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Technology–driven proctoring: Validity, social justice and ethics in higher education

Abstract

The COVID-19 pandemic has led to rapid change, unprecedented in higher education. One such change has been the almost complete shift to online assessment. The simultaneous employment of online assessment and proctoring has not enjoyed the rigorous academic debate and research traditionally associated with such shifts in academia. This engagement is essential and this article aims to discuss aspects of social justice, ethics and the validity of digital proctoring to the burgeoning debate. Digital proctoring is a lucrative industry (Coghlan Miller & Paterson, 2021), notwithstanding the admitted opportunities for cheating, irrespective of the intensity of overwatch. Digital proctoring is marketed and has become entangled with issues of institutional reputation and the legitimacy of qualifications. The student seems to be a secondary consideration compared to the technocratic digital proctoring arena. However, the introduction of online assessment, specifically with digital proctoring, impacts the assessment's validity by introducing intervening variables into the process. The drive to detect and prevent online cheating has led to algorithmic proliferation. This technologically driven approach has embedded social injustice and questionable ethics and validity into the assessment systems. This article examines the social justice, ethical and validity issues around technological proctoring under the grouped themes: Emotional factors; Racial and/or skin colour; Digital literacy and Technology; and Disability. However, the COVID-19 pandemic-driven shifts have provided the unprecedented opportunity to elevate assessment from recall to critical thinking and application-based assessment. An opportunity to ensure that our assessment is valid, assesses higher-order learning, and truly evaluates the concepts we wish to assess.

Keywords: *Digital proctoring; cheating; ethics; social justice; validity*

> *Those who oppose equality, compassion and social justice have been on the wrong side of history time and time again.*
>
> *Laurence Overmire*

1. Introduction

Change is inevitable, as is crisis. However, if we do not engage and plan for the future, the change will not be directed, but will take place without sufficient forethought and guidance. The COVID-19 pandemic has provided us with the opportunity and impetus of crisis to consider our assessment practices.

This paper does not aim to explore the validity of assessment instruments, but rather digital proctoring during assessment and the impact on performance. The shift to online assessment, specifically digital proctoring, has moved assessment from somewhat similar environmental assessment conditions to highly differential environmental factors in the assessment process (Barry & Finney, 2009). Digital proctoring provides an avenue for attempting to prevent and detect cheating during test taking, but is not unbiased or cheat-proof. The introduction of digital proctoring has led to a highly differential impact on students' performance. These challenges and unfair discrimination have often been humorously shared through memes (all public domain or under fair usage) (Scialabba, 2020). Some of these will be shared to provide the student perspective.

The focus is on the challenges of digital proctoring, as the benefits of digital proctoring are already highly publicised and pushed by proprietary proctoring companies. The article aims to provide a voice and contextualisation for the challenges that digital proctoring introduces. This is framed by Walter's (2016) 5D conceptualisation of data: disparity, deprivation, disadvantage, dysfunction, and difference. Within this framework, the paper addresses four issues around current digital proctoring: Emotional factors; Racial and/or skin colour; Digital literacy; Technology; and Disability. This is discussed in the methodology section.

Finally, the COVID-19 pandemic-driven shifts have provided the unprecedented opportunity to re-elevate assessment practices, particularly online, from recall to critical thinking and application; an opportunity to ensure that our assessment performance is a valid reflection and truly evaluate the concepts we wish to, without introducing social justice, ethical and validity issues. Digital proctoring is likely to be a part of this new assessment landscape, but must be applied and developed with forethought, contextualisation and deep conceptual engagement.

2. Conceptualisation

As this study focuses on the social justice, and ethical and validity aspects of digital proctoring, Walters' (2016) 5D conceptualisation of data: disparity, deprivation, disadvantage, dysfunction and difference was employed. The development of big data and algorithms has served to amplify and embed the 5D concept, thus increasing the likelihood of social injustice (Bounegru & Gray, 2021). This paper focuses on the complexity of utilising digital proctoring and the possibilities of structurally embedding these social injustices.

Many aspects of social justice, ethics and validity share significant commonality, which is open for examination. Based on the most prominent of these as related to digital proctoring and 5D data, the paper focuses on race and/or skin colour; digital literacy and technology; and disability. These factors will be discussed in some detail after the presentation of the study's methodology, as well as the background and literature review to frame the discussion.

It is important to note that while this is a South African publication, the challenges are global and often not only experienced by current or previously disadvantaged groups. There is a great dearth of research on digital proctoring on the African continent. Prinsloo and Kaliisa (2022) note that higher education in Africa is seen as a new data frontier with great commercial interest acting as a driver for digital tool providers to penetrate and saturate the market.

3. Methodology

The research question for this study is:

> What are the complexities surrounding digital proctoring with regards to social justice, ethics and validity?

