Research Article

Student Authentication in eAssessments Using Online Proctored Exam System: Accounting Educator Views in Fiji

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ABSTRACT

With the advancement in eLearning technologies, eAssessments are becoming widely used. The overarching challenge in eAssessment is student authentication. An online invigilated or remote proctored exam system that engages a human proctor, supervising live via webcam, is a widely accepted method for student authentication. This study obtained views of tertiary accounting academics in Fiji using semi-structured interviews. Though educators prefer online assessments, there is a strong consensus that student authentication is a challenge. The findings reveal that academics are willing to accept online proctored exam system because it has the capability to validate students, along with minimising other forms of academic misconduct during exams. According to the academics, the online proctored exam system may be more acceptable among the postgraduate students compared to the undergraduate students because of the digital resource issues. It is also essential that attention is paid to network connectivity issues in Fiji when implementing online proctored exam systems.

Keywords: Student authentication, eAssessments, Online proctored exam, eLearning, Accounting education

Introduction

The availability of online educational technologies has shaped opportunities for eLearning across the globe (Orrell 2020; Harasim, 2017). eAssessments are increasingly gaining popularity for its relevance, learner flexibility and accessibility, and immediate feedback system (Biggs, et al., 2022). eAssessment refers to online or computer-assisted assessment, i.e., the assessment is either completed online or the submission is done using specific online platform or Learning Management System (LMS) (Biggs et al., 2022). The widely accepted forms of eAssessments include end of course examinations, comprehensive writing in the form of essays and projects, ePortfolios, online quizzes, reflective writing in blogs, discussion forums, and contributions to chat rooms (Orrell, 2020). During the COVID-19 pandemic, universities across the globe were pushed to adopt eAssessments for survival purposes (Mwangi, et al., 2022). Blended and online

learning environments are becoming widely accepted globally, especially among the working professionals and students with disabilities (Taşkın, et al., 2023). Similarly, at the universities in Fiji, online and blended learning is evident at both undergraduate and postgraduate levels. However, the in-semester tests and final examinations are conducted physically.

The fundamental reason why universities prefer traditional physical examination environment is to validate student identity (Linden & Gonzalez, 2021). A dominant risk factor in eAssessments involve students deliberately sharing their identities to third parties to complete assessment on their behalf and submitted by students as their own work (Orrell, 2020; Kocdar et al., 2018; Beaudin et al., 2016). This practice is also referred as ghost-writing, student impersonation or contract cheating, and it is prevalent when assessments are unsupervised or when institutions lack software systems to verify students (Ali & Alhassan, 2021; Kocdar, et al., 2018). To build trust in eAssessment, there is an increasing need for technologies that assist in authenticating the students who are completing the assessments (Kocdar et al., 2018). These situations have strongly urged the need for strong student authentication systems in place (Okada et al., 2019). Student authentication is the process of verifying the identity of the student to confirm that the student who is completing the assessment is the same person registered for a particular course or program of study (Orrell, 2020; Okada et al., 2019).

In Fiji, high-stake assessments such as exams in undergraduate accounting courses are largely conducted in a face-to-face environment except for low-stake assessments such as online quizzes. However, there is high preference at postgraduate level for courses to be offered in blended and online learning environment, and this advocates the increasing use of online assessments. The overarching issue for educators is to employ appropriate methods to ascertain that those who are enrolled in the course are the same ones who are completing the course assessments. Though blended and online learning are acknowledged, exams are conducted physically.

Based on the background stated above, this study examined the following research questions:

RQ1: In the view of accounting educators, are there risks associated with student authentication in eAssessments?

RQ2: To what extent are accounting academics willing to accept online proctored exam system to address issues associated with student authentication?

This is a qualitative study and data was collected using semi-structured interviews. Accounting academics from three universities in Fiji were interviewed to examine their views on issues associated with student authentication and their acceptability for online proctored exams. The remaining section of the paper is organised as follows: Section 2 discusses the commonly used student authentication methods from prior studies. Section 3 describes the research methods used in this study. Section 4 presents the findings from the interview data and discusses the results. Section 5 concludes with summary of results, limitations, and implications for future research.

