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Continuous Online Assessment at a South African Open Distance and e-Learning Institution

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Online assessment and continuous assessment are gaining growing attention from the assessment community. In particular the merger of these two forms of assessment is becoming popular for implementing assessment at scale. In this manuscript we investigate student experiences of the implementation of online continuous assessment at an Open, Distance and e-Learning (ODeL) institution. This study describes the impact of this rapid shift to continuous online assessment, sparked by the COVID pandemic, from the perspectives of students, many of whom were confronted with online assessments for the first time. The South African higher education landscape is marked with inequalities in schooling, internet access, device access and financial resources as it is one of the most unequal countries in the world. An institution wide survey was administered electronically to all students who had taken at least one online continuous assessment module in 2020. Students completed open ended questions about their experiences of undertaking online continuous assessment during the 2020 academic year. The findings of this study found that many students were not adequately prepared for the substantial increase in workload that continuous online assessment entailed; that assessment structures disadvantaged certain groups of students, especially those who worked or managed households; that students' access to devices and internet were grossly unequal which had a negative effect on their experience of the transition to continuous, online assessment.

Keywords: online continuous assessment, assessment ethics, social justice in assessment, assessment in higher education, online learning

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INTRODUCTION

Higher Education Institutions (HEIs) are incrementally implementing continuous assessment in their course offerings. This move toward continuous assessment is mainly driven by two factors. The first, more long term factor, is the shift to blended and online teaching and learning, which requires different approaches to teaching and learning as well as assessment. When compared to traditional models of teaching and learning, online teaching and learning require a more sustained engagement between the student and materials, student and instructor and student and institution. In the traditional assessment models, emphasis is on a limited number of high-stakes student

assessments directly monitored or supervised by institutions. On the contrary, in continuous online assessment, instructors and students are engaged over a series of micro assessments that are aimed at scaffolding the learner through the various skills and knowledge systems required by the curriculum throughout the teaching period.

The second factor driving the shift toward continuous online assessment is the rapid shift to online teaching brought about by the lockdowns in response to the COVID-19 pandemic which ravaged the world. Referred to as emergency remote teaching, under this shift, institutions were required to rapidly find alternatives to *in situ* assessment practices. For mega HEIs, with student numbers in excess of hundreds of thousands, summative examinations requiring learners to present themselves at a brick and mortar venue for assessment in person became difficult, resulting in massive shifts toward online assessments.

A growing body of literature emphasize Continuous Assessment (CA), which in this manuscript refers to online continuous assessment as well, as a sound assessment strategy in higher education. CA helps reduce the negative effects of high-stakes once-off examinations (rote memorization, cramming, and high anxiety) and helps to promote student learning (De Lisle, 2015; Holmes, 2018). The application of CA in higher education spans different disciplines (Rezigalla et al., 2017; Day et al., 2018c; Nayak et al., 2020; Zhan, 2020) and various pedagogic approaches (Day et al., 2018b; Llamas-Nistal et al., 2019; Chong et al., 2020). CA has also been shown to work in traditional contexts as well as through using online and interactive Information and Communications Technology (ICT) systems (González-Campos et al., 2018).

Different types of assessments (e.g., quizzes, written assignments, and tests) that are graded or not-graded are used in CA. There are thus different configurations in practice of CA, including a range of contribution to formative and summative assessment (Day et al., 2018b). Most applications of CA, however, include an exam as part of summative assessment. There is a dearth of research on CA that does not include an exam as part of its configuration. In this manuscript, we address this gap in the literature and focus on challenges experienced by students with CA that does not have an exam as a component. Based on students' reported challenges we reflect on the ethical challenges of using this format of CA at scale.

Like any other educational intervention, the (rapid) transition to CA is not without problems. CA is dependent on the reliability and suitability of ICT infrastructure in the country, as well as students' access to technological devices and Internet connectivity. Students' competence in using ICT is elevated when summative assessments are online. Furthermore, online assessments that utilize proctoring applications may not be favorable for all students and contexts, with some software criticized for introducing bias toward some racial groups and generally being intrusive in students' lives (Young, 2020). The socio-economic realities of some students may also not comply to some of the aspects measured by proctoring software as cheating behavior (e.g., background noise, continuous connectivity).

This study is motivated by the need to evaluate how students experienced the rapid transition to CA in higher education brought about, in part, by the effects of the COVID-19 pandemic. Educational interventions are as good as their relevance to students and the ease of which they could be integrated in particular educational contexts. An evaluation of CA by students will further provide evidence of its suitability for use in higher education as well as identify research areas that need further investigation, thus strengthening this educational practice. Students' perceptions of CA would provide invaluable insights of this mode of assessment in online contexts (Santovena-Casal, 2019). The objectives of this study are therefore (a) to investigate how students experience the introduction of CA in their learning programmes in an ODeL higher education institution, (b) to understand the impact of the introduction of continuous assessment on student support and student success, and (c) to explore ethical considerations brought about by the introduction of CA in a higher education institution.

LITERATURE REVIEW

Assessment

Bjælde et al. (2017, 3) defines assessment as "graded and non-graded tasks, undertaken by an enrolled student as part of their formal study, where the learner's performance is judged by others (teachers or peers)." Assessment is integral to the provision of education in higher education (Holmes, 2018). It shapes students' interaction with the courses (modules) that makes up the learning programme (Muskin, 2017; Holmes, 2018) and frames their learning (Sanz-Pérez, 2019). Students often would not engage with learning tasks unless these are assessed for a clear grade or mark. Assessment is thus a key driver of what students regard as important in their studies (Day et al., 2018a,b) and shapes their approach to learning. The time and effort students devote to learning activities, although determined during module design and linked to desired outcomes, is influenced by applicable assessment practices. The practice of assessment has been studied from various perspectives, including a focus on student engagement, which looks at activities done by institutions with regard to planning and conducting assessments, and the actions by students in undertaking the various assessment tasks. Studies on student engagement provide evidence on how student behavior is shaped by assessments in the different modules of a learning programme (Holmes, 2018).

