

What is Proctorio?

Proctorio is an online proctoring service that some colleges and universities use to monitor remote examinations. The platform leverages advanced technologies, including machine learning and facial detection, to verify the identity of students by scanning their IDs and faces through the Canvas learning management system. Once an exam begins, Proctorio employs various surveillance methods to maintain integrity throughout the testing process. These include recording audio, tracking student movements, and monitoring system changes on the test-taker's computer. The software flags any behaviors it deems suspicious, potentially leading to academic penalties.

Proctorio's reliance on technology makes it appealing to educational institutions striving to ensure that assessments maintain high standards of academic integrity. By automating the proctoring process, faculty members can theoretically focus more on teaching and less on overseeing exams. However, the reliance on such technology raises questions about the efficacy and ethical implications of monitoring students in this manner.

Why is Proctorio Used?

Proctorio is primarily utilized for several reasons:

1. **Academic Integrity:** Educational institutions are under constant pressure to maintain high standards of academic integrity; particularly as online learning becomes increasingly prevalent. Proctorio's suite of monitoring tools aims to deter cheating and uphold the value of their degrees.
2. **Flexibility in Assessment:** The platform allows instructors to conduct exams remotely, enabling flexibility for students who may not have access to traditional testing environments.
3. **Customizable Settings:** Instructors can tailor the proctoring experience to their specific needs. Proctorio offers customizable settings for exam rules, such as the use of notes, timing constraints, and behavioral flagging, which instructors can adjust based on their understanding of their students.
4. **Efficiency:** By automating the proctoring process, institutions aim to reduce the administrative burden on faculty and staff, allowing them to allocate resources more effectively.

However, while these reasons provide a rationale for the use of Proctorio, they also highlight the underlying tension between maintaining academic standards and respecting students' rights to privacy and equity in the learning environment.

Problems with Proctorio

Despite intended purposes, Proctorio and similar online proctoring systems present numerous problems that warrant serious consideration:

1. **Privacy Concerns:** Proctorio's invasive monitoring techniques—recording audio, video, and tracking students' on-screen activities—raise significant privacy issues. Students are effectively required to surrender their rights to privacy during examinations, exposing them to unwarranted surveillance. This intrusion can create a hostile and stressful environment for test-takers, where the focus shifts from demonstrating knowledge to avoiding suspicion.
2. **Mental Health Impacts:** The constant surveillance associated with Proctorio can exacerbate anxiety and stress among students, particularly those who may already be vulnerable. The knowledge that they are being watched can lead to performance issues, further impacting the integrity of the examination process.
3. **Equity Issues:** Proctorio disproportionately affects marginalized students. Those without stable technology or reliable internet access may find themselves at a disadvantage, unable to complete exams under the same conditions as their peers. Furthermore, the software's reliance on facial recognition technology can perpetuate existing biases. Studies have shown that facial recognition systems can misidentify students of color and individuals with disabilities, leading to unjust flagging and accusations of cheating.
4. **False Accusations:** The algorithms employed by Proctorio can misinterpret benign actions as cheating indicators. For example, atypical eye movements, unexpected shadows, or other common behaviors may trigger false accusations. This can lead to unjust disciplinary actions and significantly harm students' academic records and reputations.
5. **Opaque Algorithms:** Proctorio's use of artificial intelligence (AI) to analyze student behavior is not clear. Students and faculty alike may not understand how the algorithms work, raising concerns about their reliability and fairness. The lack of transparency can lead to distrust in the system, with some students feeling as though they are being judged by an unproven technology.
6. **Lack of Consent and Data Control:** Students are often not given the option to opt out of the extensive data collection that occurs during online examinations. They are subject to data gathering practices that include biometric data, video recordings, and keystroke patterns without clear consent or control over their personal information. This lack of agency over personal data is particularly troubling in an educational context, where trust and integrity are paramount.

7. Concerns from Advocacy Organizations: The Electronic Privacy Information Center (EPIC) has raised significant concerns regarding online proctoring systems, including Proctorio. Their complaint highlights unfair and deceptive trade practices, such as excessive data collection, opaque AI systems, and overstated claims regarding the reliability of facial recognition technologies. Such practices undermine the integrity of educational assessments and pose risks to student privacy.

8. Legal and Ethical Implications: The ethical implications of using systems like Proctorio are profound. As educational institutions increasingly rely on AI and machine learning technologies, the lack of regulations and guidelines governing their use becomes more pressing. There is a need for legal protections to ensure that students' rights are not compromised in the pursuit of academic integrity.

9. Impact on Educational Culture: Finally, the adoption of punitive measures associated with online proctoring can damage the educational culture. Instead of fostering trust and collaboration, systems like Proctorio may create a climate of fear and suspicion among students. This shift in culture can have long-term consequences for student engagement, learning, and overall educational experience.

While Proctorio and similar online proctoring systems are designed to uphold academic integrity in remote assessments, their implementation raises significant ethical, privacy, and equity concerns. The invasive nature of the surveillance methods, coupled with the potential for bias and inequitable treatment, calls into question the effectiveness and fairness of these systems. As educational institutions navigate the complexities of remote learning, it is essential to prioritize students' rights to privacy, equity, and mental well-being.

Usage Rates and Cost for Contra Costa College

The usage of Proctorio among faculty at Contra Costa College has sharply declined in recent years. In September 2020, CCC had 409 new users of Proctorio; however, in September 2023, that number dropped to 11. This downward trend and low rates of new users are evident across several months: in October 2023, there were 16 new users compared to 11 in October 2020, and a significant decline from 232 new users in February 2021 to just 25 in February 2024. Currently, Proctorio costs \$3,500 for 250 licenses, prompting reconsideration whether the benefits justify the expense, especially considering the dwindling adoption rates.

