

# BUILDING ACADEMIC INTEGRITY THROUGH ONLINE ASSESSMENT APPS

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## Abstract

The Covid-19 pandemic of the last two years is having an immense effect on teaching and learning in higher education. The rapid shift to online assignments and examinations in response to the pandemic and the consequent lockdown forced higher education institutions to become innovative with regard to online assessment. Furthermore, academic integrity during online examinations is a crucial concern since it affects the quality and trustworthiness of examination systems in higher education. In our experiences and according to course reports by lecturers at the largest distance education university in South Africa (Unisa), students handled online assessment in varied ways, which ranged from honesty to students being guilty of copy-and-paste and students assisting other students or phoning somebody for assistance. The two main research questions were: what is involved in academically dishonest behaviours in online courses, and can digital technologies such as online invigilator applications contribute towards academic integrity? The purpose of this exploratory case study was to analyse the types of challenges experienced by Baccalaureus Educationis (BEd) and Postgraduate Certificate in Education (PGCE) students during fully online examinations. We want to propose guidelines for instructors and administrators in their decision-making process regarding online evaluations and encourage future studies that will form the foundation of evidence-based practices. The study further focused on a new app referred to as the Invigilator Application (IA). This app was compulsory for students to use during their online assessment, and our interest is to discover how the IA may contribute towards academic integrity. The findings are reported in terms of the cheating behaviour that occur in different components of course assessments and are discussed in terms of personal motivation theory and broader social and community pressures.

**Keywords:** *Cheating behaviour, ethics, higher education, online examinations, invigilator apps, teacher education.*

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## 1. Introduction

The Covid pandemic caused major shifts in higher education, including changes in the organisation of programme design and delivery (Neuwirth, Jovic & Mukherji, 2021), increased online models of delivery, and different practices of curriculum assessments and examinations (Motala & Menon, 2020). These changes have all been enhanced by developments of the technology era which, by design, are bringing new opportunities and challenges, increasing forms of interactions and collaboration, increasing academic success and productivity, and making cheating much easier for the unethical student (Plowman, 2000). Older conventions such as cut-and-paste, computer writing, editing, grammar suggestions and so forth are still in use, while newer features are emerging, such as AutoSummary (electronic summaries), unlimited educational opportunities, and access to global electronic communities (Plowman, 2000).

The shift to online components in blended forms of teaching and learning resulted in increased student dishonesty and breaking down of academic integrity (Verhoef & Coetser, 2021). Increases in cheating behaviour in online settings have been recorded in studies internationally. In Germany, for example, shifts from on-site to online education programmes in the Covid era were found to cause more cheating among students in online than in on-site exams (Janke, Rudert, Petersen, Fritz & Daumiller, 2021). The effects on other measures of academic dishonesty were negligible. Janke et al. (2021) concluded that negative consequences for integrity are associated with the application of ad hoc online testing.

According to Blum (2011), administrators in higher education fail with programmes to prevent plagiarism – mainly because of the vagueness with regard to what is meant by academic integrity as moral quality. There is a need for alternatives to top-down plagiarism prevention methods such as honour codes and rule enforcement (Blum 2011). With reference to plagiarism by students, Blum (2011) argued that the challenge is one of education and not ethics – that institutions treat plagiarism as morally wrong or as a crime – and that both approaches cannot be universally successful. Institutional responses to focus on morality result in honour codes appealing to students “to do the right thing” – with the assumption that, with social pressure, students will indeed do what is right.

The trend of increased academic dishonesty is a reflection on weakened / poor integrity amongst students. For universities to consider how to respond to – and reverse – this trend, perspectives on what integrity entails need to be explored, especially given the imperatives in South African higher education of social and cognitive justice and the decolonisation of education.

The focus of this inquiry is on students’ cheating in formal examination settings. We consider what is involved in academically dishonest behaviours in online courses. Moreover, we explore the possibility that digital technologies such as online invigilator applications can contribute towards academic integrity.