Assessment serves various purposes in higher education. First it is used to grade or rank the quality of students' performance (Walde, 2021). The traditional end-of-teaching period examination is instrumental in achieving this purpose. Because of the supervised nature of exams, they serve as reliable and fair processes and minimize student cheating (Kehrwald and Bentley, 2018). Single exams at the end of the teaching period are, however, high-stakes, often creating anxiety for students. Examinations are also not able to measure all the learning outcomes of a course, do not mirror real-life tasks or real-life conditions and are thus regarded as less authentic (Chong et al., 2020; Sokhanvar et al., 2021). Second, it provides evidence or certification to stakeholders (Yan and Brown, 2021). The first and second purposes has

a summative function and is often referred to as assessment of learning. Summative assessments, according to Carless, can provide incentives for students to engage in learning tasks and to perform at their best (Bjælde et al., 2017) and are used extensively in higher education.

The third purpose of assessment has a pedagogic function (Muskin, 2017). It supports students in their learning (Andersson et al., 2019), it provides students with feedback (Alique and Linares, 2019), it enables the achievement of learning outcomes (Cifrian et al., 2020), and it helps motivates the student in their learning (Bjælde et al., 2017). In this context, assessment has a formative purpose and is referred to as assessment for learning. Formative assessment entails the collection of information about student learning in order to guide the teaching and learning process. The aim of formative assessment is to help students develop traits necessary for learning and development (e.g., self-awareness, self-control, achieving learning outcomes of a module, and improving performance). Formative assessment is conducted during the teaching period as opposed to the once-off exam at the end (Day et al., 2018c; Cifrian et al., 2020). Formative assessment provides two main cognitive benefits, testing and spacing effect (Day et al., 2018c). The testing effect avers that repeated testing of information leads to better retention of the information. The spacing effect enables learners to pace their learning over extended periods instead of last minutes engagement before an exam.

Different strategies are used in conducting formative assessment (projects, collaborative activities, written assignments, reading quizzes, tests, small oral presentations, portfolios, exhibitions, etc.). These strategies can be designed to test competencies that are difficult to measure in exams, such as psychomotor skills, affective characteristics (Assefa et al., 2017), collaborative learning, creative thinking, and innovation skills (Bjælde et al., 2017). For example, problem-based learning mimics closely how certain professionals such as engineering and medicine would function in real-life. Working in teams to solve problems is an important competence in many professions and so assessments that develop this skill could act as motivation for students (Cifrian et al., 2020). Peer assessment provides learners with opportunities to get feedback from other learners about their work.

Formative assessment also aid peer assessment which is invaluable in collaborative and project-based learning settings where students work in a group to meet particular learning outcomes (Cifrian et al., 2020). Self assessment enables learners to reflect on their learning.

The categorical distinction between formative and summative assessment is, however, problematic (Black, 2015). Formative assessments may serve both learning-oriented support as well as provide a grade for the completed tasks. In this way summative assessments could also be viewed as summative. Similarly, grades may help students determine their level of understanding which could enable them to identify areas of improvement needed in their learning. In other words, grades obtained from summative assessments may serve as valuable input in further learning encounters. Given the not so neat separation between formative and summative assessment, the conceptualization and practice of continuous assessment, which is often coughed in relation to these constructs, is also not a clear-cut process.

Continuous Assessment

Continuous Assessment (CA) is described as the use of a variety of graded or voluntary (Day et al., 2018c) tasks or activities during the teaching period instead of a single final exam (Abera et al., 2017). CA is characterized by frequent assessments (Walde, 2021) aimed at improving student learning, student engagement and providing feedback to students (Day et al., 2018c).

In the past, assessments were, however, mostly based on providing a grade or mark to a student as an outcome of a written exam. The exam was, and still is in some institutions of higher learning, the dominant form of assessment. Changes brought about by newer learning theories and a move toward student-centered practices led to changes in teaching methods and assessment. The increase in the use of both formative and summative assessment brought about the practice of continuous assessment of knowledge and skills (Ramon-Muñoz, 2015). According to Richardson (2015 in Bjælde et al., 2017), institutions in the United Kingdom, Australia, New Zealand have implemented CA over 40 years as well as those in the United States. The practice of continuous assessment is reported world-wide (Ramon-Muñoz, 2015; Bjælde et al., 2017). Continuous assessment is also supported by conventions (e.g., the European Higher Education Area) (de la O González et al., 2015), national legislation (De Lisle, 2015), quality promoting bodies, and institutional policies (Muskin, 2017).

Although several studies report that continuous assessment in higher education improve student grades (Clariana et al., 2011; de la O González et al., 2015), some studies report that marks obtained for continuous assessment are not necessarily high (Ramon-Muñoz, 2015). Other studies report that continuous assessment improves student achievement (de la O González et al., 2015; Ramon-Muñoz, 2015; Santos et al., 2018) whereas other studies did not find differences in the performance of students whether the courses they enrolled for use continuous assessment or not (Day et al., 2018c). Perception studies found that students believed that CA enhanced their overall academic performance (Rana and Zubair, 2019). The type of continuous assessment, for example whether written assignments, partial exam or homework assignments, were found to not influence academic achievement (Day et al., 2018c). Rana and Zubair (2019) reports that most studies, however, found that the predominantly used types of formative CA are tests, quizzes, and assignments. Students reported that the practice of regular assessments helped them to procrastinate less (Clariana et al., 2011). Holmes (2018) found that introducing continuous assessment increased students' engagement during the course.

A common denominator in CA studies is its role as a feedback mechanism. In a study reviewing the characteristics of CA, Day et al. (2018a) found that earlier research includes some form of feedback (e.g., providing correct or incorrect answers, or giving elaborate, content-related, and qualitative feedback). The review also indicated that specific types of feedback are closely related to some types of assessment (e.g., rubrics are used more

in writing assignments). Furthermore, the review found that different student groups (e.g., low achievers and high achievers) may prefer different feedback types (e.g., elaborate or corrective).