Literature Review

According to prior studies, during the COVID-19 pandemic, universities were pushed to resort to emergency remote teaching and online assessments as a survival strategy (Mwangi, et al., 2022). For example, during COVID-19, the University of the South Pacific (USP), the regional university in the Pacific region, conducted online exams using Proctorio eprocotoring tool integrated in the Moodle LMS to minimise cheating in the online exams (Chand & Hussein, 2022). However, the dramatic shifts in the learning environment and the changing needs of the students, especially working professionals, parents, and students with disabilities, prefer online learning (Orrell, 2020). These student needs have encouraged universities to continue with blended/online learning and eAssessments are becoming increasingly prominent (Orrell, 2020). In this post pandemic period, the focus of eLearning is

not on survival but on enhancing quality assurance of eAssessments and ensuring the validity of students undertaking the assessments (Mwangi et al., 2022).

Diverse methods of student authentication for online assessments and eproctoring systems has been explored (Orrell, 2020; Okada et al., 2019). Beaudin et al. (2016) point out that it is imperative for eLearning providers to integrate stronger authentication methods such as biometric and/or live-proctor authentication for summative eAssessment activities to minimise the threats of impersonation. A two-factor authentication approach may be considered more useful in high-stake eAssessments such as summative examinations that integrates live-proctor authentication along with username/password or biometric authentication (Beaudin et al., 2016). According to Orrell (2020), online proctoring using webcams may be appropriate for examinations, staged submission method may be helpful for projects and essay assessments, and self and peer assessment could be a suitable authentication technique for group assignments. Across the globe, universities are exploring and developing tools that could verify students during online assessments, for example, EU H2020-funded Adaptive Trust-based e-assessment system (TeSLA) project which is being piloted at UK universities (Institute of Educational Technology, 2020).

According to Dawson (2022), an online invigilated or remote proctored exam that engages a human proctor supervising live via webcam systems is considered suitable in verifying student identity. The webcam is used to match the student with the official photograph stored in the student identification database (Dawson, 2022). Monash University designed similar eAsssessment software platform to verify student identity and prevent cheating during exam, known as 'Monash eVigilation' (Monash University, 2023). Online invigilation meets the requirements mandated by professional accreditation bodies and regulators that certain proportion of assessment are to be invigilated (Dawson, 2022; Orrell, 2020). For example, CPA Australia and CA ANZ, and FICA require at least fifty percent of the assessments for accounting programmes to be invigilated

(CPA Australia, 2019). When online exams are remote proctored or invigilated, it tends to provide assurance of academic integrity to stakeholders such as accreditors, employers, educators, and students (Giller, 2021; Linden & Gonzalez, 2021). The availability of human proctor or supervisor offers students with a support platform to have their concerns addressed before and during the examination (Linden & Gonzalez, 2021).

The online proctoring of exams using the webcam systems is widely adopted by CPA Australia for the CPA program (Pearson and CPA Australia, 2020). The CPA Australia program is increasingly undertaken by accountants globally because of the flexibility to complete the assessment online from home, the exams are invigilated using the online proctoring system (CPA Australia, 2024). The online exam is supervised by an online by a human proctor via the student's computer. CPA Australia's exam provider, Pearson VUE, integrated OnVUE proctor app for eproctoring purposes (Pearson and CPA Australia, 2020). Students are required to create a restricted and enclosed room that resembles the security of a testing centre location (CPA Australia, 2024). The technology requirements include personal laptop or desktop computer, stable internet connection, and webcam and microphone. Furthermore, students are prohibited from bringing pen, paper, and electronic devices. The online proctor will require students to complete 360-degree scan of the room and take photo of themselves and their identification (CPA Australia, 2024). The student is recorded throughout the exam and photos are taken by the OnVUE proctor app for review purposes (Pearson and CPA Australia, 2020). The exam is revoked if the student leaves the webcam view or uses mobile phones. The Pearson OnVUE proctoring can be embedded in the Moodle LMS as a subscription-based plugin (Pearson, 2022).