## **2. Concepts of academic honesty, ethics and integrity**

It was John Dewey (1916/1966 (Dewey, 1903; 1966) who argued for the need for access to information and freer interactions as key to democratic education. New ways of communication and changing social interactions are relevant in the electronic era, increasing in forms, modalities and frequency, and as such affecting education practices and systems.

Academic dishonesty may be understood both on personal and social levels. On a personal level Murdock and Anderman (2006) define dishonesty as a motivational issue – students choose to be dishonest when their behaviours are in line with the purpose, ability and costs of cheating.

The likelihood of cheating is shaped by personal intelligence, peer pressure, social comparison, classroom goal structures, personal abilities, efforts, teachers’ pedagogical skills, grading standards, personal morality, surveillance, honour codes, peers getting away with teaching, and fair testing practices. For Murdock and Anderman (2006) academic cheating is by nature a motivational issue, understood in terms of theories of achievement motivation. In practice, cheating is associated with some level of motivation by extrinsic reasons (i.e., to perform better), comparing self with others (i.e., to avoid appearing incompetent), or social-cognitive (i.e., cheating because of not feeling successful in performing a task). Students are less likely to cheat when the cost for doing so is too high (Murdock & Anderman, 2006).

Motivation theory perspectives consider student cheating primarily as an individualised activity, drawing on Western-oriented research traditions (Le Grange, 2004). Pratt and Gladue (2022) argue strongly that the calls for decolonisation and indigenising of the academy imply that a re-definition of academic integrity is needed. Referring to Canadian universities, they argue that more inclusive and wholistic definitions are needed, moving away from current neoliberal and commercialised perspectives which inevitably look at integrity as forms of misconduct. They argue that views of integrity need to reflect indigenous perspectives of holism and interconnectedness.

In this vein, Eaton (2022) argues for the need for academic integrity networks and organisations which would develop strategies for equity and diversity. These would be more inclusive and reduce the overrepresentation in reporting of segments of the student population such as international students and students of colour.

## **3. Open Distance e-Learning and the Invigilator App**

The study was conducted at the University of South Africa. Unisa moved from correspondence university to distance education and in 2013, the Unisa Council adopted a new Open Distance e-Learning model (known as ODeL), which meant that Unisa would become an online university. The Directorate provides students with widened opportunities for accessing ICTs through contracting establishments within communities that have adequately functioning ICT infrastructure, such as computer facilities – these are referred to as Digital Access Centres. These facilities should have stable internet facilities, and include, but are not limited to, printers, photocopiers, and so forth. The target group for such Digital Access Centres are students who reside in very remote rural areas, which are not within easy reach of Unisa’s regional centres (Unisa, 2021b).

Like universities internationally, Unisa remains resolute in its zero-tolerance stance against cheating and plagiarism in online examinations (Unisa, 2021a). The Invigilator App was implemented to

ensure the integrity of online examinations as part of the University's academic integrity policy. The IA tested various functions such as a microphone test, etc. The Invigilator is a cell phone-based tool that allows for non-venue-based assessments to be written in a more controlled and monitored environment.

#### 4. Methodology

The two main research questions are: what is involved in academically dishonest behaviours in the online course, and can digital technologies such as online invigilator applications contribute towards academic integrity?

The study was designed as exploratory since the use of the Invigilator App started last year (2021). A qualitative document analysis and an audio recording analysis were done. Ethical clearance for this inquiry was formally obtained through the Ethics Committee of the university.

Baccalaureus Educationis (BEd) and Postgraduate Certificate in Education (PGCE) students were involved as participants from the AI platform. This app recorded the following functions: Selfies, Microphone, Extra Photos, Script Photos, Out of App Time and GPS Data. For the sake of this investigation, we analysed the microphone recordings of 10 intervals of 55 seconds over three hours, and students had to keep the app activated for the duration of the examination.

