

White Paper
Academic Panopticon? The Ethics of Proctoring Technologies
UFS Ethics and Institutional Integrity Committee

Abstract

Introduction

Online learning has become an integral part of our higher-learning education system. In recent years, Higher education has increasingly made online courses available to its students. Even a decade ago, Adkins (2011) indicated that more than 1.25 million students took online courses. In 2018, a Babson Survey Research Group report indicated that between 2015 and 2016, 30% of post-secondary students had taken at least one online course (Seaman et al., 2018; Woldeab and Brothen, 2019). With the limited in-person opportunities during the COVID-19 pandemic, higher-learning institutions rushed to convert their in-person courses to an online format. In doing so, many of its students were introduced to remote proctoring and algorithmic test-proctoring software (Barrett, 2021). Traditional testing was usually conducted in a controlled setting, where instructors monitored their students in classrooms. However, with in-person limitations of the COVID-19 pandemic, instructors were asked to give their exams online and thus gravitated to using some form of remote proctoring technology (Bergmans et al., 2021). Remotely proctored exams attempt to reproduce face-to-face exam conditions in the online environment, involving a combination of software lockdown, student authentication, and active monitoring for the exam duration (live or recorded; Dawson et al., 2020).

What is remote proctoring technology and/or the use of algorithmic test-proctoring software?

Remote proctoring technology allows students to take examinations in an environment without having a physical proctor present (Castaño et al., 2021). The two types of remote proctoring technologies in use are recorded proctoring and live proctoring. Recorded proctoring during remote test-taking includes capturing audio and video components that are then analyzed with 'machine-learning algorithms' to identify suspicious behaviors in real-time (Swauger, 2020). Flagged sections of the exam are reviewed to determine 'normal' behavior and if cheating occurred (Swauger, 2020). Below is a list of some proctoring software technologies in use, most of which are compatible with Canvas, Blackboard, and other Learning Management Systems:

- Proctorio has both live proctoring, automated proctoring, and auditing of recordings services; it provides suspicion ratings on individual test-takers. Students must keep their webcam and microphone on during the exam (<https://proctorio.com/>).
- ProctorU offers live, automated, and recorded proctoring, which uses facial-recognition and detection algorithms. Students must keep their webcam and microphone on during the exam (proctoru.com).
- Respondus Lockdown Monitor uses artificial intelligence to analyze recorded video utilizing detection and recognition technologies. Respondus Lockdown can be used without utilizing the monitor feature. Students must keep their webcam and microphone on during the exam. If used through Blackboard, students enrolled would pay a flat fee per semester to use Respondus (Teclehaimanot et al., 2018).
- Examity uses recording only, recording plus, and recording with artificial intelligence to analyze recorded video (Castaño et al., 2021; Barrett, 2021).

Remote proctoring has been used for several years, but the COVID-19 pandemic accelerated the use of such software (Barrett, 2021). The online proctoring technologies (including live online, web-conferencing platforms, record and review options, and fully automated proctoring using artificial intelligence (AI) or similar analytics tools) are promoted to colleges and universities as best solutions to:

- create and manage test questions;
- allow flexibility to students to take online assessments from remote locations;
- enable remote (often fully-automated) proctoring and recording of student activity during tests; and
- make flagged events and proctoring results available to instructors for review, all in the name of secure, efficient, cost-effective, user-friendly. Trusted methods to deter cheating and minimize academic misconduct (Fiano, 2021).

The COVID-19 pandemic increased the concern for academic integrity issues related to authorship of student-submitted assignments and concerns regarding cheating on exams (Mortati and Carmel, 2021). Further, remote proctoring technologies have proven to be useful in offering the ability to schedule exams outside of class time and can be especially helpful when students cannot attend in-class sessions. While convenient access appears to have improved, the onus is now on students to have access to reliable technology (Silverman et al., 2021).

What role does remote proctoring technology play in SUNY?

All SUNY campuses use remote proctoring technology. As is the case with a lot of digital tools, products, extent of use, and campus commitment vary significantly. Prior to the 2020 COVID-19 pandemic, the use of remote-proctoring software was popular in online courses across the SUNY system and generally determined at the individual faculty level. With the move to mode of delivery from in-person to online, remote proctoring software became more common across SUNY campuses. A survey from late 2021¹ reported that a majority of campuses were using at least one remote proctoring software by faculty or campus wide. In the survey the most popular software program by far was Respondus, with 26 campuses reporting use. The other commonly used software include: ExamSoft (nine campuses), Honorlock (four campuses), Proctorio (four campuses), and ProctorU and Safebrowser (two campuses each).