The 'one-size fits all approach' of student authentication may not be an appropriate or absolute solution to minimise student authentication issues because of diverse eLearning activities and different types of authentication methods/tools may be integrated into the eLearning system depending on the nature of

the assessment (Beaudin et al., 2016). Similarly, Okada et al. (2019) noted that attitudes of students must be considered, and adequate awareness created in implementing e-authentication systems, for example, mature students are more willing to accept e-authentication systems, but some young generation students are reluctant due to concerns related to data privacy, security, and safety, including those with disabilities worried about their special needs. Though e-authentication systems help in improving the reliability of eAssessments, the higher education providers need to provide system feedback on data privacy and e-authentication outcomes to the learners to build student trust (Okada et al., 2019). To increase acceptance of online proctoring amongst the students, universities must focus on improving the attitudes of students through awareness and training (Mutambara & Chibisa, 2024).

Methods

A qualitative research approach was used in this study. The goal of qualitative research is to help researcher understand the phenomenon from the point of view of participants as well as its social and institutional contexts, which is lost if textual data is quantified (Myers, 1997). Qualitative research generates in-depth explanations to a problem or subject matter (Saunders, et al., 2019). The study conducted semi-structured interviews with accounting graduates and educators in Fiji. Interviewing is a valuable data collection method because it offers the researcher an opportunity to obtain information rich data, along with the opportunities to establish rapport with respondents, clarify questions, and add new questions (Sekaran & Bougie, 2013). Nine tertiary accounting educators were interviewed. Purposive sampling technique was used to select the participants. The logic of purposive sampling is that it helps researcher select the participants who may have a better understanding of the phenomenon and can provide the detailed information (Saunders, et al., 2019). An informed consent was sought from the participants prior to the interview. The interviews were conducted physically and online, based on the preference of the participants. Each interview lasted about thirty minutes.

Results and Discussion

There was a consensus amongst the educators that in eAssessments, it is difficult to verify student identity because mostly these online assessments are not supervised.
Three lecturers made the following comments:

Yes, it is a challenge to verify student identity in online assessments. During COVID19, exams were conducted online and eProctorio app was integrated into the Moodle system which provided lockscreen features of preventing access to unauthorised browsers. But this system was not full proof in verifying that the student who is sitting for the exam is same as the one registered for the course. Our only evidence or method was the username and password system. A system that captures students live is helpful. A webcam system is good to verify student because it simulates physical supervision. (lecturer # 1)

When students are taught physically, we can gauge their capabilities. However, when they are expected to complete the assessments online especially the exams and quizzes, there are doubts for some students. This is because we can see the gap in their engagement in learning and performance in exams. (lecturer # 2)

After the COVID-19 pandemic period, we have switched back to physical examination process because we do not have the resources to verify student identity. The proctorio apps that are integrated into Moodle only locks browsers, but we cannot identify if the person who logged in to sit for exam is same who enrolled for the course. (lecturer # 3)

According to the above lecturers, due to the challenges associated with student authentication, exams are conducted physically in this post pandemic period. Though proctorio apps are integrated in the LMSs, these apps mostly lock unauthorised access to browsers to prevent cheating and is not adequate to address the issue of someone else sitting or completing the exam on behalf of the enrolled student. As

mentioned by lecturer # 1, a system that offers live invigilation of exams would help in verifying student identity more effectively.

Furthermore, the lecturers pointed out that postgraduate accounting students who are also working prefer exams to be conducted online but due to lack of institutional resources and internet connectivity issues, the exams are conducted physically.

A lecturer expressed:

I have postgraduate accounting students located outside the main island in Fiji. They prefer online exams. Also, those who are staying on the main island but bit far away from the university have shown interest in online exams. The issue is that we do not have the systems in place to supervise exams online and students in remote areas have issues with internet connectivity. (lecturer # 6)

From the nine lecturers that were interviewed, only one lecturer has had an opportunity to supervise exam using webcam system and zoom platform. This was only available in a rare case where a postgraduate student was based in an offshore country. The lecturer shared the following experience:

I had a postgraduate accounting student who was based in Vanuatu. The exam was supervised live using Zoom platform. The university allowed the student to sit for the exam online by adhering to certain protocols: ensuring that they have laptops with a separate webcam that can view the room from where the student is sitting for the exam and ensuring that internet connection is good at their location. There was no issue from the student's side in agreeing to the protocols. There was a slight internet connection issue, but it helped in verifying the student and minimise cheating opportunities. I feel the issue will be there if we have big classes and students are in areas where internet connectivity is weak. (lecturer # 5)

It was noted that though most of the lecturers in Fiji have never experienced using the online proctored exam system, they demonstrated their willingness to use this system for effectively verifying student identity.