According to Pereira et al. (2016) providing students with feedback when learner-centered teaching methods such as projects, work in groups or oral presentations are used aid self-regulated learning in all phases. Self-regulated learners taught through learner-centered methods also tend to view feedback in a more positive way. Students find feedback as effective when it is provided during the teaching process than once at the end of the semester (Pereira et al., 2016; Alique and Linares, 2019). When feedback is provided during the teaching process, either by instructors or peers, it provides students with alternate views and helps with developing new mental constructs of understanding (Nayak et al., 2020).

The process of providing feedback to students is key in aiding student learning and motivation (Day et al., 2018c). Providing students with rapid and meaningful feedback also aided students to acquire practical competencies and improved their marks and satisfaction with their course (Alique and Linares, 2019). Combining feedback and continuous assessment reinforce good assessment practice in higher education (Bjælde et al., 2017).

Many practices of continuous assessment appear to have both functions of formative and summative assessment (Muskin, 2017). This double meaning of continuous assessment is often related to confusion about the practice.

Implementation of continuous assessment in higher education is, however, not always successful, particularly in contexts where the conditions of learning are not adequate (Abera et al., 2017; Walde, 2021).

Although there are a lot of studies on the benefits of CA, there are few studies that provide a perspective of barriers, problems or challenges of CA. University teachers report that large class sizes, teacher workloads (Assefa et al., 2017; Belay and Tesfaye, 2017), shortage of instructional material, lack of sufficient time (Assefa et al., 2017), absence of strict guidelines about CA, and lack of professional support and training on assessment issues (Belay and Tesfaye, 2017), are barriers in implementing CA. University teachers indicated that cheating and poor participation in learning activities are challenges of CA practice (Belay and Tesfaye, 2017).

From the perspective of students, there are a number of student-, instructor- and institutional-characteristics that create challenges for the successful practice of CA. According to Belay and Tesfaye (2017), lack of understanding what CA and its purpose, lack of readiness to undertake assessment tasks and poor participation by students in collaborative tasks is reported as key student-related challenges of CA. Instructor-related challenges include lack of teacher commitment, poor record keeping, teachers' gap in using assessment methods, lack of uniformity in implementation of CA amongst teachers, and lack of providing students with feedback. Students also highlighted dissatisfaction with getting a zero mark whenever they miss completing a CA task. At institutional level, students identified communication with teachers and inadequate teaching and learning facilities (e.g., Internet access, books, and laboratory) as key challenges for the implementation of CA.

South African Higher Education Context: Internet Access

The South African education landscape is marked with inequalities in schooling, internet access, device access and financial resources as it is one of the most unequal countries in the world. According to the World Population Review the top 10% of households in the country hold 71% of the wealth of the country and is considered the most unequal country in the world. According to Statistics South Africa's General Household Survey (Stats, 2019), at least 87% of households had at least one member who had access to or owned a cellphone. While 9.1% have internet to the home, 63.3% have access to the internet via mobile data, internet cafés, libraries or school. This is corroborated by the web traffic analysis conducted by Statista which found that 75% of web traffic in South Africa in 2021 was from cellular phones, while laptops and desktops accounted for a further 22.9% (Statista, 2021).

The statistics above indicate that while there has been progress in improving internet connectivity to the general population, there are still large tracts of the population who lack the connectivity or the devices to access the internet. Given the global, and local, drive toward online learning, the above statistics provide important insight into the context in which this online learning will occur.

RESEARCH METHODS

This manuscript seeks to contribute to the research field of CA by revealing how students experience this phenomenon in a higher education environment. The qualitative inquiry provides a deep understanding of how CA impacts on students' experiences in an ODeL context and what kinds of modifications on the system could enhance the practice of online continuous assessment.

Research Context

The research presented in this manuscript was conducted at an ODeL institution in South Africa. Students who enroll for an ODeL programme at the institution study through Distance Education. Each student registers for the different modules that make up a programme independently. In other words, a cohort of students registered for a particular programme do not follow a fixed timetable. Although the curriculum is specified in the programme brochures, the sequence of taking individual modules and the combination of modules in a particular semester is, in most cases, not specified.

The majority of modules at the institution pre-2020 were offered through blended-learning and the remainder through online learning. As of 2020, due to COVID-19, all modules were offered fully online. The introduction of full online learning during 2020 meant that modules which previously made use of face-to-face, invigilated exams were converted to online assessment.

The assessment policy of the institution requires a minimum of two formative assessments, often in the form of two assignments, to supplement summative assessment, which mostly consisted of an exam. Over the past decade, however, there

has been a growing move toward increasing CA by increasing the number of assessments during the teaching period and elimination of the exam. Modules identified in this manuscript as CA thus do not have an exam as a component of assessment. Conversion to CA in the institution is seen as part of the process of transforming teaching and learning through reducing dependence on high-stakes assessments and inculcation of assessment-for-learning. For the 2020 academic year, the proportion of CA modules in the institution stood at 14.6% (547 out of 3,745 courses).

All CA modules in the institution are available on the Learning Management System (LMS). Assessment activities are presented on the LMS, including assessment feedback. Although the major forms of assessment types include assignments and portfolios, some modules also makes use of other assessment types such as tests, presentations and peer assessments.

Research Participants

The research participants were drawn from students who were enrolled for one or more CA modules in 2020. These modules were extracted from the institution's Academic Information Management System (AIMS) by the Department of ICT. Structured Query Language was used to pair the extracted information from AIMS to student numbers of these modules on the LMS. A total of 8,731 participants completed the open-ended question of the survey.

Ethical clearance was obtained from the university's Ethics Office. In order to protect students' information, the research instrument was circulated by the Department of ICT via students' emails. The research instrument sought students' agreement to participate in the research and provided for confidentiality. Consequently, students' responses to the research instrument were anonymized. The identity of students are therefore not indicated in the discussion of the results.