What the Contra Costa College Distance Education Team is Doing to Help

The Contra Costa College Distance Education Team is actively addressing the potential phasing out of Proctorio by focusing on authentic assessment methods and providing robust support for faculty. Recognizing the challenges posed by online proctoring, the team is offering at least four flex workshops throughout the 2024-2025 academic year that

specifically target authentic assessment strategies. These workshops aim to equip instructors with the tools and knowledge to assess student learning in ways that are meaningful, equitable, and less reliant on surveillance technology.

In addition to workshops, the team is developing a teaching technology needs survey specifically aimed at CCC faculty. This survey will help identify the unique challenges and preferences of instructors, ensuring that the support provided is tailored to meet their specific needs. By fostering open communication, the Distance Education Team is better positioned to assist faculty in transitioning away from platforms like Proctorio.

Ongoing assistance from our highly qualified instructional designers further enhances faculty capabilities. These professionals work closely with instructors to integrate innovative teaching practices and assessment methods into their courses, ensuring that evaluations reflect true student learning rather than mere compliance with proctoring requirements.

Moreover, the team offers intensive online training through the Peer Online Course Review (POCR) program, aimed at helping faculty develop engaging content and create authentic assessment tools. This program not only enhances the quality of online courses but also encourages instructors to explore diverse assessment strategies that prioritize online student learning.

Through these initiatives, the Contra Costa College Distance Education Team is fostering a supportive environment that prioritizes educational integrity and equity while working to alleviate the concerns associated with online proctoring.

Suggestions from the Distance Education Team:

The Contra Costa College Distance Education Team is proactively exploring ways to move beyond a reliance on Proctorio. One key suggestion is to conduct a clear districtwide survey of teaching technology needs. This survey would gather valuable insights from faculty about their specific challenges and preferences, helping to identify alternative assessment methods that better align with their pedagogical goals. Additionally, a district-wide effort may increase the potential for funding various teaching tools.

In addition to the survey, the team advocates for seeking funding to establish in-person testing centers. These centers would provide students with a secure and supportive environment to take exams without the invasive measures associated with online proctoring. Such facilities would enhance equity and accessibility for all students, particularly those who may struggle with technology or online surveillance.

Moreover, individual departments and instructional faculty must thoughtfully consider their decision to offer fully online courses if they view Proctorio as essential. Departments should evaluate whether Proctorio aligns with their educational values and explore

authentic assessment strategies that do not require invasive monitoring. Options like project-based assessments or open-book exams can measure learning effectively without compromising privacy. If Proctorio is indispensable, reconsidering fully online course offerings may be necessary, potentially opting for hybrid or in-person formats to maintain academic integrity while supporting all students.

Finally, the Distance Education Team emphasizes the importance of further inquiry into viable alternatives to Proctorio on both the local and district levels. This could include exploring other assessment tools and practices that prioritize academic integrity while respecting student privacy. By implementing these strategies, Contra Costa College can foster a more supportive and equitable educational landscape.

***The CCC Distance Education Team compiled information and insights from across the district, including DDEC, DVC, DSPS (CCC), DSPS (LMC), and usage rates from both directly from Proctorio and department chairs.**

Guidance on Online Assessment and Proctoring Software

Date: October 29, 2020

While the Distance Education Committee often advocates for educational technologies to support student success, we find online proctoring software in general to be highly problematic and the purpose of this guidance is to create awareness and suggest alternatives. Any faculty member who chooses to use online proctoring software should be aware of the concerns related to [equity and inclusion](#), [privacy](#), and other issues outlined in this guidance. In fact, [San Francisco State University's Academic Senate recently passed a resolution banning the use of third-party proctoring](#) due to these concerns. This guidance is in accordance with the campus-wide equity goals outlined in the [CCC Distance Education Strategic Plan](#), the [CCC Strategic Plan](#), as well as the [CCC Academic Senate resolution passed unanimously on July 1, 2020](#) that commit to equity, diversity, inclusion, social justice, antiracism, and culturally-relevant and culturally responsive teaching practices.

To promote academic integrity, we recommend communicating [CCC's Academic Honesty Policy \(p. 19-20\)](#) in your syllabus and having a class discussion of the policy's importance when logging into Canvas, Zoom, etc. Remind students or have them sign an academic honesty statement before assessments.

We strongly encourage the consideration of authentic assessments and other possible alternatives instead of online proctoring software to measure students' acquisition of learning objectives and outcomes.