Scholarly publications, grey literature and memes were utilised in this study to provide a comprehensive view from multiple stakeholders. An investigation of the social media constructs in the form of memes often shows disturbing resonance to what is represented in scholarly works. "At first glance, memes may seem inane and meaningless; however, they actually serve as an important form of cultural currency, allowing people to share ideas, jokes, critiques, and commentary on a variety of topics." (Scialabba, 2020: 352).[1]

Identified articles were reviewed for relevance and recency. The arguments presented in the literature were supplemented by resources focusing on the specific aspects of digital proctoring being examined.

4. Background and literature review

The article is to be read against the backdrop of an understanding of digital proctoring and its influence on assessment's social justice, ethics and validity elements. These aspects are introduced in the sub-sections below.

Digital proctoring

Digital proctoring is often interpreted as leading to decreased cheating. In response to these perceptions, institutions may focus more on increased surveillance and punitive practices to maintain the institutional reputation and intervene in, or discourage perceived cheating (Sutherland-Smith, 2016). With these pressures on institutions, digital proctoring has become more pervasive and is a lucrative industry (Hussein *et al.,* 2020). This has not gone unnoticed by students (see Figure 1).

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1   The following search term was applied employing Boolean logic: (digital* OR online* OR web* OR remote*) AND (proctor* OR invigi* OR monitor* OR super*) AND (education* OR universit* OR college*); meme And (digital* OR online* OR web* OR remote*) AND (proctor* OR invigi* OR monitor* OR super*).

Figure 1: Meme: Proctor U be like (Proctor U be like ... [Online]. Meme-arsenal.com)

However, digital proctoring can increase the digital divide (Hussein *et al.,* 2020; Silverman *et al.,* 2021). It may reduce the assessment's validity, as students require additional digital literacy to employ more advanced proctoring tools and additional technological infrastructure requirements (Hussein *et al.,* 2020). At the same time, any additional proctoring modules and tools mean additional income to the proprietary proctoring company. Some institutions have turned to developing their own proctoring systems. In both cases, resources that could be utilised to improve teaching, learning and assessment, are diverted to digital proctoring measures (Flaherty, 2020; Arnò *et al.,* 2021; Kimmons & Velestsianos, 2021; Silverman *et al.,* 2021).

Digital proctoring includes recorded, live and automated proctoring with or without human intervention (Hussein *et al.,* 2020; Labayen *et al.,* 2021). The main features of such systems are (i) authentication (whether it is the correct student), (ii) browsing tolerance (can the student print the screen or use a browser), (iii) remote authorising and control, automated, live or a combination (flagging, pausing or ending the examination if it seems questionable), and (iv) report generation (Hussein *et al.,* 2020; Coghlan *et al.,* 2021). While proctoring's technological aspects receive much attention, the social justice, ethical and validity aspects have not enjoyed as much scrutiny (Coghlan *et al.,* 2021).

Digital proctoring often evokes images of the most intense proctoring activities, although there are various levels of intrusion and application (Slusky, 2020; Coghlan *et al.,* 2021). It is vital to note these technologies' levels of intrusiveness. Figure 2 below reflects the author's perception of the intrusiveness of various digital proctoring technologies, moving from the least intrusive at the bottom to the most intrusive at the top. There is no standard digital proctoring battery, but it may include various mechanisms and additional, less common tools, which are not explicitly mentioned here.
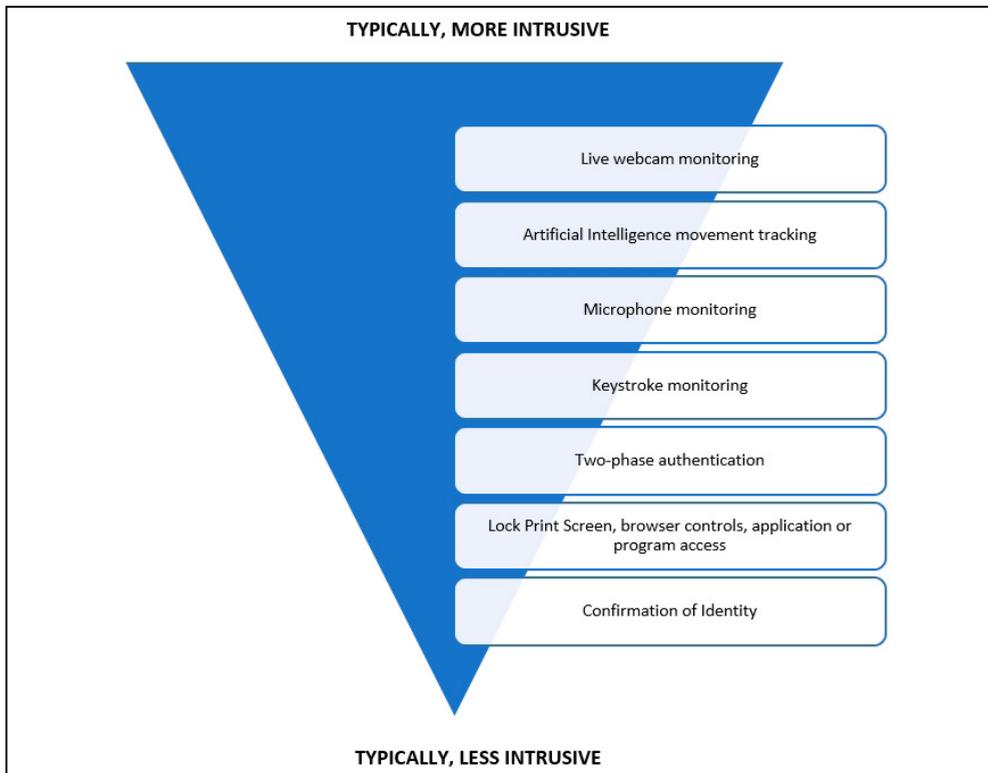
Figure 2: Levels of intrusiveness of digital proctoring tools (Author)