Data Collection

An electronic survey, using Qualtrics, was used to collect data. The survey questions contained closed-ended questions to obtain students' demographic information, as well as an open-ended question on challenges they experience(d) whilst enrolled for CA modules. At the time of writing, the default language of teaching and learning was English and so the survey was distributed in English. The data analysis in this manuscript focus on the responses of participants to the open-ended question.

Data Analysis

A content analysis of students' challenges with CA in an ODL context was followed in this manuscript. We used both the qualitative inductive and deductive approaches to analyse the data.

Firstly, the inductive approach was used to provide a bottom-up view of the qualitative data, which means that the major themes arose from the data. The inductive analysis was conducted through the use of two software packages, namely the Natural Language Toolkit (NLTK) package of Python, and the *Word List* and *Word Cloud* components of Atlas.ti. The *word lists* and *word clouds* highlighted the most frequently used words from participants. These words were then used in coding participants' responses. The word pairs (digrams) and trigrams obtained from the NLTK package identified the most frequent phrases used by respondents. The word pairs and trigrams help provide context to the codes obtained from word lists and word clouds, and are powerful aids to the meaningful interpretation of data (Sullivan and Keith, 2019). Digrams and trigrams, as part of natural language processing, are relevant techniques to conduct qualitative content analysis (Homan et al., 2020).

Secondly, the deductive approach was used to inform coding based on results of the literature review conducted in section "Continuous Assessment." The challenges reported in the few identified studies were then used to code the dataset. Themes emanating from the deductive approach (e.g., feedback and workload) were also included in the result section.

RESULTS

Of the 9,000 students who completed the survey, 8,731 completed the open-ended question detailing the challenges they experience with continuous assessment at the institution.

The results of both inductive and deductive approaches yielded the following themes.

Assignment Due Date

A large majority of students in the sample (4,468) had five or more modules that have a continuous assessment format. Students with a continuous assessment load of four, three, two and one in the sample are, respectively, 774, 869, 1,046, and 1,270. The policy of the institution is that students have to prove activity by submitting at least one assignment before final mark can be given. Consequently, the academic calendar provides lecturers with a cut-off date where all first assignments should be submitted. Should there be changes at institutional level, for example extension of the registration date, the due date for proving activity would be amended. The active student due dates for assignments is communicated centrally in the institution. The centrally amended active student due dates, when amended, would therefore differ from assignment due dates communicated to students in individual modules contained in tutorial letters that were distributed before the start of the teaching period. For continuous assessment modules, the centrally amended due dates, given the relatively high number of assignments compared to non-CA modules, are a challenge for students. Some students complain that "the due dates change rapidly" and that the institution is "*constantly changing due dates*." Since some students have a number of CA assignments to deal with in short periods of time, the centrally changed assignment due dates may be communicated late for them to adjust their workplan: "*They keep on changing the due dates and it's frustrating because one will be panicking writing the assignments under pressure then after submitting boom the due dates are extended*."

Students indicated that the number of assessments per module during the teaching period are different. The non-CA modules have two assignments and CA assessments can go up to 10 assignments. In a review of CA in higher

education, Day et al. (2018b) also found that the frequency of assessments differ. It is also typical in certain cases that learning activities within a module could be planned, say, for each week of the teaching period. In such cases the lecturers would not accommodate students who cannot complete a particular learning activity by its due date. Consequently, some students perceive CA modules as inflexible since there is " *[n]o extension for due date[s] on continuous assessment*".

A repeated concern from students in the sample is about clashes in assignment due dates for modules they are taking in one teaching period. The result is that the due date for assignments in more than one module could fall on the same date. If assignment due dates are not "staggered", students find this as a challenge:

> *"The due dates. Most of my module assignments have the same due date so it's hard for me to complete them simultaneously;"*
>
> *"Furthermore, the due dates for the assignments were creating tremendous pressure for they were on top of each other. For example, due to late registration ([institution] administration issue), I was only registered end of April 2021 and had 3 assignments due in May. Although, I only have a due date again at end of July;"*
>
> *"1. Assignment due dates are, resultant due to all modules being year modules, not staggered. 2. Some courses have several assignments due on the same date."*

Some CA lecturers do not publish all assignment contents for the teaching period but release the details per assignment. For some students who are used to the publication of all assignment details at the beginning of the teaching period, this practice in CA modules does not sit well with students:

> *"The assignments should be available for submission several weeks before the due date so that they can submitted as the work is completed. Waiting for specific dates and times of availability for assignments is difficult to plan and causes stress when creating study plans;"*
>
> *"The time that they send assignments sometimes they send the assignment 2 or 5 days prior to the due date."*
>
> *"The greatest challenge currently is not having the due dates and assignment from the start so that on can plan your life. The assignments and due dates have not been communicated early enough and it is impossible to plan ahead. I'm constantly checking inboxes to see when the assignments are going to be loaded instead of having received them at the beginning so that a study plan can be worked out."*
>
> *"My challenge has been the complete randomness of the due date might be COVID related but dates may or may not be extended you just never know when is what."*

Linked to staggered release of assignment information is the practice of administering "tests" as CA activities. Online tests are scheduled on a particular day and students are given a specified time to complete the assessment. Some students in the sample found this practice as a challenge:

> *"They are extremely stressful and the biggest challenge is that it only opens for 24 h. They should specify a due date and have the assessment open until that last day;"*
>
> *"The tool forum only makes assignments available on the actual date of summation and is a challenge to me it must be available at least 10 days before the due date for it to not be stressful."*

Finally, some students find the communication about assignment due dates a challenge. They have to navigate different sources of assignment due dates (e.g., from tutors, from the LMS, and from lecturers) and this can be confusing:

> *"I guess the confusion about the assignments due dates was a challenge for me. . .and the miscommunication between the system and the tutors."*
>
> *"Everything, firstly I didn't/don't even know what is a continuous assessment until you miss a due date. The module leaders not being helpful as if you know what is happening in [institution] as a University. Not enough information/clarity being provided in the Tutorial Letters."*

Completing Continuous Assessment Assignments

Some of the students in the sample were questioning the practice of continuous assessment itself, particularly in a Distance Learning context.