#### 5. Findings

A total of 11 133 students wrote an online examination in November 2021. From these students, 615 failed the microphone test. After further investigation, 121 were flagged on the Invigilator App, failing the microphone test because of helping each other or working in groups, or assisting other students or being assisted by parents. Students who have been identified through this invigilation tool have been referred to the Disciplinary Office. These students received 0% for their examination and had to register again for the specific module. They also received a final written warning.

During the 10 intervals of 55 seconds recorded over three hours, the trend throughout was that the 55 seconds were primarily used for talking. Patterns of writing and talking were identified. The number of recordings ranged from 3 to 10, where empty recordings indicate students busy writing or keeping quiet.

We analysed the sample of 121 students by listening to the sound recordings and identified five main patterns or types of verbal interactions.

*Table 1. Summary of main findings.*

Type of behaviour	% of students
Students speaking to one another (shared memory stick)	1 (0,84%)
Students working in groups (more than two)	2 (1.65%)
Students phoning other students for assistance	2 (1.65%)
Students' parents reading from textbook	3 (2.48%)
Students working in pairs	113 (93,38%)
TOTAL	121

The three female students referred to in Table 1 shared a memory stick containing answers to questions [one group]. Two groups of students (more than three in a group) worked together by sharing answers. Two students phoned a friend (another student) for assistance and three students' parents read to them from the textbook. The main trend identified (applicable to 113 students or 93%) was students working in pairs by talking and assisting each other.

Audio recordings showed how students spoke to one another and shared and discussed answers per question. Talking during the 50 seconds-recordings were focused on correct answers. Empty recordings seem to indicate that students were busy writing or were keeping quiet.

#### 6. Discussion

The main finding of this study was that academic dishonesty in a formal online examination took various forms, and that the use of an invigilator app highlighted the relative weighting of the forms.

With regard to considerations of how institutions may respond to the trend of weakened integrity, Blum (2011), referring to student plagiarism, suggests that it is a problem of education and not ethics where plagiarism is treated as breaking the rules and as morally wrong or as a crime. The focus on

morality results in honour codes – assuming that social pressure will encourage students to refrain from cheating. In reality, though, such codes are followed reluctantly by students (Blum, 2011).

In the light of the findings of this study, we concur with responses from universities internationally. While the use of an app exposes students in intimate ways, responding to student cheating assumed to be more about building ethical practices, and institutional culture.

Policy articulation of academic integrity needs to be rethought, given calls for decolonisation. As has been argued by Lindstrom (2022), referring to the challenges of academic integrity in Canada, rethinking would need to consider indigenous perspectives of academic integrity, contrasted with Western understandings. This perspective assumes a relational epistemology which is rooted in accountability and responsive to the social climate of reconciliation. This should be seen as part of decolonising pedagogies beyond established ways of knowledge transmission, and it represents a shift in accountability of scholars to approaches which reflect indigenous relational epistemologies.

Lindstrom (2022) advances our understanding of integrity from indigenous knowledge perspectives, noting the limitations of Eurocentric, fragmented views of integrity as institution based, and excluding culturally defined roots and indigenous ways of conceptualising integrity as informed by varied knowledge systems. Lindstrom's (2022) position is that integrity is an element of knowledge systems – one of the “ontological pillars that upholds honesty, transparency and truth-telling within a relationally oriented epistemology” (Lindstrom, 2022:143). From this perspective, academic integrity also comprises indigenous values and knowledge. It is about exploring integrity as social accountability, informed by relational epistemologies (Lindstrom, 2022).

Within an indigenous paradigm, integrity is best conceptualised through an oral system of knowledge – and transmitted via elders' teachings. These teachings contain moral and ethical guidelines for living a good life in relation to self and living in the natural world (Lindstrom, 2022:132). As Lindstrom (2022:148) explained: “Indigenous perspectives may be understood through a critical and deepened exploration of the traditional purposes of learning both prior to Western colonial influences and enduring practices that remain as relevant pedagogies”.