The stricter the protocols and measures, the higher the socioeconomic, psychosocial and environmental demands on students (Ngqondi, Maoneke & Mauwa, 2021). The more intrusive the proctoring process is, the more social justice, ethical and validity issues are raised.

Validity and technology-driven assessment

The aim of assessment (particularly summative assessment) is to determine aspects such as students' knowledge, critical thinking, application, and skills in the particular study area. This requires instrument validity and appropriate assessment conditions. Validity is a matter of degree and no assessment is completely valid or invalid within any context (Knight, 2002; Hattie, 2009; Gyll & Ragland, 2018).

The debate on cheating is a "very complex, interdisciplinary field of research requiring contributions from linguists, psychologists, social scientists, anthropologists, teaching and learning specialists, mathematicians, accountants, medical doctors, lawyers, and philosophers, to name just a few" (Bretag, 2016: v). The intellectual debate about cheating has not been able to keep pace with the rapid shifts to online assessment and digital proctoring during and post the COVID-19 pandemic (Coghlan *et al.,* 2021). The existing debate focuses on students' cheating but largely neglects environmental and contextual factors in administration, which influence the degree of validity of the assessment process and the results of the assessments.

Digital proctoring to prevent online cheating is becoming the red herring in the opportunities provided by new online assessment modes. Assessment conditions' validity and ethics are mainly disregarded in favour of the debate on detecting and preventing student cheating during assessment (Coghlan *et al.,* 2021).

Research on cheating is widely disparate when examining the challenges of digital proctoring vs traditional proctoring (Coghlan *et al.,* 2021). Some research shows that while students view it easier to cheat online, they are less likely to do so than in a traditional class environment (Miller & Young-Jones, 2012; Astuti, Arso & Wigati, 2020). Other research illustrates no difference in cheating between different assessment environments (Heberling & Flint, 2002; Felea *et al.,* 2020). Finally, some research shows that cheating is more prevalent online than in traditional face-to-face approaches (Lanier, 2006; Weimer, 2015). In all cases, ensuring that the cheating of students is the focus. However, it is relevant that online cheating is viewed as easier to detect with digital proctoring (Akaaboune *et al.,* 2022).

Three aspects are important concerning proctoring, be it online or traditional; firstly, the invasiveness of proctoring; secondly, whether the purpose of the assessment is achieved or negatively influenced by the choice of approach; and thirdly, the environmental factors during assessment which may impact performance.

Assessment environment and performance

Research on environmental quality's effect on assessment performance is an established field. This includes research on both outdoor and indoor factors. There are many factors to consider: air quality, thermal factors, acoustics, lighting conditions, humidity (Bell & Provins, 1962; Palacios Temprano *et al.,* 2020; Brink *et al.,* 2021), and airflow rate (Wargocki & Wyon, 2007).

These factors are relatively consistent across the assessed group in an assessment venue within a face-to-face environment. Thus, the environmental factors should similarly influence the whole group's performance.

However, when online, digitally proctored assessment takes place, the environmental quality is different for each student being assessed. These preconditions may exclude some students, or require extraordinary measures on the part of the student to achieve (Coghlan *et al.,* 2021; Ngqondi *et al.,* 2021). For instance, low-income students may be flagged as suspicious due to aspects in their environments that they cannot control, such as noise in a crowded one-room house or connectivity issues (Barrett, 2021).

