

Integrity of university online assessment: Towards developing a function model

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Abstract

This world is changing and the old education operation system is no longer compatible with these vicissitudes. Online assessment, that has been enforced by the COVID 19 pandemic and has become a norm in many universities world-wide, is failing to embrace all learners, thus the need to address it. This content analysis study examined the integrity of online university assessments based on 2020 and 2021 online studies purposively selected from the internet. The researcher used Motivation Theory, Technology Acceptance Model and Self-efficacy Theory whose concepts are key in the changes that this study calls for. Findings revealed two basic operational types of online university assessments: the digitally proctored examinations and the open-access assessment. While affluent nations have smoother transitions and more benefits, developing nations are challenged by students online cheating and resource unavailability. The study concluded that some universities are hesitant to adopt online assessment systems due to lack of awareness, resistant to change and fear of losing examination integrity. The study therefore recommends universities to hold online assessment workshops to equip both the lecturers and the learners. Detecting cheating software can be used to detect students cheating and expenses can be averted by using free online examination software. They can also use Chromebooks for student assessment which can be setup to disable access to browse the web and the external storage during an examination. Above all, a reliable, authentic and cost-effective online assessment model with minimal disruptions, which ensures that no student is left behind, is a necessity.

Keywords

E-cheating, integrity, online assessment, university lecturers, university students.

INTRODUCTION

Global changes are affecting all areas of operation including the education sector and these vicissitudes have enacted new ways of doing things. University teaching and assessment has gone digital, a move that has been caused by technological development but accelerated and enforced by the outbreak of COVID 19 pandemic [1]. The need to embrace online examinations is now more urgent than any other time in the history of higher education and these online

examinations do offer new opportunities for the inclusion of innovative pedagogies and assessments [2]. However, while task at hand might be easy with the developed world, it is quite demanding in the developing countries.

The technological global changes in education should strive to benefit the highest possible number of learners despite their socio-economic, physical and mental status. In fact, it should be all embracing and no students should



be left behind in accessing the digital assessment protocol opportunities. At the same time, there is the question on online assessment integrity. Hatzipanagos et al. [3] argued that by upscaling and accelerating the adoption of digital assessment practices worldwide, educators have to rethink assessment processes to make sure that they are an integral part of the authentic digital life experience for students and staff.

Academic integrity entails commitment to the fundamental values of honesty, trust, fairness, respect, responsibility and courage (Fisherman quoted in Holden et al. [4]). Sutadji et al. [5] said that authentic assessment methods are important to create qualified graduates who are ready to face the real world. The status of a university is, thus, determined by its fundamental principles of assessment which include authenticity and integrity as well as ensuring that all students are given equal opportunities in the process.

However, there is rampant dishonest that is associated with online assessments worldwide. Holden et al. [4] argued that since e-cheating is on the rise, understanding the varied and complex types and causes of academic dishonesty can inform the suite of methods that might be used to most effectively promote academic integrity. Aziz et al. [6] pointed out that lack of training in authentic assessment, on the part of lecturers, is a challenge to assessment that need to be addressed.

The responsible ministry, educationists, university administrators, lecturers and students are likely to benefit from the insight that are exposed by this study. It should also be noted that, related studies are still few, at least in Zimbabwe, which makes this study relevant and beneficial to the above-mentioned groups of people.

Statement of the problem

University online assessment that has been enforced by COVID 19 outbreak and has now become a norm in many universities, should offer new opportunities for the inclusion of innovative and technological pedagogies benefitting the highest possible number of learners despite their socio-economic, physical and mental status as Butler-Henderson and Crawford [2] put it. However, not all students are embraced with the online system and there is rampant dishonest that has emerged which threatens the integrity of online assessment in the universities [4]. This study therefore focused on examining the

credibility of online assessments in the universities.

Research questions

The three research questions are: (1) Which online assessment methods have been used in the universities in 2020 and 2021?; (2) What are the online examination credibility challenges that the students and the lecturers encounter in the universities?; (3) How can these challenges be averted?

Theoretical framework

The study used three theories that are essential when considering the changes that should take place on administrators, lecturers and students.