Authentic Assessment

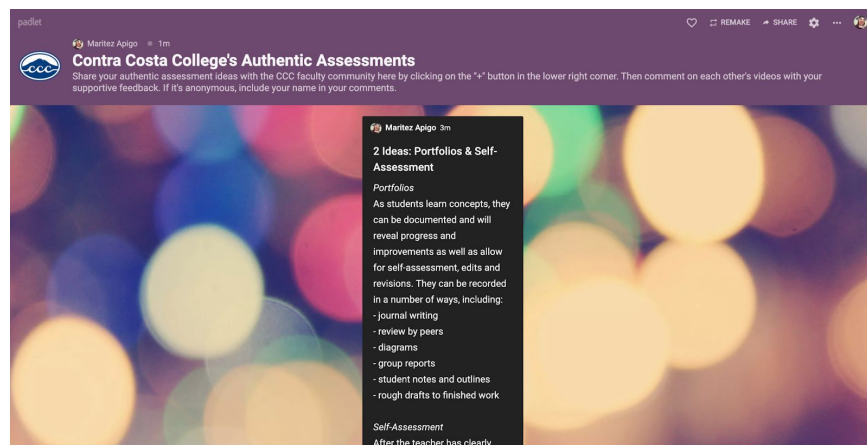
Authentic assessment reflects a commitment to equity-minded, culturally-responsive, and student-centered teaching pedagogy by providing students with opportunities to apply what they've learned and connect their learning on a deeper level to the world around them ([Culturally Responsive Teaching and the Brain: Promoting Authentic Engagement and Rigor Among Culturally and Linguistically Diverse Students by Zaretta Hammond](#) and ["Equity and Assessment: Moving Towards Culturally Responsive Assessment" by Erick Montenegro and Natasha A. Jankowski](#)). Alternative assessments of learning outcomes that involve real-world, higher-order, authentic methods, while still ensuring academic integrity, include:

- Prioritizing critical thinking questions, activities and assessments over rote memorization (ie google-able answers) and consider tasks that require higher-order thinking skills (evaluate, create, analyze, apply) over lower-order thinking skills (remember, understand), such as the following (see [Bloom's taxonomy](#)):
 - **process** questions allow students to show how they arrived at an answer
 - **application** questions allow students to apply what they learned
 - **evaluative** questions allow students to assess resources used in learning concepts
 - **research** questions can mimic the work being done in your discipline
 - **reflection** questions allow students to reflect and think metacognitively on what they learned
- [PBL/Project-Based Learning](#) in which students learn by actively engaging in real-world and personally meaningful projects.
- Presentations (individual or in groups).
- Students record short videos of their screen to demonstrate learning (ex: using Canvas Studio or Flipgrid)
- Untimed, open book/notes exam formats where students cite lectures notes, papers, textbooks, journals, and websites
- Short answer or short essay instead of multiple-choice questions
- Collaborative group assessments/projects/presentations

Examples of Authentic Assessments

- Sciences: Students write a report, create an infographic, record screencast videos teaching mini-lessons, or deliver a research presentation on scientific concepts.
- Math: Students explain how they worked out the problem by writing out their process or making a screen recording video talking through their process. There is a wealth of real-world, culturally-relevant assessment ideas in [David Stocker's book *Math That Matters 1*](#) linking math and social justice. Another good book is [Rethinking Mathematics: Teaching Social Justice by the Numbers by Eric Gutstein and Bob Peterson](#).
- Nursing: Students evaluate a patient scenario, record a video, write a care plan for a disease process, or create a brochure found in a doctor's office.
- See [UC Davis's Keep Teaching resource on "Testing"](#) for more examples.

- See the [@ONE Authentic Assessments Guide](#) for more concrete examples.
- View alternate authentic assessment [ideas for those offering synchronous instruction](#).



We invite you to [share your ideas for authentic assessments with the CCC faculty community](#).

CCC's Instructional Designers, Monica Landeros (mlanderos@contracosta.edu) and Lauren Nahas (lnahas@contracosta.edu), are available to support your creation of authentic assessments tailored for your courses.

Equity Concerns with Online Proctoring Software

This technology, based on artificial intelligence and biometrics, has been found to be:

- **Racist:** Facial detection and recognition technology is calibrated for white skin as the norm. It has a consistent inability to identify Black, Brown, and Asian people, placing students of color at a disproportionate disadvantage ([“A US government study confirms most face recognition systems are racist” by Karen Hao](#) and [“Amazon face-detection technology shows gender and racial bias, researchers say”](#)). In addition, students from certain cultural backgrounds are not permitted to be on camera, which makes them unable to take a test with proctoring software.
- **Genderist/Transphobic:** Transgender or non-binary students may not be identifiable using facial detection and recognition technology if they are in the gender transitioning process ([“Facial Recognition Software Has a Problem” by Lisa Marshall](#)).
- **Ableist:** Students with disabilities, such as ADHD, rapid eye movement, or neuromuscular disabilities are at a disadvantage when the software is flagging head,

body, and eye movements as suspicious behaviors (“[Our Bodies Encoded: Algorithmic Test Proctoring in Higher Education](#)” by Shea Swauger).

Potential emotional, mental, and educational consequences:

- **Is stressful and anxiety-provoking:** Students on the Student Success Committee and Distance Education Committee are expressing difficulty focusing on the content of the exam while being recorded because they are so concerned about keeping their bodies and eyes still and not appearing to be cheating. It can alter students’ performance if they’re feeling anxious or frustrated and if it’s not recognizing their face. More perspectives from CCC students and tutors are detailed in the [Feedback on Proctorio from CCC Campus-Wide Tutoring](#). Additionally, the student voice is represented in the article “[Students Are Pushing Back Against Proctoring Surveillance Apps](#)” by Jason Kelley.
- **Invades student’s privacy:** The [CCCCO’s Legal Opinion: Cameras-On Requirements](#) issued on Oct. 19, 2020 states, “Districts should adopt policies strictly limiting or prohibiting faculty from instituting cameras-on requirements in order to protect against violations of...California’s student privacy law” (7). A student’s perspective is presented in the article “[How It Feels When Software Watches You Take Tests](#)” by Anushka Patil and Jonah Engel Bromwich.
- **Places students living with others (parents, for example) at a disadvantage** to finding uninterrupted blocks of time and a private room to take online proctored exams. If anyone approaches them during an exam, the proctoring software could flag this as “suspicious” behavior if no one else is allowed to be in the same room.
- **Views students as guilty and promotes a culture of suspicion and surveillance.** It uses artificial intelligence to flag students’ “suspicious” behaviors. Normalizing the experience of being monitored by proctoring software could trigger deep-seated trauma in students related to policing and surveillance.
- **Lacks adequate security:** Student data can be shared with third parties. Data breaches in online proctoring software demonstrate a lack of security, [such as with ProctorU](#).