The impact of such differences in online assessment and digital proctoring on performance is not necessarily random. The digitally proctored environment often systematically discriminates against certain groups of students, artificially increasing performance gaps. These performance differences are not purely determined by knowledge or skills but by various additional factors that cannot be controlled for, or even attained by many students. Some of these are discussed below.

5. Unpacking the threats to social justice, ethics and validity in digitally proctored assessment

In this section, the author explores some of the threats to validity, social justice and ethics in assessment performance as introduced by digital proctoring. The following discussion is not exhaustive, but covers some grouped threats to validity and ethics: emotional factors, race and/or skin colour, digital literacy, technology, and disability, as per the 5D framework. These threats differentially influence students in different categories, reinforcing social injustices.

Emotional factors

Emotions such as anxiety and the associated behavioural changes are modified by digital proctoring's intrusiveness, adversely influencing performance (Chin, 2020; Swauger, 2020a; Visser-Knijff, 2020). The quasi-experimental design by Dendir and Maxwell (2020) found that students consistently performed lower in online, digitally proctored courses and assessments than in traditional assessments, even when controlling for confounding factors in a regression framework. According to Langenfeld (2020), digital proctoring has increased assessment anxiety and student withdrawal (Barrett, 2021). Any behaviour deemed slightly out of the ordinary by the proctoring tool, such as slight movements of the eyes, head or body, glancing off to the side of the computer, leaving a seat, or requests for bathroom breaks, may be tagged as suspicious activity (Hussein *et al.,* 2020; Zhu, 2021). There are multiple examples, such as a student with allergies being flagged repeatedly for sneezing and the tissue paper identified as illicit scraps of paper (Barrett, 2021). Such restrictive digital proctoring measures result in students trying to control and change movements and behaviours, redirecting cognitive resources from the assessment and increasing anxiety (Coghlan *et al.,* 2021).

Anxiety is also a self-sustaining feedback loop, decreasing performance, self-esteem and confidence (Goonan, 2003). As a student faced with explaining this flagged behaviour, or without the flagged behaviour investigated by the academic, the student will likely spend more mental and emotional resources to prevent being flagged. A quote from a university newspaper (Adams, 2020) relates one student's experience, "I do worse on my exams [with digital proctoring] rather than when I don't use them because of my heightened anxiety."

This self-sustaining feedback loop amplifies stereotype threat. Research on stereotype threat shows that when a group is stigmatised and expected to perform poorly, such as African students or female students (Pennington *et al.,* 2016), performance is adversely influenced. The person from this group may be so anxious about trying not to conform to the stereotype that it adversely influences performance and decreases working memory, which may already be strained within the digitally proctored environment.

Race and/or skin colour

An exhaustive study published in 2019 by the National Institute of Standards and Technology examined 189 facial recognition algorithms made by 99 companies (Grother, Ngan & Hanaoka, 2019). The study only focused on whether the algorithm could identify a photo accurately and match the correct two presented images. The study found a consistently higher rate of false-negative results for African and Asian people than for white people, with many producing a rate of 10 to 100 times higher false positives for these groups (Grother *et al.*, 2019). Even with a basic assessment of algorithms' ability to identify a person correctly, it seems biased towards people of colour. Similarly, different genders and age groups found higher false positive and

negative rates. For example, women and young or older people were more likely to be falsely identified (Grother *et al.,* 2019). These findings are supplemented by the notorious racial and gender-based machine bias in automated job applications, parole applications and policing distribution (Coghlan *et al.,* 2021).

When applied to the digital proctoring environment, it is a common complaint that proctoring systems have difficulty identifying and tracking students of colour or people with darker complexions (Coghlan *et al.,* 2021). This is particularly concerning in countries such as South Africa, where nearly 90% of the population is not classified as white. Racial bias is one of the core ethical concerns against digital proctoring (Coghlan *et al.,* 2021). The software often prompts darker-complexion students for more lighting, as seen in Figure 4.

Figure 4: Prompting for more lighting for darker complexion people (Surveillance Killjoy, 2020)

Any difficulty the digital proctoring tool has in tracking students and movements is a possible point for flagging and an increased risk of being placed in a group of students seen as highly probable of cheating (Barrett, 2021). An exam may even be terminated if a student cannot be tracked (Coghlan *et al.,* 2021). The termination of examination is not just an international practice; South African examples include the University of South Africa (Unisa, n.d.) and the University of Cape Town, which utilises ProctorU (The University of Cape Town, n.d.)

Algorithms also learn; therefore, previous misidentification and flagging of tracking issues reinforce the algorithm's sensitivity in flagging students of colour (Barrett, 2021). As these algorithms are often proprietary, institutions that employ these digital proctoring tools have no insight into whether there is any human intervention and supervision (Coghlan *et al.,* 2021). Thus, institutions cannot interrogate this algorithmic learning (Barrett, 2021).