Motivation theory

Motivation is a force that drives one to satisfy a felt need and is key in every successful innovation [7]. Han and Yin [8] said that teacher motivation is closely linked to student motivation and education reforms. This means that, administrator need to be convinced to adopt the mandatory online assessment; the lecturers need to be empowered with skills and necessary gadgets to lead on the way while students should realize the advantages of this online assessment and be prepared for it for this education reform to be realized.

Technology acceptance model (TAM)

The TAM model was first initiated by Fred Davis in 1985 and later modified to integrate factors and experiences from Fishbein and Ajzen Theory of Reasoned Action [9] The model emphasizes the internal variables of the potential technology user which are aggravated by the perceived usefulness of the technology, increased efficiency, perceived easy to access and to use as elaborated by Davis [10]. It can be argued that, university lecturers and students may easily accept online assessment technologies if they are assured of the above utilities.

Self-efficacy theory

Closely linked to the above two theories is the self-efficacy theory that was proposed by Albert Bandura. The theory is associated with people's performance at given tasks. The underlying principle behind the self-efficacy theory is that success and motivation are partly dictated by how effective individuals perceive they will be after embracing the suggested strategy (Bandura

quoted in Williams and Williams [11]). This means that, for this study, online assessment to be successful when the administrators, lecturers and students have developed self-efficacy.

LITERATURE REVIEW

ICT knowledge and skills have become a priority in our world at our age which is hard hit by the COVID 19 epidemic [12]. Since most universities world-wide have managed to embrace online teaching, it makes more sense if they can also successfully embrace online assessment.

What an online assessment is

An online assessment can be defined as a virtually conducted test and/or examination to assess student's academic knowledge and performance while preserving the exam's credibility and integrity. Such digitalized assessment abreast with global technological advancement, at the same time, ensuring continuity amid disruptions such as the one caused by the COVID-19 pandemic. Online assessments offer a significant technological alternative to summative paper-based examinations, but still being able to test knowledge retention, application and extension [13].

University assessment transition to online

Transition from the traditional assessment methods to online strategies has been accelerated by the outbreak of COVID 19. Online examinations can be conducted by either using proctoring solutions or students are allowed to download the question paper, write the examination within a stipulated time and then upload the answer scripts based on the exam rules and regulations. While Guangul et al. [14] gave two broad types of online assessments, that is, remotely proctored exams (time-constrained) and open-ended assessments, Hatzipanagos et al. [3] gave three distinct classes of online examinations, that is, via a Virtual Learning Environment (VLE) which can either be fixed time unseen closed book style exam or unseen but open book exam with a longer response time (24 hours or more), the third one being the digitally proctored exam.

Some countries, especially the affluent nations, had smoother transitions and more benefits that those especially in the third world

who experienced hiccups. Elzainy et al. [15] embarked on a study which elaborated on the benefits of e-learning and assessment. Findings showed that there was higher student achievement and promising staff perceptions with improvement in their technological skills.

On a similar note, Hatzipanagos et al. [3] worked on a project which aimed at understanding the transition to online assessment primarily from the perspective of the students who experienced the system at stake. Findings showed that the majority of the students managed to write their exams; for a few who failed, it was related to illness and other caused which had nothing to do with technological access. The students were in agreement with this transition to online assessment and they would like online assessment practices to continue. In other words, the study revealed the successes of online assessments in developed countries.

Contrary to the findings above, Finn and Tyrrel [16] found in a study that due to COVID 19 assessment challenges, instead of having a final exam, the university under study an alternative assessment; it developed a critical reflection essay approach in related courses where students brought together learnings from the semester to reflect on their developing managerial identities in relation to their own capacities and broader work and study contexts.

On the same note, OER Africa [17] realized that one of the most challenging aspects of distance learning and emergency remote teaching during COVID-19 in Africa has been the aspect of assessment. Greene, quoted in OER Africa [17] reminded the educators to recognize that a change of medium in assessment may also require a change of design in terms of the examination setup.

Online assessment challenges

The aspect of online assessment challenges has been adequately researched on; some researchers noted that online exams are limited to closed-question formats such as true-false, matching items and short answers, all of which tend to promote memorization and factual recall at the same time being vulnerable to online cheating [2]. Holden et al. [4] listed some online cheating ways: downloading papers from the internet and claiming them as one's own work, using materials without permission during an online exam, communicating with other students through the internet to obtain answers, or even

having another person writing an online examination rather than the student who is submitting the work. Resource challenges include access to a reliable internet connection, power supply outages and availability of devices to use.