> *The continuous assessment has, no doubt, been designed to help students keep track of and advance their studies steadily over the span of the semester. But I absolutely loathe being told what to do and when to do it, and prefer to study at my own pace and on my own terms. This also makes it much easier for me to manage my time, because the responsibility is fully on myself. There is no pseudo-lecturer breathing down my neck and insisting I hand in an assignment every 2 weeks. This takes all control of my studies and my time from my hands and reduce my autonomy in my education. It also serves to kill my motivation. I understand that these are the very things that help other students, but my lack of control over my situation in continuous assessment causes me a lot of stress.*

Although CA is designed to help students understand the discipline, some students report the opposite: "*To be quite honest there are no challenges. The difference, however, is that you do not have half the knowledge after completing a continuous assessment course than you would have with a examination module. You never sit down and memorize and work out and understand the work. You just copy and paste essentially*".

The common challenge students in the sample point out is the lot of time taken up by CA modules. Some students weigh the intended benefits against the effort expended: "*They take up a lot of time. It's too much with little mark's reward. Sometimes continuous assessment modules push you to move quicker that you normally do, resulting in not understanding or remembering half of the work at the end of the module. You don't get time to study, make*

notes and revise, like you do when you have the thrill of writing an actual exam".

Continuous assessment does not necessarily increase the marks or grades of below average students nor improve the marks/grades of good students. For the latter, the performance has been shown to regress toward the mean (Kerdijk et al., 2013, as cited in Day et al., 2018c). A possible explanation of why this happens is provided by one of the respondents in this study:

> *Time! I am studying through [this institution] because I do NOT have the time nor the energy to complete multiple continuous assessment assignments every week. I work full days and have to study after hours. The continuous assessment modules make up the least amount of credits for my course and forces me to neglect my core modules. The continuous assessment assignments are extremely stupid and time-consuming. Consequently, I do the bare minimum for these assignments. My goal is only to submit them and pass the module, because I don't have the time to complete them properly, nor the motivation because these assignments are so unnecessary. I would rather have more time to study the prescribed module material in-depth and research it further on my own, than to skim it and crank out a crappy response to discussion questions and replying to other students who have no more properly studied the material than I have. The other major issue is that these continuous assessment module marks suffer and therefore drag down my average for the other modules which has so far been in the 90–98% range. If you can't do away with the continuous assessments, then at least give students a choice to write an exam instead.*

The sentiment about CA for this student is negative and this affects his/her approach to the learning activities. One student avers that "*it feels like torture having continuous assessment*". Furthermore, some students find it hard to understand the different practices used in CA modules compared to non-CA modules. They complaint that timed tests occur during office hours, that they require students to work a lot online instead of reading a textbook as in non-CA modules, that they are "*costly in terms of material or research*", that CA assessments are sensitive to external problems like electricity "loadshedding," planned blackouts carried out by the national electricity provider, and that "*time is not enough to complete continuous assessment modules*".

Finally, although the open-ended question asked for challenges, a number of student provided support for CA. They indicated that it helps reduce "*exam anxiety*," that engagements were at a high level akin to doing a Masters or Ph.D. thesis, that the lecturer was in constant communication with them, and that they found it "*easier to complete continuous assessment modules*." One student summarized his experience of CA as follows:

> *Continuous assessments force you to physically cover more of the content for the module. The purpose of studying is to gain knowledge, studying for exams is stressful and often the information is not reinforced enough to form a part of your common knowledge. Continuous assessments are a better way of reinforcing the content while giving students further opportunity to improve their marks. In the modern world where we are being forced into using technology anyway, using continuous assessments is for me a better way to absorb the content and engage more.*

Study Material

Online continuous assessment modules are administered and delivered on the LMS. Students, however, may be used to getting hardcopy study material and find it difficult to deal with the online content, online instructions, interactions with other students and tutors, and finding resources to back up their claims as often needed in a knowledge economy. Being accustomed to packaged knowledge in the form of prescribed material pose a challenge to some students enrolled in CA modules that does not have this kind of study material. 477 respondents had challenges relating to study material.

> *"Sometimes, in continuous assessment, it is not always possible to find the answers by just using the textbook and the study guide. On occasion, it can feel like a confusing labyrinth quest, where one's patience is tested more than the actual study material. Correlation amongst study material, knowledge transfer, and knowledge testing needs to be improved. Albeit, this is sometimes also true for modules with only two assessments;"*

> *"With continuous modules they make it difficult for us, since the lecture ask questions that is not on the study guide or text book. So it makes me loose focus on my studies because it's like the assignment is structured for people who are on the work industry already;"*

> *"Some continuous assessments build on what was done in the previous one if they don't then they are at least based on what was covered in the studyguide for the prescribed study units for the specific assessment. That was my experience in 1st year. Now in my 3rd year. I'm faced with [a module] where we as students do not know what to expect or how to prepare for these assessment cause although the lecture tries to meet us halfway by hosting lectures. He has told [us] to not rely on prescribed study material as he will be asking things based on what we will find on the internet (like research). The time frames for these assessments are also very limited and I find that this has put a lot of stress and pressure on me to a point where I'm not getting to my other 6 modules so I have stopped attending his classes. To preserve my sanity;"*

> *"I find the questions extremely difficult to comprehend and the most of the times the text books do not give an insight of the questions that am busy with. Even google does not have even the slightest of information nor other text books that [I] use to help me with research;"*

Some students find it hard to study using electronic devices in the absence of printed study material. This is compounded by the requirement in many CA modules for students to search for information in support of their arguments or for projects they are involved in. These activities are resource intensive and the amount of data required is prohibitive to students. Most respondents consequently had issues with the high demand of data, how they could be supported by the university to access data, and how study material could be provided not digitally but through print.