Proctoring software produces technological barriers:

- **Bandwidth and reliable internet access issues:** Video surveillance via web cameras requires high-bandwidth and reliable internet access that low-income, housing insecure, and homeless students do not always have access to. [2019 Basic Needs Insecurity data](#) indicates that 66% of CCC students are housing insecure and 22% of

CCC students are homeless. [Statewide data is available on the #RealCollege survey report.](#)

- **Technological difficulties:** Proctoring software adds an additional technological burden to students who are already struggling in this area. The Welcome Center reports that they often work with students who are seeking help with proctoring software-related technical issues.

Additional recent sources regarding the equity concerns:

- [“Snooping Where We Sleep: The Invasiveness and Bias of Remote Proctoring Services” by Albert Fox Cahn, Esq., Caroline Magee, Dr. Eleni Manis, PhD., and Naz Akyol](#), Nov. 11, 2020.
- [“Pushback Is Growing Against Automated Proctoring Services. But So Is Their Use” by Jeffrey R. Young](#), Nov 13, 2020.
- [“Cheating-detection companies made millions during the pandemic. Now students are fighting back” by Drew Harwell](#), Nov. 12, 2020.

Should online proctoring software still need to be used, we recommend faculty:

- Take an exam using the online proctoring software to experience it from the students’ perspective.
- Reduce the use of online proctoring software to the minimum.
- Use the least restrictive proctoring software settings.
- Include in the schedule of classes “comments” section, *“This course uses online video proctoring software for exams. A computer, webcam, and microphone are required.”*
- Include online proctoring software requirements in your syllabus and orientation module, for instance, *“[Quizzes/Exams/Tests] in this class will be remotely proctored. In order to use this online proctoring software, you will need a computer, webcam, microphone, and install [this software], etc. If you do not have a computer, contact the instructor to make arrangements to [insert your preference: ex: borrow a computer or schedule an appointment on the CCC campus or via Zoom to take the text/exam].”*
- Include in your syllabus and orientation module an “opt out” mechanism that allows a student to decline online video proctoring considering students’ privacy, technical, or

religious objections ([CCCCO's Legal Opinion: Cameras-On Requirements](#), page 4-7), for example: *"If you do not wish to be webcam recorded by online proctoring software, make arrangements with the instructor to [insert your preference: ex: schedule an appointment on the CCC campus or via Zoom to take the text/exam]."*

- Contact [DSPS](#) if concerns arise regarding a student's accommodations prior to using online proctoring software.

Note that state funding for Proctorio expires on December 31, 2020. As of the date this guidance is issued, we are still waiting to hear from the state if there will be funding for online proctoring software in 2021.

November 2, 2020 update: The CCCCCO has announced to discontinue system-wide funding of Proctorio, an online proctoring software, due to the concerns.

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1. *This guidance was drafted with the DE Team on 10/2/2020.*
 2. *This guidance was presented to the DE Committee and a sub-committee was formed on 10/9/2020 for revision.*
 3. *The DE sub-committee revised and edited it on 10/22/2020, 10/29/2020, and asynchronously.*
 4. *This guidance was shared with the Academic Senate Council on 11/2/2020.*
 5. *This guidance was shared with the Council of Chairs on 11/4/2020.*
 6. *This guidance was endorsed by all the racial affinity groups: AASA, LFSA, and the APIFSA steering committee in November.*
 7. *This guidance was endorsed by the Academic Senate Council on 11/16/2020.*
 8. *This guidance was shared with all faculty on 11/17/2020.*

DVC Online Proctoring Guidance

In alignment with CCC Chancellor's Office recommendations, the 4CD Districtwide Distance Education Council discourages the use of online proctoring assessment programs and software given that authentic assessment is a more equitable, accessible, and practical alternative.

Online proctoring tools that monitor student movements and record them and their backgrounds are unnerving, intrusive, inequitable (CCCCO, [2020](#); Logan, [2021](#), Zuboff, [2019](#)). Use of these technologies disproportionately impacts students of color ("NIST Study Evaluates Effects of Race, [2019](#), Hu. and Rangwala, [2020](#), Noble, [2018](#)), students with disabilities (Brown, [2020](#); Swauger [2020](#)), LGBTQIA+ identified students (Marshall, [2019](#); Scheuerman, et. al, [2019](#)), students experiencing unstable housing, students facing wifi or connectivity issues, students with a contested documentation status, and students with children (Swauger [2020](#), Bedoya, [2020](#)). Proctoring surveillance can heighten student stress and test-anxiety and impact assessment efficacy (Woldeab & Brothen, [2019](#), Higdon and Huff, [2020](#)) and poses data security risks (Germain, [2020](#)). In addition, proctoring technologies were legally found to violate students' rights to privacy (Ogletree v. Cleveland State University, [2022](#))¹

In place of proctored exams, we recommend the use of authentic assessment in curriculum and course design. Authentic assessment facilitates student connection and application of knowledge to various real world contexts (work, community, self) and emphasizes scaffolded processes of identifying, applying, building, and presenting through project-based learning or portfolio work rather than traditional exams which may rely on rote memorization (McArthur [2021](#) and [2023](#)). Authentic assessment aligns with the mission of the Contra Costa Community College district and is a more equitable and culturally responsive practice. Authentic assessment can help preserve academic integrity and promote skill building that aligns with students' educational goals.

