Chapter 13

Chronicling Lecturers' and Students' Experiences in Using Digital Technologies for Continuous Assessment Practice in Some South African Universities

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Abstract

Assessment of students' work is an indispensable aspect of the teaching and learning process; hence it should be understood in terms of pedagogy. To this end, the digital development in the teaching and learning process has seen a rising demand in digital assessment practices. Owing to an unexpected shift in pedagogy from a face-to-face mode to online education delivery necessitated by COVID-19 lockdown, an urgent need there came for reform in assessment to realign it with technological developments in teaching and learning. This new teaching and learning dispensation which started as a temporary measure was becoming a norm in higher learning institutions. The prolonged presence of COVID-19 has led to stakeholders' scrutiny about the effectiveness of the digital continuous assessment practices which they feel are not utilized. This chapter interrogates the nature of continuous assessment in the context of digitalization in South African Universities. A desktop review was utilized in which survey of literature from books, journals and websites were undertaken to examine the nature of digital assessment in higher

education institutions, as well as the experiences of lecturers and students. The review also examines the extent to which lecturers and students succeed in the use of digital technologies in assessment and ways of enhancing digital continuous assessment. This study revealed that, although digital technologies were used in assessment, the socio-economic inequalities prevalent in society has led to lack of institutional support in the use of digital technologies. Furthermore, findings point to societal rampant inequalities as the main cause of lecturer and student incapacitation in the use of digital technologies that has seen a reluctancy in implementation of assessment procedures. Therefore, the creation of environments which allow lecturer and student participation in digital assessment by governments and institutions is recommended.

Keywords: Continuous assessment, digital technologies, networking, online education, transformation

1 Introduction

Technological advancements in recent decades have triggered a cultural revolution that has influenced our social routines, communication and work practices. As a result, the development of static and hand-held devices with networking and information-sharing capabilities has been fuelled by the advancement of digital technology (Yang 2013). This technological advancement has a big influence on the education sector (Yang 2013; Dalby & Swan 2018; Mncube & Olawale 2020). Digital technologies are now prevalent in many parts of our daily lives, and have shaped the lives of many students today in ways we cannot fully conceive yet, given that many future careers will entail the use of yet-to-be-developed technologies (Department of Education and Skills [DES] 2020). Given that digital technologies are associated with the preparation of students for jobs and life, increasing learning outcomes, as well as school improvement, there is a lot of promise in using digital technologies in assessment (Hammond 2013; Organisation for Economic Co-operation Development 2018).

Over the past four to five decades, the role of assessments in structured learning and teaching has grown in importance (Stobart 2008; Blundell 2021). The traditional function of assessing learning outcomes has evolved to encompass the assessment of learning processes, to the point that assessment is now

considered essential to successful teaching (Carless 2007; Stobart 2008; Tan 2011; Blundell 2021). This transition is due in part to the rise of cognitive and constructivist learning theories, as well as mounting evidence of feedback's effectiveness in teaching and learning (Hattie & Timperley 2007; Blundell 2021). This transition in assessing learning outcomes has resulted in assessment that falls into three categories which are: assessment of learning, assessment for learning, and assessment as learning (Blundell 2021). Thus, given that both formative and summative assessment are firmly ingrained in today's educational institutions in which both serve a unique educational goal, both are not necessarily exclusive processes and are often intertwined in the teaching and learning process (Oldfield, Broadfoot, Sutherland & Timmis 2013).

The notion that digital technology may aid in the transformation of education, particularly in the assessment process, is not new. This is because of its potentially positive features, its affordance, the provision of a more customised, immediate and/or engaging assessment experiences – which opens new opportunities (Hammond 2013; Oldfield, Broadfoot, Sutherland & Timmis 2013). Despite the promising potential in using digital technologies for assessment – often referred to as e-assessment, literature such as those of Hammond (2013) and Yang (2013) argue that the use of digital technology has yet to be 'transformative' and is frequently employed through traditional assessment techniques (Oldfield, Broadfoot, Sutherland & Timmis 2013; Yang 2013; Dalby & Swan 2018). Therefore, given the importance of assessment in teaching and learning, this chapter assesses empirical research on the current nature of assessment in the digital domain in higher education institutions, teachers and students' experiences of continuous assessment in the digital domain, as well as available support for implementing digital assessment in some South African higher learning institutions.