Holden et al. [4] reviewed current research on academic integrity in higher education, with a focus on its application to assessment practices in online courses. Findings showed that faculty and administrators had challenges in developing methods to adequately assess students online while maintaining academic honesty since online testing offers more cheating opportunities than the live-proctored traditional ones.

On a similar note, Guangul et al. [14], in a study, focused on the challenges of remote assessment in general and academic dishonesty in particular. The main challenges that they identified in remote assessment were academic dishonesty, technological infrastructure, coverage of learning outcomes, commitment of students to submit assessments and unavailability of policies and guidelines on online assessments.

When considering the above research findings on online cheating, one may wonder why students resolve to cheating. Holden et al. [4] carried out a study addressing the question on why students engage in academically dishonest behaviors and they found individual factors, institutional factors, medium-related factors and assessment-specific factors.

It can be said that there are several online examination cheating ways that have emerged due to widespread of online assessments. Some of these ways are unique to the online course environment while others are linked to in-person courses but all should be addressed accordingly.

Mitigation measures to online challenges

Nigam et al. [18] said that there are currently various means of detecting cheating in online exams, namely, video summarization (Students are video recorded using their own webcam throughout the exam), web video recording and live online proctoring (also known as web video conference invigilation); biometrics (for instance, figure prints); lockdown browsers; security questions (also known as knowledge-based authentication method, which requires personal knowledge to authenticate the student).

A study by Holden et al. [4] reviewed current methods to reduce academically dishonest behaviors and found that, in order to ensure

academic honesty at universities, administrators and staff must clearly define academic dishonesty as well as the penalty associated with it. Also, online cheating detection software applications should be used.

Guangul et al. [14], in their study, they realized that academic dishonesty can be minimized by lecturers preparing different questions for each student (difficulty as it might appear) as the best approach. Online presentations and combining various assessment methods were found to be helpful in minimizing academic dishonesty.

Sutadji et al. [5] worked on creating an authentic assessment strategy adapted from the current implementation. Results showed that the forms of assessment that can be done are: giving case study related questions or analysis provided in the online platform; online discussions with peer assessments, writing reviews and criticisms as well as use of assignments and portfolios.

Another widely used mitigation measure to online assessment is the use of proctoring software during online examinations such as Quilgo (A google add-on). This method uses the student's webcam and microphone to allow a live-proctor to supervise students during an online exam [18]. The proctoring software is used to ensure the integrity of examinations while allowing students to take examinations from remote locations and monitor the behaviors of students during examinations through a qualified proctor, video recording and advanced audio and video analytics.

Online proctoring

Online proctoring systems has generated debates on academic integrity. Pertinent questions arose on creative design of authentic assessment, clear guidelines to students on expectations, marking and moderation of examinations and the use of text matching software [3].

Nigam et al. [18] carried out a systematic review on proctoring systems through search on Scopus, Web of Science and ERIC repositories. Their study focused on existing architecture of AI-based proctoring systems (AIPS), parameters to be considered as well as issues and trends. Findings revealed that security issues associated with AIPS are variegated and worrisome; they include security and privacy concerns, ethical concerns, trust in AI-based technology, lack of training among usage of technology, cost and many more. Their ongoing research could not

conclude whether the benefits of these Online Proctoring technologies outweigh their risks.

Guangul et al. [14] posed that proctored remote exams have the following drawbacks: remote proctored exams are often stressful for which adversely affect students' performance; such examinations requires well-established infrastructure setup, software and hardware, both on the instructor and student side; the application software such as ProctorTrack could create "false positive" flags that mislead the instructor; during such exams, failure of software, hardware and internet connection could be experienced and remote fixing of such is never be easy. Again, due to personal or cultural reasons students may not be willing to stay under the camera surveillance.

It can be concluded that, the literature review which shows online assessment information, also exposed online challenges. The so-called mitigation measures to online challenges have its on short comings, therefore the need to find everlasting solutions.

RESEARCH METHOD

Research approach

The researcher employed a qualitative approach using the content analysis technique. Focus was on some online studies purposively selected and derived from Google web search engine, based on the research questions. Indicators that were implemented during the systematic search for the related studies included publication year of the studies, that is, 2020 and 2021. Key words that were considered for searching and selecting the studies were Online Assessment, Online assessment challenges, Online examination cheating, Online examination online proctoring and Online examination integrity. Special attention was considered on selecting suitable studies from various countries with different development levels, for instance, developed and developing nations.