> *"I love studying but these continuous assessments gives me no sleep but I am catching up. Not all of us are good on studying through our phones but adjusting. Manual study materials having no Tutorials*

that alone is tiring because I have to go and print the tutorial letters from a near internet cafe. Please give us our manual study materials with amended tutorials;"

"Assignments barely cover content in study guide and prescribed book so far and it seems it is an advantage to those who attend the classes and the lecturer is extremely difficult to communicate with;"

"My greatest challenge in completing continuous assessments is a struggle I sometimes encounter to find suitable study material, such as prescribed books or recommended books. The other challenge is data or network."

Full Time Employment and Workload

Time was the code with the highest density. Students doing CA modules report they have limited time to do the assessments. With limited time, the onus is on students to be able to manage their time, failing which they would not be successful in their studies. Time management is further compounded by workload, either due to excessive course load or due to the increased number of assessments in CA modules.

Students who have full-time employment particularly find CA modules difficult to deal with. The expectations of the university for students to complete assessments during working hours is regarded by some students as unfair, inconsiderate, and insensitive. Full-time employed students complain that they are strained and stressed. CA is seen as hindering working students' ability to plan for their studies and as one student avers "continuous assessment is micromanaging my time". Tension arise out of a desire to hold on to employment and complete studies in as short a period as possible. Although students are provided with guidance on how to determine the amount of modules to register for during a teaching period given their circumstances, students still feel the university needs to design assessments bearing in mind full-time employment. The advice on how many modules to register may not be heeded to by some students, as demonstrated in many responses by full-time employed students who carry a full-time equivalent course load (10 modules).

". . . My BIGGEST challenge at this moment is the fact that I am working full time and all my class test are scheduled during working hours. I have 18 days leave a year, of which 12 is compulsory to be taken over builders' [company's] holiday, and 15 class test that is scheduled during working hours on working days. My work will not allow me to take that amount of leave. I need my work to pay for my studies and I need my studies to grow in my work. It would be ideal if the class tests can be written on weekends . . .;"

". . . I have a full time job, family and children and having to deal with 10 modules at a short period is a challenge for me;"

"The continuous assessment do not take into consideration part time students working full time jobs. Continuous assessments are scheduled during work hours indicating that full time employees will need to take leave for each assessment."

Formal employment was one dimension of extra curricula workload, as the student below highlights, family life and parenting responsibilities compound the demands of a full time career. This is evident in many students indicating that they work throughout the night and have only 2–3 h sleep:

"Being a wife, mother and full time career women, continuous assessment is extremely challenging. This year was a struggle where I have to sit with assignments up until 2/3 a.m. in the morning and get as little 2 h of sleep and still go to work. Seven assignments for the month of May was terrible. So instead of enjoying my modules, I'm so stressed and just want to get this course over with;"

"I have six modules I work full time, continuous assessments is causing me to burn out without a moments relief, I am extremely stressed out;"

"With working full time, managing a family and other commitments. I am either exhausted and mentally, physically and emotionally run down or I don't get to everything I should."

The institution itself may be affected negatively as failure to cope with the high workload may result in increased attrition or even increased dropout. Some students are, however, grateful for CA as it helps them to deal with the 10 modules per year seamlessly while they carry a full-time job.

Time Management

Although distance education students are expected to be independent learners and have high self-directedness, managing time in completing all the CA activities emerged as a challenge. Time management in this case is important since the CA activities contribute to the final mark and are thus somehow high-stakes: "*If you have not performed well your assignments, you do not have the option of making up for it in the final examination. This could either be a consequence of time management or the issue of starting slow. Since the early assessments do not give room for those that may be slow 'beginners'*".

Distance education students expect to study at their own pace and so a fixed schedule brought about by CA does not sit well with some students:

"Continuous assessments remove the students right of self time management, and force the students to follow the Universities schedule. This leads to unnecessary stress especially if students are employed and are unable to complete scheduled tests. [This university] is supposed to offer a flexible learning solution that allows students to utilize their own time effectively, and are now making it impossible for employed students to complete their studies;"

"My greatest challenge is that my life sometimes has plenty of time for studying and other times has basically none. So continuous assessment is harder for me, because it is less flexible."

Balancing the needs for CA modules and non-CA modules adds another layer of complexity for students who have not mastered managing their time: "*Its not the modules, if I read I understand but I'm have serious time management issues between the continuous assessments and my core modules but I believe with time and practice I'll get it right I just need time to adapt studying at this level*". For students who want to understand their work before completing assessment tasks, the ability to manage time becomes a matter of concern: "*Not completing the online tests because of the limited amount of time. Sometimes*

lack of data and network problems, but overall it's lack of time management because I have to fully understand the chapters before I attempt the tests". For others, the high number of assessments make it difficult for them to complete timeously: "*My greatest challenges are time management, time that are given to complete the assessment is too small*".

Higher education students may have challenges to manage their time amongst the different demands of all modules they are registered for. According to Clariana et al. (2011) assessment practice, one final exam as opposed to frequent assessment within a teaching period, may reinforce or discourage higher education students from procrastination. In their study focusing on a large class psychology course, they found that CA helps students not to procrastinate. The results of this study lends support to the notion that students need to know how to manage their time and that inability to deal with procrastination is a challenge:

> *"Continuous assessment is great as it leaves no room for procrastination";*

> *"My greatest challenge with completing my assignments is time management and procrastination. I sometimes leave things for the last minute".*

On the other hand, students who regard themselves as having no challenges about CA point out that time management is important: "*Personally I have not come across challenges. One thing one must do is to have time management. Once you know what to do and when all works out well and you don't get stressed out*". Working with CA requires one to have discipline in completing all the tasks at the required times: "*So far I haven't experienced challenges when it comes to continuous assessment. However, as someone who is fully employed and living with a family, time management will always be a challenge. However, the system of continuous assessment is less stressful for me since I can focus on a single chapter at a time, and even engage my lecturer where I have missed a step. The practice of continuous assessment strengthens the principle of academic discipline*".