This issue with digital proctoring and darker complexions also means that any movement is more likely to be flagged as problematic. Every day for a week, a student of colour attempted to register for the practice version of the California state bar exam. "Every time, the software's facial recognition system told me the lighting is too poor to recognize my face. It just seems to me that this mock exam is reading the poor lighting as my skin color," he told Motherboard (Feathers & Rose, 2020).

This student is not alone. At the time of the publication, multiple emergency petitions had been made to the US supreme court, with four states scrapping the digitally proctored bar exam (Feathers & Rose, 2020). By November 2020, more than 60 000 students had signed petitions in the USA to end digital proctoring (Barrett, 2021; Silverman *et al.,* 2021). A blog (Swauger, 2020b) claimed that an estimation at two USA universities had identified some 30 000 cases of racial discrimination by Proctorio over only two higher education institutions in a year. These petitions and litigation are not limited to the USA.

Digital literacy and technology

The concept of digital proctoring raises many technological challenges. Firstly, having digital devices that meet the needs for digital proctoring (Langenfeld, 2020); secondly, the access to the internet at the required speeds and stability (Langenfeld, 2020) (these are extensively documented and requires little further discussion); thirdly, invasion of digital systems (Chin, 2020; Flaherty, 2020; Visser-Knijff, 2020); and fourthly, the digital literacy of the students (Visser-Knijff, 2020).

Notwithstanding the technology, digital proctoring is not cheat- or hack-proof (Dendir & Maxwell, 2020). The automated systems have also been disappointing in identifying possible misconduct, compared to the human examination of identified video clips (Arnò *et al.,* 2021).

It could be argued that digital proctoring and the overt emphasis on preventing cheating may encourage students to find new ways of cheating (Slusky, 2020; Coghlan *et al.,* 2021). The proliferation of social media and internet postings on how to conduct online cheating in a proctored environment is a testament to this (Slusky, 2020). The proctoring system often treats students as criminals, encouraging them to game the system (Flaherty, 2020). As reported in one university newspaper, social media and YouTube are rife with tricks and tips to cheat in an online exam (Geiger, 2021) (see Figure 5).
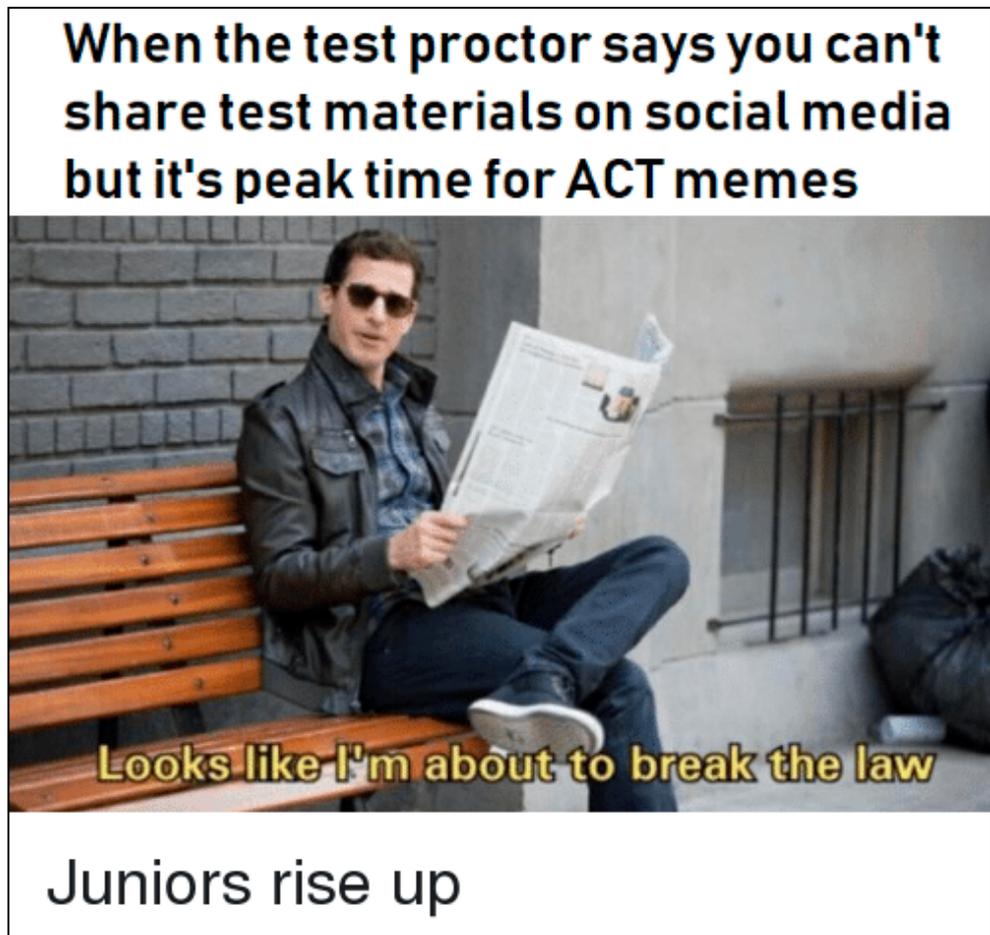
Figure 5: About to break the law … (When the Test Proctor Says … [Online]. Meme on ME.ME)