While faculty may choose software, in many cases the cost of use is borne by students. Some campuses, specifically during the COVID-19 Pandemic, did commit to campus subscriptions to support faculty and students in the shift to online teaching modalities. No campus required use by faculty and instead allowed faculty to opt into the subscription. At least one campus did cancel its subscriptions after the shift back to face-to-face instruction due to lack of use. Overall, based on our sampling there was an even split between the campuses who subscribed to software versus those where individual faculty members use them and pass the costs onto students.²

¹ These data come from a snapshot survey conducted internally by SUNY Online and the Brightspace DLE team in Fall 2021 within SUNY for information purposes only, It does not represent a complete representation of software use in the SUNY Campuses nor does it distinguish between multiple software use by campuses or which campuses use campus wide paid subscriptions.

² These data are from an internal Senate survey to CGLS in Fall of 2021 and individual campus website monitoring in December 2021.

While faculty and campus use of software has been increasing, and which accelerated during the pandemic, how SUNY faculty feel about the software is still unknown. The few faculty that did provide our committee feedback about software were not united in either praising or condemning its use. One faculty member pointed out that online proctoring is important in protecting academic integrity. But, the same faculty member noted that faculty and campuses have a responsibility in protecting students from costs, access, and misuse of flagging (identifying moments in time that were identified by the algorithm) during exams, and data integrity risks in the future. Another faculty member reported that the software use reinforces class inequalities between students, between those who have access to the software and hardware tools required to use the proctoring technologies and those who do not. These factors tend to adversely affect student performance on tests, and may not be as effective as intended/once thought.

Data on the student perspective is also limited. In an ad hoc conversation during class, over half of students present reported having used some form of on-line proctoring. Without exception, those students did not like the experience. In 2020, university student Marris Vo placed a petition online to "Get rid of Respondus Lockdown Browser" because it is morally unethical. Marris Vo listed all the reasons college universities should drop Respondus Lockdown, some of which have been discussed in this paper.

Drew Harwell (2020) wrote an article in the *Washington Post* titled, "Cheating-Detection Companies Made Millions During the Pandemic. Now Students are Fighting Back." He highlighted some students' anxiety and frustrations with using online remote proctoring software (Woldeab and Brothen, 2019). Some of the issues in the article highlighted the following:

- Students feel they are being wrongly flagged for cheating, and this causes tremendous anxiety—according to the report, interviewees reported that “they have wept with stress or urinated at their desks because they were forbidden from leaving their screens” (para. 6).
- Students are concerned that if they are wrongly accused of cheating, it could compromise their future chances for "scholarships, internships and post-graduation careers" (para. 13).

Again, the onus is on the student. Students find it difficult to prove they were wrongly flagged to clear their name because “to defend their integrity, the students may have to prove the high-tech cheating detective somehow got it wrong” (para. 15). Such a burden is also, then, an additional source of anxiety.

Several challenges to using remote or algorithmic test proctoring

According to Silverman et al. (2021):

A top concern about remote proctoring is how it centers technological solutions rather than people-centered approaches. Swauger (2020) outlines several examples of how automated approaches to remote proctoring have created unfair and discriminatory conditions for students of color and disabled students. (p. 118)

This software poses several challenges, including how the software determines the identity of the test taker. Many proctoring software companies use facial-recognition algorithms. Below is a list of several documented challenges:

- Issues have been reported regarding facial recognition/face detection and its inability to verify some brown and black students. Facial-recognition algorithms are trained to recognize primarily white faces with an inherent discriminatory bias (Barrett, 2021). For example, Proctorio

software had trouble detecting a black student's face, requesting he shine some light on his face, with no remedy.

- Facial-recognition software has had issues with gender, especially students who identify as non-binary, trans, etc. (Swauger, 2020).