2 Methodology

To examine the experiences of lecturers' and students' experiences in using digital technologies for assessment practices in selected South African universities, this article employed a desktop/literature review approach which includes document analysis and conceptual analysis of secondary-sourced data. The sources of data include reports, newspaper articles, as well as several recently peer-reviewed journals. Similarly, the study benefited from policies and reports from both the national and international organisations on the use

of digital technologies for continuous assessments. The search was conducted through electronic data bases and search engines such as the GoogleScholar, ERIC, SCOPUS and Researchgate, as they are some of the most relevant information platforms that access the most significant publications of different areas of knowledge. In particular, with regard to issues of using digital technologies for assessment practices in higher education institutions, these data bases provide valuable information to the desktop review proposed in this chapter.

For the purpose of this review, articles were selected according to study designs. Based on this criteria, 506 records were screened for inclusion on title, abstract and keywords to identify papers that cited the use of digital technologies for assessment purposes in higher education institutions, and one or more following terms: the experiences of lecturers and students, digital technologies adopted for continuous assessments, diagnostic, formative, summative, feedback or evidence of learning, amongst many others. Articles that were not related to digital assessment in higher education institutions and/or focused on the principle of and framework for designing digital assessments were excluded. As such, a total of 420 records were excluded, thereby remaining with 86 papers, which were subjected to a full-text eligibility assessment. The inclusion criteria for full-text eligibility assessment was therefore based on the fact that these papers were written in English language, have a stated research approach, written within the context of educational assessment practices, focused on the use of digital technologies for assessment and published in peer-reviewed journals and conference proceedings published between 2009 and 2021. Based on the inclusion criteria, a total of 23 papers were identified as eligible and 63 were ineligible.

3 Nature of Digital Assessment in Higher Education Institutions

While assessment is widely acknowledged as one of the most essential and influential aspects of the educational process, it is also regarded as one of the most difficult to conduct (Oldfield, Broadfoot, Sutherland & Timmis 2013). Brown (1990) refers to assessment as a similar set of measurements used to determine a complex attribute of an individual or a group of persons – this entails obtaining and evaluating information on a student's degree of achievement of learning objectives. Similarly, Ioannou-Georgiou (2003) defines assessment as a broad word that encompasses all techniques for gathering data

on students' knowledge, competences, comprehension, attitudes as well as motivation. Although most individuals confuse assessment with evaluation, there is a significant distinction between both (Taras 2005; Al Alhareth & Al Dighrir 2014). While evaluation determines the quality assigned to the present performance, assessment enhances future performance attributes. As such, the differences in meaning are found in feedback (Al Alhareth1 & Al Dighrir 2014). While feedback in assessment is based on observations and identifying the weakest and strongest areas, Dochy and Segers (2006) argue that evaluation feedback is based on the degree of quality in comparison to a standard.

Although a variety of words is used to characterise various forms of assessment, however, the type of assessment and the approach to that assessment are determined by the aim of the assessment as well as the learning outcome (Al Alhareth & Al Dighrir 2014; Yambi 2018). The major and most common forms of assessments are summative assessment, evaluation and accountability test, norm-referenced tests, formative assessment, and diagnostic assessment (Black & William 2003; Yambi 2018). In all the various forms of assessments, formative and summative assessments are the most commonly used form of assessment (Suskie 2009). As such, in exploring how digital technology may enable and assist changes in assessment innovation and reforms, it is vital to examine both forms of assessment, especially on how the risks and complexities of change differ for each (Timmis, Broadfoot, Sutherland & Oldfield 2015). Thus, on one hand, while digital technologies may appear to provide more possibilities of formative assessment because innovation for such purposes receives less attention and appears to be less risky; on the other hand, making use of digital technology for summative assessment purposes is less easy, because changes to more standardised examinations encounter a variety of restrictions (Oldfield, Broadfoot, Sutherland & Timmis 2013).