In addition, automated proctoring algorithms are prone to reinforcing structural inequality, particularly socioeconomic bias, sexism, racism and non-binary phobia (Swauger, 2020a). Digital proctoring seems to reinforce inequality and suppress efforts towards social justice (Langenfeld, 2020; Coghlan *et al.,* 2021).

Digital proctoring demands a different and additional data literacy of students and requires specific infrastructure such as a stable internet connection (Yates & Beaudrie, 2009). These aspects reinforce and increase the digital divide. Visser-Knijff (2020) highlights the need for different digital literacies for students. The digital literacy and skills required are broader than initially perceived (Visser-Knijff, 2020). For instance, the student requires the literacy to be able to install software and set up the system; literacy to be able to use the software once installed; the ability to read on-screen; the ability to type at a specific minimum speed (without looking at the keyboard and not too loudly); and the ability to access technical support (Unisa, n.d.).

This closely relates to the additional digital infrastructure, resources and literacies required to participate in a digitally proctored assessment. Some students noted that they spent more time setting up and troubleshoot the online digitally proctored exam than studying (Adams, 2020). The University of South Africa introduced digital proctoring, employing three different proctoring systems. The system employed depends on the module being studied as well as the types of assessment (thus a student may have to employ more than one type of invigilation tool for various modules) (Unisa, n.d.). These invigilation tools included Moodle Proctoring, the Invigilator App and IRIS. Each tool has specific technical requirements with extensive guidelines for setup and use. Their requirements and preparation decrease the time available to students to study. It is also worth noting that the technology removes specific tools usually available to students, such as writing or drawing mind maps to support and organise thinking, amongst other strategies employed during assessment.

There is also a significant issue in respect of protecting personal information. In many cases, students have launched class-action suits based on the lack of protection of their personal information (Bilyk, n.d.; Errick, 2021). Students are pushing back through multiple means, from hacking digital proctoring companies and publishing code to a multitude of petitions (Kelley, 2020). Security breaches are not uncommon with digital proctoring systems (Slusky, 2020; Goveas, 2021). By October 2020, some 440 0000 records were stolen and leaked by ProctorU (Adams, 2020). ICT experts describe the lock-screen software that needs to be installed for digital proctoring as "malware or academic stalkerware" (Adams, 2020) (see Figure 6 below).
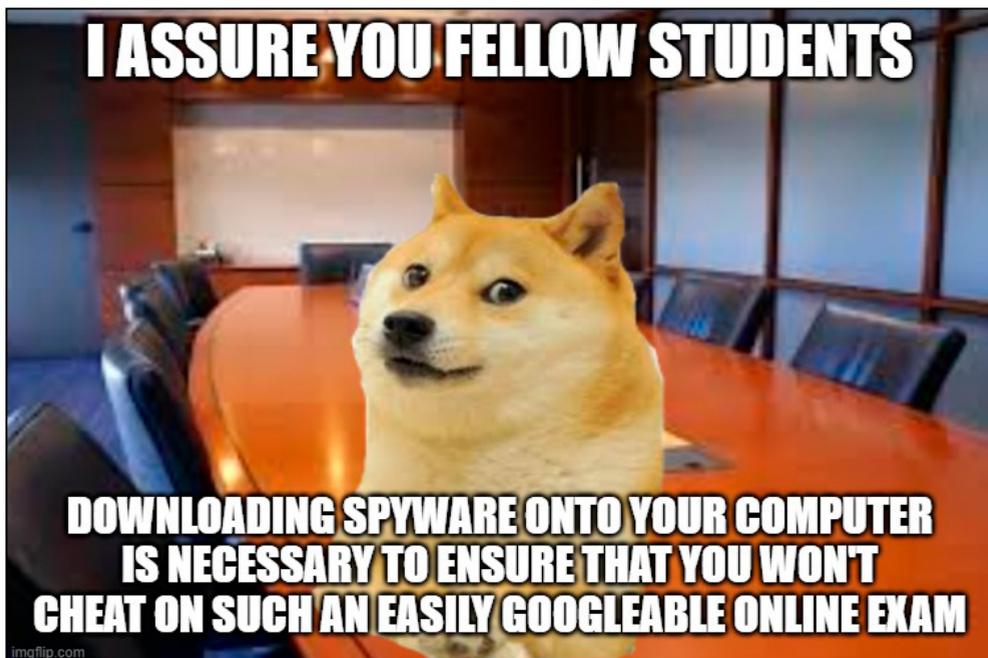