These challenges regarding facial-recognition raise potential legal concerns. Title VI of Civil Rights Act of 1964 states “[n]o person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program to which this part applies” (§100.3(a)), which includes “any program or activity receiving Federal financial assistance from the Department of Education” (§100.1). Effectively, this applies to all aspects of a university. Title VI has even more specific language that could apply directly to these types of remote proctoring programs: “A recipient under any program to which this part applies may not, directly or through contractual or other arrangements...[d]eny an individual an opportunity to participate in the program through the provision of services or otherwise or afford him an opportunity to do so which is different from that afforded others under the program” (§100.3(b)(1) and (b)(1)(iv). Additionally, schools “may not, directly or through contractual or other arrangements, utilize criteria or methods of administration which have the effect of subjecting individuals to discrimination because of their race, color, or national origin” (§100.3(b)(2).

Title IX of the Education Amendments of 1972, the more famous cousin of Title VI, has very similar language to Title VI, although applied to sex-based discrimination. (See generally 34 U.S.C. §106.31.) Recent interpretations of Title IX include gender expression and gender identity as covered by the law.

This means that schools and faculty who opt to use remote proctoring services that are documented to have challenges recognizing students of color and those who are not cis-gender are knowingly using a method of administration which provides a different, less optimal, opportunity to those students and could well be sued successfully under Titles VI and IX. Those schools and faculty who use remote proctoring programs that do not have a known issues regarding facial recognition should still be aware of potential problems in this area and monitor the programs they use for such issues.

Students were flagged for various reasons, including:

- “Suspicious noise” may be a person speaking in the background; students take exams at home and often live with family.
- Low-income students can be flagged for their environment, noise, or lack of sufficient Wi-Fi access. Universities would have to ensure that low-income students have the necessary equipment and internet access.
- Students with hyperactivity disorders, “certain medical conditions such as neuromuscular disorders or spinal injuries that prohibit them from sitting for long periods” (2).
- Students with ADHD take longer to return eye gaze to a learning task with mundane distractions (Rizzo et al., 2009), potentially leading to increased flagging
- Bathroom breaks can be considered body or environment behaviors that do not conform to software algorithms (Swauger, 2020; Barrett, 2021).

Like with the facial-recognition issues, remote proctoring software may also create legal concerns under the Americans with Disability Act (ADA) of 1990 and the Rehabilitation Act of 1973. Both laws prohibit discrimination based on disability and apply to educational institutions. Under the Rehabilitation Act educational institutions “shall make such modifications to its academic requirements

as are necessary to ensure that such requirements do not discriminate or have the effect of discriminating, on the basis of handicap” (§104.44(a). The ADA addresses examinations directly, stating “[a]ny person that offers examinations or courses related to applications, licensing, certification, or credentialing for secondary or postsecondary education...purposes shall offer such examinations or courses in a place and manner accessible to persons with disabilities or offer alternative accessible arrangements for such individuals” 42 U.S.C. 126(§12189).

If the remote proctoring software inhibits students with disabilities from taking their test, the student must be accommodated and, likely, permitted to take test without the remote proctoring software active. The ADA language makes it quite clear that individual faculty member can be held accountable for failure to accommodate. Using remote proctoring programs with known problems for students will disability opens both the institution and the individual faculty members up to potential lawsuits.

There are also documented concerns regarding students' privacy; the proctoring software companies collect student data. “There have also been concerns raised by staff and students over privacy and sharing of data (Harwell, 2020), that the artificial intelligence (AI) technology used has a history of discrimination” (Dimeo, 2017, in Linden and Gonzalez, 2021, p. 1326).

Various colleges endorse certain technologies, and there seems to be an increasing pressure on higher education institutions to accept such technologies to ensure the integrity of their exam process associated with accreditation. For example, LockDown Browser® is advertised as “the gold standard for securing online exams in classrooms or proctored environments” used at over 2000 institutions.³ There is no clear evidence that cheating is deterred in online proctored exams. On the contrary, there appear to be a plethora of user suggestions and YouTube videos online on “how to cheat on online proctored exams.” Methods vary from impersonation tactics to advanced software and devices.⁴ Sharing test content by taking screenshots, using cameras to record questions, or “brain dumping” are additional vulnerabilities that instructors face when using online examinations (Slusky, 2020).

Certain studies suggest that students have privacy concerns and increased anxiety during remotely proctored exams when compared with in-person testing that might affect their performance. Online proctored exams for students with high trait test anxiety induced higher levels of anxiety and resulted in lower student scores (Woldeab, 2019). However, several other studies demonstrate that remote proctoring has minimal impact on students’ examination performance (Castano, 2021; Linden, 2020; Hall 2021) and even recommend the use of online proctored exams to ensure academic honesty and security of testing content in a distance learning environment (Linden, 2020; Hall 2021).