Although Unisa has implemented forceful "Invigilation or proctoring systems" – digitally designed to authenticate and safeguard the integrity of online examinations – we suggest making use of our Digital Access Centres (DACs) for examinations where students can do online examinations on their laptops or computers from the centres, and where invigilation can take place in the form of a person present. These Digital Access Centres (DACs) cater for students in remote and rural areas where access to most forms of resources is a challenge. Challenges include connectedness, collaboration and co-creation.

## 7. Conclusion

Academic integrity in the “new normal” of online assessments requires rethinking. We need to get creative with regard to the types of assessment, since students have access to their study material. In the light of a shift towards a more personalised learner experience, lecturers of the future must be prepared to be data collectors, as well as analysts, planners, collaborators, curriculum experts, problem solvers and researchers.

## References

- Blum, S. D. (2011). Academic integrity and student plagiarism: A question of education, not ethics. *The Chronicle of Higher Education*, 55(24), A35.
- Dewey, J. (1903). Democracy in education. *The elementary school teacher*, 4(4), 193–204.
- Dewey, J. (1966). Democracy and education (1916). *Jo Ann Boydston (Ed.). The Middle Works of John Dewey*, 9, 1899–1924.
- Eaton, S. E. (2022). New priorities for academic integrity: equity, diversity, inclusion, decolonization and indigenization. *International Journal for Educational Integrity*, 18(1), 1–12.
- Janke, S., Rudert, S. C., Petersen, Ä., Fritz, T. M. & Daumiller, M. (2021). Cheating in the wake of COVID-19: How dangerous is ad-hoc online testing for academic integrity? *Computers and Education Open*, 2, 100055. Open journal homepage: [www.sciencedirect.com/journal/computers-and-education-open](http://www.sciencedirect.com/journal/computers-and-education-open).
- Le Grange, L. (2004). Western science and indigenous knowledge: competing perspectives or complementary frameworks? Perspectives on higher education. *South African Journal of Higher Education*, 18(3), 82–91.

- Lindstrom, G. E. (2022). Accountability, relationality and indigenous epistemology: Advancing an indigenous perspective on academic integrity. In *Academic Integrity in Canada* (125–139). Springer, Cham.
- Motala, S. & Menon, K. (2020). In search of the 'new normal': Reflections on teaching and learning during Covid-19 in a South African university. *Southern African Review of Education with Education with Production*, 26(1), 80–99.
- Murdock, T. B. & Anderman, E. M. (2006). Motivational perspectives on student cheating: Toward an integrated model of academic dishonesty. *Educational Psychologist*, 41(3), 129–145.
- Neuwirth, L. S., Jović, S. & Mukherji, B. R. (2021). Reimagining higher education during and post-COVID-19: Challenges and opportunities. *Journal of Adult and Continuing Education*, 27(2), 141–156.
- Plowman, T. S. (2000). Academic integrity and informational Technology. *TechTrends*, 44(1), 24.
- Pratt, Y. P. & Gladue, K. (2022). Re-defining academic integrity: Embracing indigenous truths. In *Academic Integrity in Canada* (103–123). Springer, Cham.
- Unisa (2021a). Tuition Support. <https://www.unisa.ac.za/sites/myunisa/default/Learner-support-&-regions/Tuition-Support/Digital-Access-Centres>.
- Unisa (2021b). <https://www.unisa.ac.za/sites/myunisa/default/Announcements/Feedback-to-students-regarding-the-2021-online-examinations>.
- Unisa (2022). <https://www.unisa.ac.za/sites/corporate/default/Unisa-History-and-Memory-Project/Themes/All-themes/A-brief-history-of-Unisa>.
- Verhoef, A. H. & Coetser, Y. M. (2021). Academic integrity of university students during emergency remote online assessment: An exploration of student voices. *Transformation in Higher Education*, 6, 12.