Examinations

Exams still preoccupy many students. There are thus students who prefer exams and those who do not. Some students prefer exams over CA since they do not have to spend a lot of time on studying: "*They are very time consuming modules that take up more time than my other exam based modules*". Students also like the support provided around exams that enables them to practice their understanding of the module. For CA, such practice does not often exist: "*Not knowing the format of the questions. In a normal exam setting, you are able to complete previous years' exam papers and have a rough idea of what to expect. With continuous assessments, you only know once you start the test*".

Students who do not prefer exams indicate the stressful nature of online exams, and the lack of authenticity of written exams:

> *"The assignments are fine and manageable. My challenge is the exam as I still prefer the sitting and venue based exams. These online exams are not working for me as there are harsh penalties on marks of research and references as I am not good with referencing and I lose most marks there;"*

> *"Continuous assessment allows me time to complete and has less stress than exams;"*

> *"I think an exam should not be part of the evaluation method for a module I do. At my work place, suck type of projects are supported by consultants. There are various ways of getting support, I don't understand why I have to be evaluated for exam, know all formulas, etc. when in real world environment support is offered to make a project a success."*

Feedback

As in the literature, students in this study prefer timeous feedback. Late feedback tended to evoke negative emotions amongst students. "*Waiting weeks for assignment feedback can also be frustrating - timeous feedback while the content is fresh in one's mind is best*". Feedback enables them to improve on subsequent assessments and provide cues about the level of their performance. Failure by the institution to provide such feedback is regarded as a challenge. "*Not understanding my previous assignment very well, which [is] difficult to continue with the next assignment because I do not have feedback from the lecture by the time*." Some of the feedback provided were described as vague. "*I find at times, their responses or feedback is not helpful, because they do not want to give you answers or tell you that you are not on the correct track but yet fail to guide you to sources that will help you understand the module content*".

DISCUSSION

Perception of Students on Continuous Assessment

Our study found that most students prefer continuous assessment modules instead of having to write an exam. This finding is in agreement with previous studies where students indicated preference for CA as opposed to just an exam (Rezigalla et al., 2017; González-Campos et al., 2018; Rana and Zubair, 2019; Sanz-Pérez, 2019). This preference helps students to avoid anxiety that often comes with having to write an exam (Bjælde et al., 2017). Exams were reported to force students to experience pressure toward the end of the teaching period. Exams were also not supporting how problems are solved in real life and as such were not seen as authentic (Mohamed and Lebar, 2017; Villarroel et al., 2020).

Respondents indicated that CA is a remedy for procrastination and a mechanism to help them work throughout the teaching period. This result is similar to findings in previous studies about students' perceptions that CA helps them to learn and to study (Rezigalla et al., 2017). CA helps students spend more time on their studies with the result that their final academic achievement increases (Díaz-Mora et al., 2016; Santos et al., 2018; Santovena-Casal, 2019). Our study is in agreement with the results obtained by Belay and Tesfaye (2017) purporting that students are able to concentrate on understanding the subject as they work through the small learning activities instead of having to memorize a large amount of information for exam purposes. Similar results were also found in previous studies where students claimed that CA

helped them maintain learning momentum (Day et al., 2018a) and an external force to remind or push them to learn (Zhan, 2020).

Our study found that the inability to practice formative assessment activities as in preliminary exams and working through past papers is a challenge about the implementation of CA. A similar result was found in the study by Belay and Tesfaye (2017) where lack of student readiness was indicated as a challenge. If students are not ready and have not developed self-confidence in taking the assessment, the performance may not be at the high levels expected. In such contexts, low performing students may manage to pass the assessment and high performing students may perform not at the high levels they normally would have they had the time to practice for the assessment.

Students who did not prefer CA did so based on the excessive workload this format of assessment introduces. This practical concern manifest in competition between different courses and between different activities within a course (Day et al., 2018a). These results are contrary to those of Rezigalla et al. (2017) who report that CA does not increase the load on students. A possible explanation to this difference is that in our study we are also dealing with a substantial proportion of students who are part-time. For part-time students who are also employed on a full-time basis, the high number of assessments during the teaching period is material. This materiality could contribute to part-time students' view of CA in a negative light.

The lack of coordination amongst the different modules students are enrolled in with regard to the spread of formative assessments was a key contributor to students' challenges about CA. Due dates that came very early in the teaching period and those scheduled at the same time in various modules, created feelings of stress, helplessness and anxiety amongst students.

The type of continuous assessment during the teaching period influenced students' like or dislike of continuous assessment. Most students in this study did not prefer timed assessments as part of continuous assessment during the teaching period. Timed assessments whose questions are only posted on the LMS just prior to the due date were found to be disruptive for students, particularly those full time employed. Assessment activities not directly found in the prescribed study material, those requiring students to do some research, and those that are resource intensive requiring students to use a lot of data, were disliked by most students. This result is contrary to findings that report a lack of main effect of assessment type (Day et al., 2018c). A possible explanation to this difference may be due to the specific the types of CA used in our study, which was novel to the majority of participants.

Access to ICT infrastructure is flagged by students as a determinant of success in online continuous assessment. Lack of data hampers students to participate in synchronous activities, in conducting searches for relevant information, and in participating effectively in timed summative assessments. While the institution does supply students with data during formal examination periods, students are not provided with data throughout the academic semester. The cost of data required to continually engage online is described as above what students can afford. Lack of access to devices with larger screens makes it difficult to students who study through mobile phones as the navigation is not as user-friendly as in laptops. These findings echo the findings of another study done at the same institution where access to technology was identified as a primary barrier to learning (Mashile et al., 2020).

Most students indicate a preference of studying through print rather than online. Students complained that they had to use their own funds to print tutorial letters and study guides. The lack of hardcopy study material was found to impact negatively on the experience of students toward continuous assessment.