Most online proctoring services come with direct and indirect costs to institutions and students, including maintenance of software and the training of personnel. For higher education institutions, the software is typically available as a campus-wide license and the annual fees are based on the total number of students and can be typically purchased as tiered licensing. While systems appear to be cost-effective, for instance Respondus LockDown Browser pricing ranges from approximately \$3,000 for 2,000 students to about \$7,000 for 40,000 students per year⁵, additional features and services may increase the cost dramatically (Mangan, 2021). At many institutions students must purchase their own subscription to online proctoring services which, together with the need to buy new computers or upgrade their hardware to be able to run the proctoring software, creates additional financial burden to students. The purchase of expensive, sophisticated technological gadgets to either facilitate or attempt to cheat in online proctored exams also exacerbates inequality between students. Colleges might submit to purchasing proctoring services as they are experiencing shortages of staff and faculty who can proctor

³ <https://web.respondus.com/he/lockdownbrowser/>

⁴ <https://assess.com/remoteproctoringsecurity/>

⁵ <https://web.respondus.com/he/lockdownbrowser/pricing/>

in-person and grade exams and other longer assignments. However, they must take into consideration the overall cost to the institution and the student body and should instead consider investing resources on promoting integrity to students.

In addition to faulty algorithms and technological limitations of imaging, it is equally important to consider the privacy of the data collected. Online proctoring services collect information from students or may require access to student devices during testing. Such data may include: name, username, password, email address, educational institution or certifying entity, contact phone number, country of residence, residential address (for US registrants), photo identification, access to student's device camera and microphone, screen sharing, use of photo identification in conjunction with biometric facial recognition software to authenticate student's identity, performing a biometric keystroke measurement, etc.⁶ Other information, such as IP address, browser type, the referring domain, internet service provider (ISP), operating system, date/time stamp, clickstream data, and browser plug-ins, is collected automatically to analyze trends, to track users' movements around the site and to gather demographic information.⁷ Some proctoring services also share data they collect with third parties, e.g., ProctorU uses Google Analytics by Google, for analytics and advertising purposes. Generally, users of software have the option to select what information they wish to share, whether they will allow their information to be shared with third parties, or, in the event they cannot control these features, can opt out entirely by not agreeing to the terms of service and simply not using the software. Students who are required to use these programs for class do not have the option to opt out and have no control of what information about them or their exam is retained by the software or the company.

One major concern about the data collected is what happens to the information in the event that such proctoring companies are involved in bankruptcy, reorganization, merger, or acquisition. Students' private data may be sold or transferred as part of such transactions. It is not clear what agreements, if any, exist between educational institutions and proctoring companies about retention policies and procedures: Who owns the data? How long are the data retained? What control do colleges have over the storage of data at rest on hard disks or in transition over networks? Most remote proctoring services advertise that their software can integrate seamlessly with learning management systems and platforms at universities. Colleges should be extremely concerned as their platforms often contain private data and information on students (grades, student numbers, etc.). The universities are required by law to secure student information under the Family Educational Rights and Privacy Act (FERPA) and therefore have a duty to safeguard their students' privacy when it comes to sharing private information with third parties (Mortati, 2021; González-González 2020; Barrett, 2021; Castano, 2021). Remote proctoring companies are aware of potential liability under FERPA and a number of them have information about FERPA compliance easily accessible on their websites (Honorlock, Proctortrack, ProctorFree), whereas others are more difficult to locate. For example, Respondus, the most common remote proctoring software used across SUNY, information regarding FERPA was a PDF that could not be navigated to directly from their website and was only found via a direct search for "Respondus FERPA". The document⁸ itself is essentially a legal statement not intended for the average person. Thus far, there do not appear to be any legal cases under FERPA arising from the using of remote proctoring software and these companies to appear to be aware of potential liability in this regard, but it is still something that schools should be aware of.

Using the remote proctoring software assumes students cheat on exams. Although some faculty may distrust students' academic integrity, another solution may be to redesign courses by creating

⁶ <https://www.proctoru.com/privacy-policy>, <https://web.respondus.com/privacy/>

⁷ <https://www.proctoru.com/privacy-policy>

⁸ https://web.respondus.com/wp-content/uploads/2020/03/Respondus_FERPA.pdf

alternative ways to evaluate students' learning in an online environment (Silverman et al., 2021). Creating alternative assessments can become a daunting task. Further, as evident at the onset of the pandemic, faculty were managing a shifting learning environment, and perhaps in a medium with which they were not familiar or adept. Once beyond the initial transition to online, it is possible that faculty may not wish to adjust assessment format for many reasons related to their content areas. They may also have not had the additional time and resources to modify assessment format.