Figure 6: Spyware (I assure you fellow students [Online]. Imgflip)

A haunting thought is that digital proctoring does not prevent cheating, nor is it hack-proof. "There's no perfect system out there." (Goveas, 2021: 6). This sentiment is echoed by multiple institutions (*The Stuyvesan Spectator*, n.d.; Flaherty, 2020).

Disability

The discussion around digital proctoring and disability seems to have faded into the background. A digital proctoring tool has a proprietary algorithm designed for the "normal student" and "normal assessment environment". This constitutes a white, preferably male, middle-class and neurotypical person (Coghlan *et al.,* 2021). It is designed for the able-bodied, sitting still and holding in bodily functions for extended periods.

The "normal" for a proctoring system is far removed from most students' lived realities and demographics. It is even further removed from the reality of differently-abled students. This undifferentiated approach to digital proctoring reinforces social injustice, ignoring diversity and opting for a one-size-fits-all approach, with the "normal student" being the one size (Smith & Chestnutt, 2021).

Lockdown browsers prevent students from employing digital accessibility tools (Adams, 2020; Feathers & Rose, 2020). Equal treatment does not equate to equity for differently-abled students and places them at a disadvantage (Quapp & Holschemacher, 2021). Yet standard treatment is the basis of digital proctoring.

The quest for reasonable accommodation is far more complex in the digitally proctored environment than in face-to-face arrangements (Barrett, 2021). Even when approved, basic requests for an extension of time are often not observed (Gin *et al.,* 2021). One example is a student with type 1 diabetes who requested accommodation to use the bathroom during the exam. Eventually, she was allowed two breaks of one minute each. As a result, the student had to relieve herself in water bottles for the duration of the examination (Zhu, 2021). The indignity imposed on such students is unacceptable.

Different eye movements, behaviour and communication are common for differently-abled persons (Barrett, 2021). These would immediately be flagged as suspicious by digital proctoring systems (Coghlan *et al.,* 2021). Assistive technologies such as text-to-speech engines may cause differently-abled students to be flagged as displaying suspicious behaviour (Barrett, 2021). The digital proctoring guidelines force students to disclose medical information to an external proctoring company in an attempt to receive accommodations (many of which cannot be accommodated by the system). Even neurotypical students may have physical disabilities that require accommodation, such as chronic pain sufferers with hand-cramping, which requires hand exercises and additional time (Feathers & Rose, 2020). "[Digital] Exam proctoring, timed assessments, and required attendance are often framed as ways to increase integrity and accountability, yet all of these decisions could be considered ableist and exclusionary for students with disabilities" (Gin *et al.,* 2021: 13).

6. Alternative approaches

Currently, digital proctoring focuses on behavioural control instead of providing an additional development tool (Stephens, 2016: 1001). It is possible to move from costly digital proctoring systems to a people-centred approach instead of a technocratic-solutionist approach (Silverman *et al.,* 2021).

It is beyond the scope of this paper to fully engage in alternatives to digital proctoring. It is, however, important to show that there are viable alternatives (Ngqondi *et al.,* 2021; Silverman *et al.,* 2021). The COVID-19 pandemic has given us an unprecedented opportunity to elevate assessment from recall to critical thinking and application. An opportunity to ensure that our

assessment is valid and truly evaluates the concepts we wish to; a shift to assessing the higher levels of learning taxonomies, be it Bloom, Revised Bloom, Structure of Observed Learning Outcomes (SOLO), Finks, or others (O'Neill & Murphy, 2010). Along with the opportunity for more student-centred, constructivist approaches to assessment (Reyneke, Shuttleworth & Visagie, 2021).

Differentiation in educational practices (and assessment) is required to promote social justice and prevent the reproduction of traditional power divides in higher education (Smith & Chestnutt, 2021). Compassion and trust may bear more fruit than surveillance, and an expensive, dubious sense of control is likely to increase inequality.