Should an instructor choose to use online proctoring software, we recommend faculty limit the invasive features of the software and use it only for identity verification.

- Include proctoring use in schedule of classes "comments" section
- Include online proctoring software requirements in your syllabus and orientation module.
- Consider using the least restrictive proctoring software settings available, such as ID verification only.
- include information on how the proctoring platform works, which settings will be used in Canvas, and how student data is accessed and/or stored.

¹ In the Ogletree case, the student's room scan occurred for as little as 10 seconds of the entire proctoring period, but brevity did not change the court's opinion (Ogletree, 2022). As stated, "It may be that it is the obnoxious thing in its mildest and least repulsive form; but illegitimate and unconstitutional practices get their first footing in that way, namely, by silent approaches and slight deviations from legal modes of procedure." Silverman, 365 U.S. at 512 (quoting Boyd v. United States, 116 U.S. 616, 635 (1886)).

- Set up a low stakes, practice exam to help students troubleshoot issues and misunderstandings before a graded exam
- Include “opt out” mechanism that allows a student to decline online video proctoring considering students’ privacy, technical, or religious objections ([CCCCO’s Legal Opinion: Cameras-On Requirements](#)).
- Review the [proctoring center guidelines](#) if a student requests an alternative to online proctoring
- Contact [DSPS](#) to work with students who have accommodations.

For guidance on the implementation of online authentic assessment, faculty should consult campus Distance Education and Training Coordinators, or review resources listed below.

Resources for Authentic Assessment

- [DVC Digital Equity and Distance Education Newsletter](#)
- Gay, G. (2018). [Culturally Responsive Teaching: Theory, Research, and Practice](#). Teachers College Press.
- Hammond, Z. (2014). [Culturally Responsive Teaching and the Brain: Promoting Authentic Engagement and Rigor Among Culturally and Linguistically Diverse Students](#). Corwin Press.
- Herrera, S. G. (2022). [Biography-Driven Culturally Responsive Teaching: Honoring Race, Ethnicity, and Personal History](#). Teachers College Press.
- Ladson-Billings, G. (1995). [Toward a theory of culturally relevant pedagogy](#). American Educational Research Journal, 32(3), 465-491.
- Montenegro, E., & Jankowski, N. A. (2020). [A New Decade for Assessment: Embedding Equity into Assessment Praxis](#). Occasional Paper No. 42. National Institute for Learning Outcomes Assessment.
- O’Leary, E. S., Shapiro, C., Toma, S., Sayson, H. W., Levis-Fitzgerald, M., Johnson, T., & Sork, V. L. (2020). [Creating Inclusive Classrooms by Engaging STEM Faculty in Culturally Responsive Teaching Workshops](#). International Journal of STEM education, 7, 1-15.
- Wise, T. (2019, September 16). *Forget STEM, We Need MESH*. Medium.com <https://medium.com/our-human-family/forget-stem-we-need-mesh-43ab6f6273cd>

REJECTING TEST SURVEILLANCE IN HIGHER EDUCATION

*Lindsey Barrett***

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“Isn’t that the thing about authoritarian states — that they expect you to become used to it?”

—*Daniel Farzannekou, UCLA student*¹

“[Remote proctoring software is] sort of like spyware that we just legitimize”

—*Chris Dayley, Director of Academic Testing Services at Utah State University*²

“We’re the police”

—*Mike Olsen, CEO of Proctorio*³

The rise of remote proctoring software during the COVID-19 pandemic illustrates the dangers of surveillance-reliant pedagogy built on the belief that students can’t be trusted. These services, which deploy a range of identification protocols, computer and internet access limitations, and human or automated observation of students as they take tests remotely, are marketed as necessary to prevent cheating. But the success of these services in their stated goal is ill-supported at best and discredited at worst, particularly

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1. Shawn Hubler, *Keeping Online Testing Honest? Or an Orwellian Overreach?*, N.Y. TIMES (May 10, 2020), <https://www.nytimes.com/2020/05/10/us/online-testing-cheating-universities-coronavirus.html> [https://perma.cc/EL7U-FXNW].

2. Drew Harwell, *Mass School Closures in the Wake of the Coronavirus are Driving a New Wave of Student Surveillance*, WASH. POST (April 1, 2020, 10:00 AM), <https://www.washingtonpost.com/technology/2020/04/01/online-proctoring-college-exams-coronavirus/> [https://perma.cc/CAZ8-ENV7].

3. *Id.*

given their highly over-inclusive criteria for “suspicious” behavior. Meanwhile, the harms they inflict on students are clear: severe anxiety among test-takers, concerning data collection and use practices, and discriminatory flagging of students of color and students with disabilities have provoked widespread outcry from students, professors, privacy advocates, policymakers, and sometimes universities themselves. To make matters worse, the privacy and civil rights laws most relevant to the use of these services are generally inadequate to protect students from the harms they inflict.

Colleges and universities routinely face difficult decisions that require reconciling conflicting interests, but whether to use remote proctoring software isn’t one of them. Remote proctoring software is not pedagogically beneficial, institutionally necessary, or remotely unavoidable, and its use further entrenches inequities in higher education that schools should be devoted to rooting out. Colleges and universities should abandon remote proctoring software, and apply the lessons from this failed experiment to their other existing or potential future uses of surveillance technologies and automated decision-making systems that threaten students’ privacy, access to important life opportunities, and intellectual freedom.