After established the categories, the researcher coded the texts according to research questions. Relevant information was then extracted ready for analysis.

Data analysis

Content data from the selected documents was examined, coded and classified accordingly ready for evaluation and interpretation.

RESULT AND DISCUSSION

Possible online assessment techniques

Two major types of online examinations emerged, that is, the digitally proctored examinations and what may be termed open-access examinations where students are allowed to download the question paper, write the examination within a stipulated time and then upload the answer scripts based on the exam rules and regulations [3], [14]. This is where the Technology Acceptance Model comes in, that is, students should be taught to accept any of the online assessment strategies chosen by their university so as to enhance their studies.

When considering these online techniques, affluent nations had smoother transitions and more benefits than those, especially in the third world, who experienced hiccups. Higher student achievements and promising staff perceptions with improvement in their technological skills was realised [15] in sharp contrast to struggling countries where normal examinations were suspended and replaced by alternative assessments, for instance, critical reflection essay [16]. Kaputa [19] highlighted that online assessment in Africa, Zimbabwe included, trails behind mainly due to resource challenges.

Online assessment challenges

Two classes of challenges emerged, that is, online cheating and resource challenges.

Online cheating includes false ownership claims of downloaded papers from the internet, plagiarism, sharing of answers with other students and, worse still, having someone (other than the students) writing the online exam [4].

Challenges on resources scarcity include the so much needed skills [2], [4], unreliable internet connection, power supply outages and unavailability of functional devices and software to use [14].

The above challenges, gives way to lack of motivation among learners (motivation being a force that drives one to satisfy a felt need and is key in every successful innovation [7]). Eventually, students' cheating increases.

Why students engage in academic dishonest

The following four factors were found to be the common reasons why university students engage in academic dishonest: individual factors (including examination unpreparedness of some students), institutional factors (where some universities lack binding technological laws),

medium-related factors (which attracts students to manipulate the system) and assessment-specific factors, where the nature of online assessments allows cheating [4].

Mitigation measures to online challenges

There are currently various means of detecting cheating in online exams, namely, video summarization, web video recording and live online proctoring, biometrics, lockdown browsers and security questions technique [4], [18]. Chromebooks can also be used during students' assessments. Chrome Enterprise and Education Help [20] argued that, when set up properly, Chromebooks meet K–12 education testing standards and are a secure platform for student assessments. This is so because assessors can disable students' access to browse the web, reach out for the external storage and screenshot accessories during online examinations.

Alternative Assessments, such as giving case study related questions as well as analysis provided in the online platform, online discussions with peer assessments, analytic essays, writing reviews and criticisms, assignments and portfolios [5], [14].

How to avert examination software expenses

Digital proctoring systems that use hardware such as webcams and mics already present in the student's laptops can be used without much additional costs [18]. Free online examination software can also be used to the advantage of both lecturers and students.

What to check for when buying an online examination software

There is need to check for Automation of Planning and Scheduling, Assessment Pattern Creation, Configuration of Questions,

Assessment of Integrated Rubrics, Easy Approval, Custom Test-Taking Options, Instant Notifications, LMS Integration and Online Proctoring.

CONCLUSION

The study concluded that some universities, especially in the developing world, have not yet embraced online assessment. The reason why universities are hesitant to adopt online assessment system is that there is lack of awareness among universities on online assessment and procedures. There is also resistance to change from the usual way of assessment, and, above all, there are security concerns, that is, fear of losing examination integrity. This study also concluded that, although universities are striving to abreast with the rest of the world in as far as online assessment is concerned, some of these universities are heavily affected by online cheating and resource challenges.

This study recommends that universities should be encouraged to embrace online assessment since this is the way to go, especially after embracing online teaching and learning. Use of detecting cheating techniques, such as proctoring, in online exams so as to reduce students cheating is also mandatory. There is also need for workshops and training sessions for lecturers so that they become well equipped in these techniques. The students also need education on online assessment. The overall recommendation is that, especially for Africa, there is need for an establishment of an online assessment model, which is reliable, authentic and cost-effective with minimal disruptions, at the same time, ensuring that no student is left behind.

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