There has been a growing emphasis in the assessment literature (Khan & Khan 2019; Oldfield, Broadfoot, Sutherland & Timmis 2013; Olawale, Hendricks & Mncube 2021) on assessing students' progress over time and on the usage of digital technology (Mncube, Olawale & Hendricks 2019; Rapanta, Botturi, Goodyear, Guàrdia & Koole,2020). The International Baccalaureate Organization (2018) argues that it is vital to distinguish between the impact of technology to assist expert examiners (e-marking) and the use of technology to create assessment that is meaningful for students (on-screen

assessment [both for exams and internal assessment] and e-Portfolios). Such clarity is even more vital during a time of transition caused by the COVID-19 pandemic outbreak, given that the influence of technology on education, particularly assessment will be felt over the next decade. Given that the concepts of assessment do not change in a digital context, e-assessment is underpinned by the same concept of validity, flexibility and fairness as that of traditional assessment techniques, and it employs the same tactics (Booth, Hyde, Hartcher & Hungar 2002; Roelien & Lautenbach 2011). In other words, there is a need for a balanced sets of assessment tools and practices in e-assessment that include all of the aspects of fair testing (Olawale, Hendricks & Mncube 2021). Thus, Hricko and Howel (2006) argue that for e-assessment to be of benefit to students, and to ensure fair measurement, such e-assessment must guarantee that the tool contains conventional assessment aspects, matches the form of delivery, and legitimately measures the targeted results. Hence, one of the most essential factors for efficient digital assessment is the verification of tools to ascertain that it entails the concept of validity, flexibility and fairness, matches the manner of delivery, and legitimately assesses the desired outcome (Hricko & Howel 2006; Roelien & Lautenbach 2011).

In South African higher education institutions, digital assessment continues to gain attention, given the continuous increase in the number of students, a decrease in allotted class times (Roelien & Lautenbach 2011), as well as the outbreak of the COVID-19 pandemic (Guangul, Suhail, Khalit & Khidhir,2020; Mncube, Mutongoza & Olawale 2021). The South African higher education institution that has embraced the use of digital technologies in continuous assessment makes use of e-assessment products such as Skills Assessment Manager (SAM) – a web-based application that measures proficiency in Microsoft Office applications, including Microsoft Word, Microsoft Excel, Microsoft PowerPoint as well as Microsoft Access. The Skill Assessment Manager is also useful in measuring users' skills in Windows 2000, Windows XP as well as in the usage of internet (Roelien & Lautenbach 2011). In South Africa, higher education institutions such as the University of Witwatersrand, Nelson Mandela Metropolitan University and the University of South Africa, among many others, also adopt an Electric paper – this is an automated system of assessment for international Computer Driving Licence with immediate and accurate evaluation, which in a self-contained system which consists of software simulations that require no additional software applications to run it (Roelien & Lautenbach 2011).

In South Africa, the subdepartment End User Computing (EUC) at some higher education institutions such as the University of Johannesburg have implemented CompAssess as an e-assessment tool, which allows students at all levels to work in a simulated environment with MSWord, MSExcel, MSPowerPoint as well as MSAccess (Roelien & Lautenbach 2011). This digital assessment tool makes it easier to create customized assessments for any of the aforementioned software applications, allowing for the selection and customisation of generic built-in tests as well as the specification of assessment parameters such as time, question weighting and passing grades (Masterskill 2006; Roelien & Lautenbach 2011). Similarly, the input of student information, as well as exporting and printing of reports, are all included (Masterskill 2006). Thus, the EUC gives students the opportunity to apply skills in a realistic, simulated digital assessment environment (Roelien & Lautenbach 2011).

4 Lecturers' Experiences in the Use of Digital Technology in Assessment

The COVID-19 pandemic that saw educational institutions shutting down gave little or no chance to the traditional face to face pedagogies leaving online teaching as one of the most viable alternatives (Dutta 2020; Howshigan & Nadesan 2021). A major shift to online learning meant a corresponding move to digital assessment procedures. Universities have been using digital assessment as an optional platform, as such, most lecturers and students were reluctant to adapt to this new system in preference to the traditional ways of assessment. Though the pandemic can be viewed as a catalyst to the digital age that was approaching, lecturers expressed varied views in adapting to the novel system of assessment, mainly due to resources available for institutions in different geographical locations (Mhandu, Mahiya & Muzvidziwa 2021).