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INTRODUCTION

Jazi, a first-generation student with caretaking responsibilities compelled by the COVID-19 pandemic, was flagged for “suspicious noise” by the software recording her take an exam in her family’s home.⁴ It was the first time she felt like she didn’t belong at her college, and she emptied her bank account to pay for on-campus housing as soon as the university permitted it.⁵ Ashley tried in vain to concentrate on her exam while a remote proctor with access to her computer kept moving her cursor, distracting her and exacerbating her anxiety about her performance until she dissolved into tears.⁶ Audrey, a transgender student at the Georgia Institute of Technology, characterized a remote proctor demanding their professor to confirm Audrey’s identity thanks to a photo ID that didn’t match their gender presentation as “humiliating.”⁷ Tracy, a recent graduate of Ohio State University with ADHD, described using only “half of [her] brain” on her remotely proctored exam and devoting the other half to policing the minor fidgeting that is a side effect of her condition, as she was afraid the software would characterize her movements as suspect.⁸ And Ahmed, an Arab-American law school graduate, estimated that he tried seventy-five times to get the remote proctoring software he would be required to use on the bar exam to recognize his face.⁹ It never did.¹⁰

4. See Anushka Patil & Jonah Engel Bromwich, *How It Feels When Software Watches You Take Tests*, N.Y. TIMES (Sept. 29, 2020), <https://www.nytimes.com/2020/09/29/style/testing-schools-proctorio.html> [https://perma.cc/BA86-82DJ].

5. See *id.*

6. See Mary Retta, *Exam Surveillance Tools Monitor, Record Students During Tests*, TEEN VOGUE (Oct. 26, 2020), <https://www.teenvogue.com/story/exam-surveillance-tools-remote-learning> [https://perma.cc/CJA4-6DWB].

7. *Id.*

8. *Id.*; Drew Harwell, *Cheating-Detection Companies Made Millions During the Pandemic. Now, Students Are Fighting Back.*, WASH. POST (Nov. 12, 2020, 9:18 AM), <https://www.washingtonpost.com/technology/2020/11/12/test-monitoring-student-revolt/> [https://perma.cc/K77W-B2AT].

9. See Todd Feathers & Janus Rose, *Students Are Rebelling Against Eye-Tracking Exam Surveillance Tools*, MOTHERBOARD (Sept. 24, 2020, 9:00 AM), <https://www.vice.com/en/article/n7wxvd/students-are-rebelling-against-eye-tracking-exam-surveillance-tools> [https://perma.cc/NK3V-6FSD].

10. See *id.*

Jazi, Ashley, Audrey, Tracy, and Ahmed’s experiences with remote proctoring software are disturbing examples of how an abrupt rush to convert in-person academic functions into digital analogues during the COVID-19 pandemic has impacted students.¹¹ While programs that provide fully online degrees have used this kind of testing surveillance software for years, social distancing mandates provoked an enormous spike in their use by universities that otherwise educate and evaluate the bulk of their students in person.¹² These services rely on a range of video and device surveillance, biometric identification protocols, and automated analysis to monitor students taking remote exams, and tend to be highly error-prone and over-reactive.¹³ Programs flag students as “suspicious” for innocent conduct like looking away from the computer screen for four seconds, unusual scrolling, or inadequate internet connectivity.¹⁴ Most services require students to take their exam on video, under the unflinching eye of a human or algorithmic proctor.¹⁵ Some require administrative access to the student’s computer and endanger the security of their information, including through lax security protocols and expansive data retention policies.¹⁶

Privacy violations and arbitrary flagging aren’t the only problems with this software.¹⁷ Most services use facial recognition or detection algorithms for identity verification or to ensure that the student does not leave the room, despite the repeatedly documented higher error rates of those algorithms for Black people, Native people, transgender and non-binary people, the elderly, and children.¹⁸ Students with disabilities are particularly vulnerable to

11. See, e.g., *supra* notes 4–9 (providing examples of students impacted by remote proctoring software).

12. See *infra* notes 80–87 and accompanying text.

13. See Harwell, *supra* note 8; see also *infra* notes 88–91 and accompanying text.

14. See Harwell, *supra* note 8; see also *infra* notes 83–82 and accompanying text.

15. See *infra* notes 56–58 and accompanying text.

16. See *infra* notes 196–197 and accompanying text.

17. See *infra* notes 18–21 and accompanying text.

18. See *NIST Study Evaluates Effects of Race, Age, Sex on Face Recognition Software*, NAT’L INST. OF STANDARDS & TECH. (Dec. 19, 2019), <https://www.nist.gov/news-events/news/2019/12/nist-study-evaluates-effects-race-age-sex-face-recognition-software> [<https://perma.cc/A3CD-K624>]; Joy Buolamwini & Timnit Gebru, *Gender Shades: Intersectional Accuracy Disparities in Commercial Gender Classification*, 81 *PROC. MACH. LEARNING RSCH.* 1, 2–8 (2018); INIOLUWA DEBORAH RAJI & JOY BUOLAMWINI, *ACTIONABLE AUDITING: INVESTIGATING THE IMPACT OF PUBLICLY NAMING BIASED PERFORMANCE RESULTS OF*

being flagged for gestures, utterances, eye movements, bathroom usage, and other aspects of their conditions, including approved testing accommodations.¹⁹ Low-income students may be flagged for aspects of their environments that they can't control, like noise in a crowded residence or WiFi failures.²⁰ The algorithms are built to flag anything deviant from what their designers contemplated as the norm for gestures, eye movements, skin color, and material resources, and they do what they're supposed to do.²¹