This does not mean that there are no avenues to provide oversight in online assessment. There are multiple means of using unproctored means to limit student cheating and show due diligence (Silverman *et al.,* 2021). These means are less intrusive, less prone to bias and may provide opportunities for improved assessment practices (Dendir & Maxwell, 2020). These are illustrated in Figure 7 below. These unproctored measures do not require proprietary software with unknown algorithms assessing students' level of suspiciousness.[2]
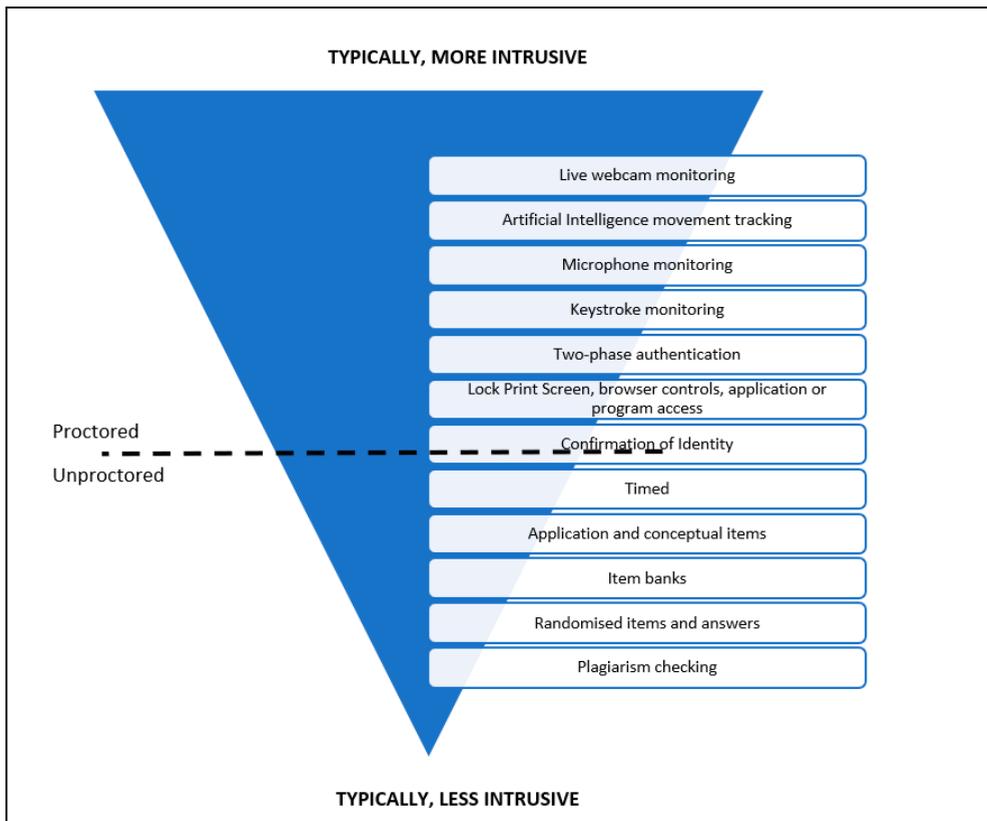

Figure 7: Level of intrusion of proctored vs unproctored online assessment (Author)

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2   Level of suspicion is terminology often employed by digital online proctoring systems when referring to how students are flagged.

Statements opposed to digital proctoring by faculty and institutions have not gone unnoticed by proprietary digital proctoring companies. These statements have been met with litigation at every corner or the more sedate warning letters from legal representatives (Bilyk, n.d.; *The Stuyvesan Spectator*, n.d.; Feathers and Rose, 2020; Long, 2021; Pelletier *et al.,* 2021). ProctorU attorneys threatened to sue one faculty association for defamation. The accusation (as reported in the university newspaper) specifically described the action as "directly impacting efforts to mitigate civil disruption across the United States by interfering with education during a national emergency" and stated they were sending his complaint to the state's Attorney General (Feathers & Rose, 2020: 11). It is vital that our ethics and integrity not be swayed by threats and litigation but people-centred social justice, ethics and validity considerations.

7. Conclusion

Digital proctoring is not the panacea to prevent student cheating while striving for social justice, ethical standards and valid assessments. It is costly to purchase from an economic perspective and is prone to litigation. From an equity and social justice perspective, it is intrusive. It introduces structural inequalities ranging from racial factors to student socioeconomic status to being impractical and biased against students who have disabilities or do not fit a neurotypical picture. Equality with a white, male, upper-middle-class student template does not equate to social justice or equity (Espinoza, 2007). Digital proctoring increases anxiety and stress and may encourage students to find ways to bypass and game the system, all in the pursuit of the perception of preventing and identifying student cheating (Langenfeld, 2020).

Online assessment and digital proctoring are part of the evolution of assessment. However, we must be cautious in how it is applied and how we can mediate its effects on the validity of the assessment process and performance. This requires academic engagement and not technocratic approaches with immediate problem-solving in mind. Online assessment and digital proctoring will be part of the higher education landscape, but must be approached with caution and forethought.

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