Globally, research shows that lecturers in selected universities in Britain, North America and Australia, as well as those from many universities in the Global South merit digital assessment for student-centeredness and flexibility (Rapanta, Botturi, Goodyear, Guàrdia & Koole 2020). Similarly, lecturers at some universities in the United Arab Emirates commended digital assessment for the provision of flexible tasks in terms of time and location of task conduction (Khan & Khan 2019). Furthermore, digital assessment is valued on account of quality feedback, which is constructive, timely and person-

alized, as well as its provision of a diversity of strategies and instruments of assessment (Khan & Khan 2019; Rapanta, Botturi, Goodyear, Guàrdia & Koole 2020). This may come in form of portfolios, self, peer and group assessment, which give a meaningful and holistic student assessment. In addition, there is a general belief that the use of ICT, an epitome for societal advancement, can add value to the assessment process, both for lecturers and students (Rapanta, Botturi, Goodyear, Guàrdia & Koole 2020).

Despite the positive attributes of digital assessment, there is a strong feeling among lecturers that the digital divide that exists in most of the world's economies hurts continuous assessment procedures (Mashau & Nyawo 2021). In the South African context, the pre-1994 era that was characterized by racial segregation in institutions of higher learning left a legacy affecting these institutions today. Though an effort was made by the government to address inequalities in higher education institutions (HEls) at the dawn of democracy, a lot needs to be done to dislodge the colonial imbalances so that the historically marginalized HEIs can benefit from digital learning. An effective online education delivery needs a well-trained and supported teaching staff, access to fast internet services and technological devices, among other imperatives (Maphalala & Adigun 2021).

The underdevelopment and financial distress that characterize most South African HEIs have constrained them from achieving their mandate as vibrant academic communities successfully (Matarirano, Jere, Sibanda & Panicker 2021).To this end, several studies have revealed that challenges faced by the historically disadvantaged HEIs in South Africa in using digital platforms namely; a deficit in ICT infrastructure, erratic Internet access, a low level of technical assistance/support, and inadequate training opportunities for e-learning activities on the university's e-learning platform have dampened the morale of the academics (Maphalala & Adigun 2021; Mashau & Nyawo 2021; Watermeyer, Crick, Knight & Goodall 2021). Considering that some academics are 'digital immigrants', a term used to refer to people who learnt to use computers at some stage during their adult life (Wang, Myers & Sundaram 2013), the lack of motivation and support has seen them failing to come up with creative interactive online and adequate digital continuous assessment procedures for their students (Maphalala & Adigun 2021).

While in South Africa, the Council on Higher Education (CHE) guidelines for remote learning underscores staff capacitation in remote assessment (CHE 2020: 19), poor training and support for lecturers have

further exacerbated the divide between the advantaged and disadvantaged South African communities (Maphalala & Adigun 2021). Owing to the inherent inequalities in South Africa, the goal of digital assessment of enhancing quality educational outcomes is far from being achieved in historically marginalized HEIs. Stemming from these inequalities, continuous assessment on Moodle, Google Class or Blackboard platforms is a source of great anxiety for lecturers who are in most cases considered to be 'Digital immigrants'. This has led to the poor use of these platforms bringing into question the credibility of the continuous assessment outcomes. For instance, one of the biggest challenges in digital assessment expressed by some South African lecturers emanates from the use of online platforms in the context of traditional ways of assessment, assessment techniques used in traditional face-to-face classrooms are normally employed to fit online instruction. Instead, online instruction needs a change in delivery modalities, this may entail adjusted formative and summative assessments to evaluate students' understanding of course content (Mashau & Nyawo 2021). This is only possible if lecturers are given an opportunity through training and support to redesign their pedagogical approaches and assessment procedures to empower students to participate meaningfully.

Literature reveals that lecturers always question the validity of continuous assessment tasks due to cases of dishonesty and cheating (Ngqondi, Maoneke & Mauwa 2021). Students could share tasks via social media platforms such as WhatsApp while assessments were being conducted. Some sophisticated cheating options were acknowledged at institutions of high social standing (Mahabeer & Pirtheepal 2019). These acts of dishonesty in digital assessment gave rise to the use of digital proctoring software to enhance institutional capacity to deal with cheating. While this software may enhance the validity and accountability in digital assessment, lecturers felt that this further widens societal inequalities, as the historically marginalized institutions may not afford the facilities. Furthermore, academic dishonesty has led lecturers to rethink effective assessment strategies beyond the recall of answers, an exercise that is unlikely to be done by incapacitated lecturers at historically marginalized HEIs (Ngqondi, Maoneke & Mauwa 2021). More so, lecturers believe that cheating in digital continuous assessment tasks may be a result of anxiety caused by fear of failure, especially for low-income students who are at home where the environments are not conducive to learning and assessment.