Students in this study indicate that time-management is an especially important skill required to cope with continuous assessment. Lack of time management result in students just going through the motions of getting a pass mark in the formative assessments without trying to understand the content. Inability to manage time amongst the various assessments that occur regularly during the teaching period results in low assessment marks, increased stress and low motivation (Day et al., 2018c). Our results lend support to observations in other studies that the time interval between assessments is not enough (Rezigalla et al., 2017). Students who have mastered time-management, on the other hand, find continuous assessment is a wonderful innovation and strategy.

Finally, students reported that receiving late feedback on continuous assessments did not help them in improving their performance on subsequent assessments. That delayed or no feedback rendered useless the aim of continuous assessment. This result supports finding by Walde (2021) that the absence of timely feedback for students can negatively affect the implementation of CA.

Ethical Challenges of Continuous Assessment

Having read the sentiments expressed by respondents in this study, we now consider the ethical challenges of CA as practiced at the institution under study. First we address the organizational context of learning programmes and look at how the (lack) of structure impacts on the well-being of students. Second, we question the ethical soundness of the non-differential approach toward full-time and part-time students in the institution. Lastly, we question the merits of the elimination of exams in totality across the institution.

The challenges experienced by students with due dates for CA activities suggest much better planning for assessments at the learning programme level. Although each module in a learning programme is administered independently from others, the challenge of congested submission times calls for much sensitivity toward students' total experience. The organization of CA assessments in a learning programme thus pose an ethical challenge for the institution to resolve. Expecting students to perform academically without providing sufficient time to do so might not be morally defensible. To mitigate the number of assessments required, Bjælde et al. (2017) suggested

that more detailed feedback loops can improve learning with fewer assessments.

We next consider the ethical problem of allowing full-time employed students to take a full-time equivalent workload. Of concern is that the institution does not recognize this as a problem as its policies and procedures do not enforce limiting registrations for full-time employed students. How are full-time employed students, who may also have other social pressures, expected to interact meaningfully with twice the amount of work that part-time students can deal with? This question relates to the blurring of boundaries between students' studies, work and home lives (Lidegran et al., 2021). The institution's silence on regulating the number of modules a student can register based on their employment status may well contribute to increased psycho-social and health problems for students. The cost of these problems on society could be huge, if measured. The challenge that students express in terms of working hard on their studies whilst maintaining full-time employment could well result in a number of students suffering from sleep deprivation leading to burnout or similar health issues.

The final ethical issue we want to address pertains to exams. As part of interventions to increase student success and throughput, the institution, from 2015, planned to increase the proportion of modules making use of CA, operationalized as increasing the two assignments before a written exam from two to a minimum of four. Around 2019 and 2020, the definition of CA changed and effectively excluded an exam in the mix of assessment types. Although the removal of exams would appeal to some students as found in our study, can an exam-free assessment strategy satisfy the credentializing and licensing functions of a university? Linked to this question is the validity of the assessment. During continuous assessments, students are not assessed under strictly supervised conditions, and it is possible that, due to pressure to attain good grades, students may cheat on tasks. Now cheating is an issue for sit down examinations as well, and therefore it is not unique to continuous assessment. Bjælde et al. (2017) suggest that intelligent curriculum design, which focuses on students reflections and responses to various sources of information and less on checking if students attained specific knowledge, may mitigate the need to cheat and hinder students' ability to do so.

CONCLUSION

This manuscript aimed to describe the experiences of students undertaking online continuous assessment at a South African Open, Distance and e-Learning institution. One of the key outcomes of this research is the finding that CA brings rigidity to what is intended to be a flexible learning option for students. This is due to the fixed submission dates used by the institution under study. This unintended consequence has a number of ethical implications, as described above. A proposed solution could be to implement open ended submission date which will allow students to submit at any time during the teaching semester. To do so the institution would have to move away from content assessment to assessments that employ reflections, application and praxis as learning tools that authentically represent the students' opinions, beliefs, skills and knowledge. This would represent a fundamental shift in traditional conceptions of assessment which are typically steeped in Bloom's taxonomy of knowledge. However, the workload implications of such a decision cannot be ignored, particularly at the institution under study where the Full Time Equivalent ratio of students to staff is 179.7:1 (Times Higher Education, 2021). Consideration must be given to how meaningful feedback, which was flagged as a concern for students in this study, can be given in such an open ended assessment structure.

A further consideration is the ethical implementation of CA in a fundamentally unequal country. Operating within this context calls for institutions to operate beyond traditional boundaries as knowledge producers but to also take on the role of advocating and providing students with the necessary devices in the same way that they provide learning material. However, this suggestion could be considered idealistic in a context of decreasing fee allocations from government. Private-public partnerships provide a possible avenue for navigating the unequal device distribution. Furthermore, mobile learning may also provide a viable alternative for online course and assessment design considering that the majority of the population has access to a mobile device.

In conclusion this manuscript found that while CA holds a substantive benefit for improving student performance, the implementation of it in a country marked by inequalities requires careful consideration to ensure that the underprivileged majority are not unintentionally excluded from the learning process whether this is due to lack of devices or Internet or life circumstances such as full time employment. That said we argue that CA still provides the best opportunity to implement continuous and authentic assessment in higher education at scale.

Limitations

Continuous assessment practices used in the sample are vast and as such the impacts of various types of CA on student perceptions could not be determined. Disaggregating data in relation to various CA types could provide much more nuanced understanding on students' perceptions of CA. Students' familiarity with the various types of assessment could help shape their perception and thus further studies could explore CA practices in comparison to student maturity in higher education. Context strongly informs the implementation of CA and the specific implementation shown in this manuscript may not be relevant in some contexts. That said, this manuscript makes a case for online continuous assessment in the Global South.

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

ETHICS STATEMENT

The studies involving human participants were reviewed and approved by University of South Africa Professional Research Committee Research Ethics Work Group. The patients/participants provided their written informed consent to participate in this study.

AUTHOR CONTRIBUTIONS

AF designed the study, executed the research, provided input into sections of the article and particularly the conclusion. EM drafted the article and re-analyzed the data to improve clarity. Both authors contributed to the article and approved the submitted version.

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