I have never used online proctoring for invigilation but would like to know how it works. With appropriate training, this will be a win-win situation for both the university and student. (lecturer # 2)

From educator side, I do not see any issue in accepting this system. We need to be mindful of the connectivity issues in the Pacific. A human proctor involved in online proctoring will help in addressing student issues occurring during the exam instantly (lecturer # 4)

I see the system beneficial because it's like physical supervision. Apart from validating the student, this system will offer flexibility in sitting for exam from any location. The issue is that our undergraduate students come from low socio-economic backgrounds and lack access to appropriate digital resources. (lecturer # 6)

I haven't used or have had an experience of online proctored exams but aware from my readings about CPA Australia and few other universities in Australia and New Zealand that these exams are fully invigilated online with the availability of webcam systems. (lecturer # 8)

One lecturer who is pursuing CPA Australia studies, mentioned:

A system like CPA Australia online proctored exam system is useful. The postgraduate students may be more likely to accept this system because they seem to be better equipped with digital resources compared to undergraduates. Exams can only be completed via laptops, not smartphones or tablets. (lecturer # 9)

The above comments imply that the tertiary accounting academics are willing to accept

online proctored exam system for student authentication purposes and at the same time maintaining other forms of academic integrity. Furthermore, the educators reckon this system may be more acceptable among the postgraduate students because they tend to have adequate digital resources when compared to the undergraduate cohorts. The postgraduate students are mostly the working professionals. The lecturers also believe that it is necessary to deliberate on the internet connectivity issues in the remote areas when implementing such systems.

Conclusion

This study examined how tertiary accounting academics in Fiji perceive student authentication challenges in eAssessment and the extent to which they are believe an online proctored exam system is effective for student authentication purposes. The results revealed that student authentication is a challenge in eAssessments because most assessments are unsupervised. An online proctored exam system supports student verification, webcam recording of the student, prevents access to unauthorised browsers, revocation of the exam if any attempt to cheating arises, and live support provided by the human proctor. In addition to authenticating the student who is attempting the assessment, this system assists in ensuring that students do not engage in other forms of academic misconduct such as searching for the answer from internet or getting help from another person. Unlike the Proctorio apps that offer lockscreen support and lacks live support, online proctored exam system offers live support and addresses issues in real-time.

While internet connectivity is an issue which is something beyond university or educator control, the issue is expected to be taken into consideration by analysing the location of each student and the access to digital resources when they enrol in the programme. The online proctored system of e-authentication may not be suitable for undergraduate students because completing high-stake eAssessment requires students to have access to adequate digital resources. As mentioned by the participants in this study, undergraduate cohort lack digital resources, mostly dominated by their low socioeconomic backgrounds. As mentioned by Chand and Hussein (2022), in the Pacific, the internet connectivity issue is a prevalent challenge and use of work/office laptops prevents launching of cameras and adding plugins. Furthermore, the system does not allow use of smartphones and tablets to complete the assessment though it is observed that students use these devices for their learning purposes. However, institutional arrangements for test centres in the other Pacific Island countries are made and students are provided with digital resources such as laptops with internet connectivity, may open the pathway for integrating eAssessments on a wider scale and a similar e-authentication method can be adopted in the undergraduate accounting courses.

As mentioned by Beaudin et al. (2016), one size does not fit all and a combination of e-authentication tools may be employed, depending on the type of eAssessment. For example, Orrell (2020) mentioned that eproctoring that permits webcam recording and online invigilators may be suitable for exams. Online exams are not the only form of eAssessment, other methods may be suitable for example short and regular writing for reflective writings and presentations with staged submissions for projects (Orrell, 2020).

In integrating e-authentication systems, higher education providers need to be mindful of student attitudes towards e-authentication systems, level of digital literacy, access to digital resources, issue of privacy and security of student data. While online proctoring integrated with webcam systems may be suitable for high-stake assessments such as exams, other methods of e-authentication for diverse eAssessments need to be explored. This study obtained educator views only. Future research may examine student views in the Pacific to see their willingness in accepting online exams.

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