While the privileged HEIs can benefit from digital continuous assessment, for the historically disadvantaged institutions, the interpretation of student performance may be affected, resulting in inappropriate intervention measures being instituted. Also, the qualifications obtained from such institutions are likely to lose credibility, given the policy statement by the Department of Higher Education and Training in South Africa that universities offering distance education must try putting in place 'an assessment and examination regime that ensures integrity and credibility' (Department of Higher Education and Training 2017: 19). Since the highly compromised digital assessment system loses credibility, students graduating from such institutions are likely to be rated lowly thereby further exacerbating the social inequalities in society.

5 Students' Experiences in the Use of Digital Platforms in Assessment

As HEIs closed in an effort to contain the COVID-19 pandemic, many students moved out of campuses to their homes, in most cases rural, where they reunited with family members (Pillay, Singh & Prinsloo 2020). In this situation, institutions had to adapt to online platforms for the continuity of teaching and teaching and learning. Despite the indicating the benefits associated with online platforms, most students were reluctant to engage in online platforms, thinking that it was just a temporary measure that will go away when the situation normalise (Abera, Kedir & Beyabeyin 2017; Watermeyer, Crick, Knight & Goodall 2021). Also, students felt that online assessments were restrictive for the science courses due to increasing dependence on multiple-choice questions. Furthermore, the rigid technological settings hindered students from explaining their answers, resulting in increased anxiety for students (Khan & Khan 2019).

Students who are entering HEIs today are deemed 'Digital natives', a new generation of young people born into the digital age (Wang, Myers & Sundaram 2013). These students are expected to have a high degree of 'fluency' in the use of digital platforms, yet resource disparities that exist among them is a great barrier in the effective use of digital platforms in continuous assessment. In a move to address societal inequalities, the post-apartheid South African government opened doors to students from different socio-economic backgrounds to the traditionally white HEIs (Pather, Booi &

Pather 2020). Despite the noble gesture, HEIs saw increasing numbers of students from historically disadvantaged areas who could not benefit from digital learning platforms owing to their poorly resourced home backgrounds. Additionally, most of the historically disadvantaged former black institutions are struggling to adapt to the new norm of digital continuous assessment, because most of the students lack adequate exposure to technological devices from home (Azionya & Nhedzi 2021). Students in such institutions expressed a lot of incompetence in the use of digital technology in assessment (Mashau & Nyawo 2021). It can be noted that some students in these institutions begin to use computers in their first year at university. The effects of COVID-19 revealed a sad reality that many students reside in rural areas where connectivity is a problem (Dlamini & Ndzinisa 2020; Ngqondi, Maoneke & Mauwa 2021).

The lack of competence in the use of Blackboard, Moodle and institutional Learning Management Systems (LMSs), among other commonly used digital platforms, has led to anxiety and poor performance of tasks (Mashau & Nyawo 2021; Matarirano, Jere, Sibanda & Panicker 2021). In this case, the digital assessment platforms may not give a true reflection of the students' performance hence the critical purpose of assessment is not fulfilled at such institutions. In addition, when universities were closed, students moved away from campus where they could not engage in online learning, due to the lack of resources and family commitments (Pillay, Singh & Prinsloo 2020). This greatly affected students as digital assessment platforms could not be utilized, especially in South African low-income homes; hence, a call for special consideration of using these platforms before deciding on intervention strategies (Ngqondi, Maoneke & Mauwa 2021).

The digital inequalities which characterize South Africa's HEIs created a lot of uneasiness in students' continuous assessment tasks. The major source of anxiety in digital assessment is a poorly resourced rural home background where students can hardly access digital devices, the internet, and electricity to engage in online learning (Azionya & Nhedzi 2021). Coming from such environments, most students felt that they could not benefit from Moodle, Google Class, and Blackboard, among other commonly used digital platforms (Matarirano, Jere, Sibanda & Panicker 2021). Given this situation where most students in some South African HEIs are not getting the value of digital assessment because of social inequalities, it is imperative to consider ways of instituting digital continuous assessment in a way that enhances

quality educational outcomes, especially in historically marginalized institutions.