Ashley, Jazi, Audrey, Tracey, and Ahmed's stories are a sobering glimpse into the harms of remote proctoring software and other educational technologies that privacy scholars and advocates have long criticized.²² They include the chilling effects of surveillance on students' intellectual freedom; the ability of automated assessments and profiling to entrench existing inequities in education; and the potential for data collected from students to be abused, with the harms particularly concentrated on or disproportionately severe for marginalized students who already experience unmerited scrutiny and narrowed access to important opportunities.²³

COMMERCIAL AI PRODUCTS (2019); Joy Buolamwini, *When the Robot Doesn't See Dark Skin*, N.Y. TIMES (June 21, 2018), <https://www.nytimes.com/2018/06/21/opinion/facial-analysis-technology-bias.html> [<https://perma.cc/CZ32-ERFJ>]; Os Keyes, *The Misgendering Machines: Trans/HCI Implications of Automatic Gender Recognition*, 2 PROC. ACM ON HUM.-COMPUT. INTERACTION 1, 4 (2018); Laura M. Moy, *A Taxonomy of Police Technology's Racial Inequity Problems*, 2021 U. ILL. L. REV. 139, 162–63 (2021) [hereinafter *A Taxonomy of Police Technology's Racial Inequity Problems*] (listing studies of facial recognition and gender recognition algorithms that documented biased error rates); Lindsey Barrett, *Ban Facial Recognition Technologies for Children—And for Everyone Else*, 26 B.U. J. SCI & TECH. L., 223, 247–50 (2020) (documenting bias errors resulting from facial recognition and gender recognition software).

19. See Lydia X.Z. Brown, *How Automated Test Proctoring Software Discriminates Against Disabled Students*, CTR. FOR DEMOCRACY & TECH. (Nov. 16, 2020), <https://cdt.org/insights/how-automated-test-proctoring-software-discriminates-against-disabled-students/> [<https://perma.cc/6ZT8-RWBP>].

20. See Patil & Bromwich, *supra* note 4.

21. See Feathers & Rose, *supra* note 9.

22. See *supra* notes 4–9.

23. See generally Neil Richards, *Intellectual Privacy*, 87 TEX. L. REV. 387 (2008) (supporting the claim that surveillance can have chilling effects on students' intellectual freedom); Elana Zeide, *Student Privacy Principles For The Age of Big Data: Moving Beyond FERPA And FIPPS*, 8 DREXEL L. REV. 339, 352 (2016) [hereinafter *Student Privacy Principles*]; Elana Zeide, *The Limits of Education Purpose Limitations*, 71 U. MIA. L. REV. 494, 520 (2017) [hereinafter *Education Purpose Limitations*]; Barbara Fedders, *The Constant and Expanding Classroom: Surveillance in K-12 Public Schools*, 97 N.C. L. REV. 1673 (2019); Google

And while the harms to students are widespread and demonstrable, the basis for remote proctoring software's use—that remote testing invites cheating, and cheating should be stopped at all costs—is questionable.²⁴ Moreover, the ability of remote proctoring software to actually address those concerns is under-supported at best.²⁵ Whether students cheat more when evaluated remotely is unclear, and remote proctoring software is still easily gamed for the students who are determined to cheat.²⁶ Instructors also have a slew of evaluation alternatives they can turn to instead.²⁷ The harms that remote proctoring software inflicts would still outweigh its value if its use ensured fairer access to academic opportunities for students.²⁸ But it doesn't: quite the opposite.²⁹

As is so often true for new, privacy-violative, and biased technologies, existing legal protections for students' privacy and civil rights are largely insufficient to constrain the harms of remote proctoring software.³⁰ Certain aspects of remote proctoring software, such as racially disparate errors, disproportionate flagging of students with disabilities, and sloppy information security protocols, could meet the Federal Trade Commission (FTC)'s or a state Attorney General's definition of an unfair practice, while misrepresentations regarding privacy, security, or bias could constitute illegal deception.³¹ One can only hope that a recently invigorated FTC will scrutinize these companies, but the enforcement vacuum in which their business models were permitted to develop may still allow them to persist.³² The Family Educational

Deceptively Tracks Students' Internet Browsing, EFF Says in FTC Complaint, ELEC. FRONTIER FOUND. (Dec. 1, 2015), <https://www.eff.org/press/releases/google-deceptively-tracks-students-internet-browsing-eff-says-complaint-federal-trade> [<https://perma.cc/D2ZF-FEY9>]; *EPIC Student Privacy Project*, ELEC. PRIV. INFO. CTR., <https://epic.org/privacy/student/> [<https://perma.cc/FA2E-VWRS>] (last visited Oct. 3, 2022); Faiza Patel et al., *School Surveillance Zone*, BRENNAN CTR. FOR JUSTICE (April 30, 2019), <https://www.brennancenter.org/our-work/research-reports/school-surveillance-zone> [<https://perma.cc/JA5R-MUHX>].

24. See *infra* note 42.

25. See *infra* note 89.

26. See *infra* notes 87–89 and accompanying text.

27. See *infra* Section IV.A.

28. See ALBERT FOX CAHN ET AL., SNOOPING WHERE WE SLEEP: THE INVASIVENESS AND BIAS OF REMOTE PROCTORING SERVICES 4 (2020).