Ethical Considerations

An ethical assessment of online proctoring is complex, and simplistic analyses are unhelpful. We suggest a broad approach that is at once pluralistic, principled, and pragmatic. Increasingly, ethicists are using a principlism approach based on *prima facie* moral axioms that are generally accepted principles to guide policy and behavior. These axioms are not absolutes, not hard and fast rules, but rather guidelines to apply in making decisions and constructing policies. Principlism is a complex process and, at times, *prima facie* principles might contradict each other. In such instances, ethical principles need to be ranked in order of importance given different contexts. In other words, ethical principlism is situational and requires wisdom and discernment. Principlism is now often linked with a pluralistic approach in that we draw ethical insights and principles from a variety of sources from within the traditional Western canon (for example, deontology, utilitarianism, virtue theory, care ethics, and social contract theory) and from other world philosophies (for example, Confucianism, Ubuntu, and Buddhist ethics). Ethicists have discovered a remarkable synchronicity in *prima facie* principles shared by the various traditions. An ethical approach also needs to be pragmatic with an understanding that ethical theories cannot merely be idealistic but must include practical behaviors that have effect for good in the real world. In this regard, we are using the following principles to assess the use of artificial intelligence in the surveillance of students during tests are as follows:

- Seeking the well-being of all stakeholders
- Causing the least amount of harm
- Acting in a fair manner
- Respecting the autonomy of the individual
- Accepting community commitments and agreements
- Making space for and encouraging personal growth and character development
- Righting wrongs that have been committed

One of the central commitments and ethical agreements of the university is that students act in a fair manner when conducting tests and writing papers. Plagiarism and cheating are clear breeches of such shared commitments and the use of proctoring during tests, whether in person or through proctoring software, helps prevent cheating. The ethical problem of cheating seems obvious and includes: a) cheating is disrespectful to other students who do not cheat, and, if a test is graded to a curve, harms those students who receive a lower grade; b) cheating is clearly unfair; c) cheating does not encourage growth and character development. Hence, a system of proctoring that reduces cheating is ethically appropriate, and proctoring software and recording seems to meet that goal.

At the heart of any university policy ought to be the well-being of all stakeholders, largely students and instructors, and policies ought to minimize harm to all. It is clear from our brief analysis that some harms have been caused by proctoring software to both students and faculty members. Students and faculty alike report added stress. Faculty report more pressure from a different set of responsibilities (for example, watching videos of students when a student appears to have cheated) with

associated anxieties. The monitor feature in Respondus and other software adds mental and emotional stress that works against a student completing their best work.

The inadequacy of technology adds a level of unfairness in that students with darker color skin are flagged more frequently than students with lighter color skin due to the limitations of the camera and the inherent bias of the algorithms in the software. Students with certain disabilities are flagged for head and eye movement as well as other bodily movements that suggest the student is cheating.

With regard to respecting the autonomy of the individual, proctoring software is found wanting. With constant surveillance as to bodily movement and facial expression the student is forced to be unnatural. To be watched constantly is to be controlled entirely. Further, as stated, there are inherent biases present in video capture technology related to skin tone. This academic panopticon reflects Benthamite theories of incarceration that dehumanize such that “ ... the major effect of the Panopticon: to reduce in the inmate a state of consciousness and permanent visibility that assures the automatic functioning of power” (Foucault 1977, 201). This demeans the integrity of the student and harms the function of the university as a space of growth and character development. The assumption that all will cheat if they can get away with it is dehumanizing.

This latter point turns to the use of data collected by the software and software company. Who owns the data? For what purposes is the data used?

Recommendations

1. UFS recommends SUNY campuses avoid using online proctoring software that uses monitoring and lockdown features until the ethical shortcomings of the products addressed above are resolved.
2. UFS recommends that SUNY individual campuses who use proctoring software to be aware of the above concerns when choosing third party software and provide training to faculty of best practices addressing appropriate use of online exam monitoring systems.
3. UFS recommends that individual faculty members who use proctoring software consider the above ethical concerns and implement alternatives to the software when addressing academic integrity issues in their courses.

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