6 Enhancing Digital Continuous Assessment in Institutions of Higher Learning

As digital continuous assessment is one of the most viable ways of assessment, especially during this time of the pandemic, the literature recommends a reduction of economic and social inequalities in South African society (Azionya & Nhedzi 2021; Maphalala & Adigun 2021). Even though South Africa went through a great transition from apartheid to democracy in 1994, the nation is still characterized by glaring social and economic inequalities among its people (Msila 2013). This is reflected in part in how historically black universities are already left behind, while the former white universities thrive in the new terrain of online teaching and learning (Dlamini & Ndzinisa 2020). The government should make a great effort to ensure social justice through fair access and distribution of learning resources across communities, especially among historically disadvantaged groups (Dlamini & Ndzinisa 2020). An improved socio-economic status will place students from low-income families in a position to benefit from digital learning platforms through exposure to technological devices, access to internet and electricity.

Universities must be committed to embracing digital learning in teaching and learning, as this is now a norm defining pedagogy in this era. As such, institutions of higher learning should interrogate issues of invisible structures and gaps that exist in the South African context to ensure that equity and inclusivity in educational technologies is a reality (Dlamini & Ndzinisa 2020). Digital continuous assessment requires a reform in pedagogy to enhance suitable assessment procedures. To this end, lecturers need some training well supported by institutions (Maphalala & Adigun 2021) so that they have a deep understanding of the philosophy underpinning the use of digital technologies and develop competencies in handling online assessment platforms. This understanding and development of technological competencies will facilitate the effective use of digital technologies, as lecturers are not likely to tweak assessment techniques used in traditional face-to-face classrooms to fit online instruction (Mashau & Nyawo 2021; Abera, Kedir & Beyabeyin 2017). In addition, university lecturers should observe the learners more keenly to make sure that they strike a balance in assessing their cognitive, affective and

psychomotor outcomes so that a graduate with a balance of general knowledge, values and skills is produced (Mashau & Nyawo 2021).

An abrupt shift to online teaching and learning necessitated by the COVID-19 pandemic created a lot of stress and anxiety among lecturers and students, with greater intensity at the historically marginalized HEIs. This makes it important for students to be properly equipped with technological competencies to enable them to participate effectively in continuous assessment. Proper exposure to digital platforms should convince students to appreciate the usefulness of the transition to digital assessment (Khan & Khan 2019). A cultural revolution to a technological mode of education delivery in HEIs is imperative; universities can make it mandatory for undergraduate students to attend the computer literacy module, as there is a high correlation between attending computer-related modules and computer literacy (Mashau & Nyawo 2021).

7 Conclusion

The shift from traditional, face-to-face teaching and assessment to the use of digital platforms was evident in most universities, even before the advent of COVID-19. The unforeseen effects of the pandemic made the use of digital platforms more urgent, making most institutions, lecturers and students struggle to adapt to the new norm. This exposed some social and economic inequalities inherent in South Africa, as some students from historically disadvantaged institutions failed to benefit from digital learning. Owing to the scarcity of resources in such institutions, lecturers were neither trained nor supported to undertake a successful transition to online learning. On the other hand, students from low-income families lacked the competence to engage in online activities, as digital devices are just a luxury at home. During the COVID-19 lockdown period, most students from the historically disadvantaged HEIs travelled to their rural homes, where in most cases the environment was not conducive to digital learning, mainly due to family commitments, poor or no network connectivity, lack of technological devices and data bundles. Given that socio-economic inequalities are the main cause of poor utilization of digital platforms for teaching and learning at HEIs, this study recommends the government works towards improving the socio-economic well-being of marginalized communities and funding of HEIs so that lecturers and students benefit from digital platforms. HEIs are recom-

mended to take digital learning as an institutional culture and policy that manifest in adequate training for lecturers to roll out online learning to institutions located in historically disadvantaged. The training of students in the use of digital platforms in the form of a modular and/ or integrative approach is recommended as a strong force in developing an online learning culture. The commitment by the government, HEIs, lecturers and students will create a conducive environment for the use of digital learning platforms, thereby facilitating the achievement of desired educational goals.

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