suit their contexts and assist them in achieving the envisaged learning outcomes. Also, the principles of leading theories should form an integral part of learning design, but a unitary approach might not be appropriate. This implies that the context needs to be considered when choosing both theories and pedagogies in online distance education environments.

The theoretical framework proposed in this chapter provides for teaching students how to master vital twenty-first century skills, such as thinking critically, solving problems, being creative and innovative, and expanding their digital literacy. Being effective as modern-day lecturers requires a pedagogical paradigm shift, to be able to prepare students not simply to memorise content and follow instructions, but to develop these important skills. Lastly, ongoing research is needed to keep abreast of events in a fast-changing digital era if we are to appropriately address student needs.

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76

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