29. See *id.*

30. See *id.*; see also Richards *supra* note 23.

31. See *infra* Subsection III.A.1.

32. Developments that transpired during the editing process of this article provide support for optimism regarding the FTC's approach to invasive surveillance

Rights and Privacy Act (FERPA) only applies to schools, not the companies themselves, and provides a far too permissive architecture for third parties' collection and use of students' data.³³ Moreover, an educational institution has never had its federal funding withdrawn for a pattern or policy of violating FERPA in the history of the law.³⁴ Test-takers in Illinois face an uphill battle in their claims against remote proctoring software companies under the Biometric Information Privacy Act, and even a successful suit would likely provide an insufficient constraint on national practices.³⁵

Civil rights protections generally provide an even less promising avenue of redress.³⁶ The Supreme Court's interpretation of the Fourteenth Amendment's Equal Protection Clause and Title VI of the Civil Rights Act of 1964 will likely preclude most suits given the requirement for disparate impact theories to demonstrate discriminatory intent, which will either not exist in most cases or be exceedingly difficult to prove.³⁷ The standard of review established by the Supreme Court for plaintiffs alleging a denial of the Fourteenth Amendment's equal protection guarantee on the basis of disability also makes it exceedingly difficult for test-takers with disabilities to prevail on such a claim.³⁸ Title II and Title III of the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973 could require universities to take reasonable steps to accommodate students with disabilities who would be otherwise required to take exams with remote proctoring software, but how universities' perception of legal risk will shape

of students. See *Policy Statement of the Federal Trade Commission on Education Technology and the Children's Online Privacy Protection Act*, FED. TRADE COMM'N (May 19, 2022), https://www.ftc.gov/system/files/ftc_gov/pdf/Policy%20Statement%20of%20the%20Federal%20Trade%20Commission%20on%20Education%20Technology.pdf [https://perma.cc/P65T-98F8] (noting that "[i]n investigating potential violations of COPPA by providers of ed tech and other covered online services, the Commission intends to scrutinize compliance with the full breadth of the substantive prohibitions and requirements of the COPPA Rule and statutory language" and highlighting COPPA's prohibitions on mandatory collection, use prohibitions, retention prohibitions, and security prohibitions as areas of focus. However COPPA only protects children under the age of 13).

33. See *infra* Subsection III.A.2.

34. See *Education Purpose Limitations*, *supra* note 23, at 503.

35. See *infra* Subsection III.A.1.

36. See *infra* Subsection III.B.1.

37. See *id.*

38. See *infra* Subsection III.B.2.

their procurement decisions is difficult to predict.³⁹ A few legal mechanisms to curtail the harms of remote proctoring software do exist, but they've done poorly so far.⁴⁰

As higher education slowly returns to operations that resemble pre-COVID equilibrium, the use of remote proctoring software cannot be allowed to persist as an accidentally permanent vestige.⁴¹ Inertia is dangerously compelling, and the educational technology (ed tech) vendors who profited from the pandemic will have every reason to try to keep new clients and expand pandemic-compelled offerings into other services.⁴² Administrators, students, teachers, and policymakers must forcefully reject the idea that the most punitive approach to education is the most effective, and that the most buzzword-spangled approach to pedagogy is necessarily the most creative or innovative.⁴³ Encouragingly, many of them have, often at the urging of students and some instructors.⁴⁴ Colleges and

39. See *id.*

40. See, e.g., *id.*

41. See, e.g., Jeffrey R. Young, *Pushback Is Growing Against Automated Proctoring Services. But So Is Their Use*, ED SURGE (Nov. 13, 2020), <https://www.edsurge.com/news/2020-11-13-pushback-is-growing-against-automated-proctoring-services-but-so-is-their-use> [<https://perma.cc/4HT4-UF4Q>] (noting how academic testing changed due to the coronavirus pandemic, which led to the rise of automated proctoring software).

42. See, e.g., *id.* (describing Proctorio's deal with McGraw-Hill to build monitoring capabilities into homework tools).

43. See Jason Kelley & Tracy Zhang, *Students Are Pushing Back Against Proctoring Surveillance Apps*, ELEC. FRONTIER FOUND. (Sept. 25, 2020), <https://www.eff.org/deeplinks/2020/09/students-are-pushing-back-against-proctoring-surveillance-apps> [<https://perma.cc/N8Z8-SVMG>] (listing more than eighteen petitions by college students or faculty demanding that their schools stop using remote proctoring software).

44. See *id.*; Young, *supra* note 41 (estimating that 60,000 students had signed petitions demanding that universities abandon remote proctoring services); *infra* note 371 (listing BIPA lawsuits against remote proctoring companies); *infra* notes 359–434 and accompanying text (listing universities that have stopped using remote proctoring services, forbid its use, or counsel against its use); Press Release, Richard Blumenthal, U.S. Senator for Connecticut, Blumenthal Leads Call for Virtual Exam Software Companies to Improve Equity, Accessibility & Privacy for Students Amid Troubling Reports (Dec. 3, 2020), <https://www.blumenthal.senate.gov/newsroom/press/release/blumenthal-leads-call-for-virtual-exam-software-companies-to-improve-equity-accessibility-and-privacy-for-students-amid-troubling-reports> [<https://perma.cc/H7HS-QHPM>]; Karen Sloan, *New York Lawmakers Get an Earful Over Online Bar Exam*, N.Y. L.J. (Dec. 9, 2020 1:25 PM), <https://www.law.com/newyorklawjournal/2020/12/09/new-york-lawmakers-get-an-earful-over-online-bar-exam/> [<https://perma.cc/FX65-N4HU>] (New York Assembly's Committee on the Judiciary's hearing on the remote bar exam).

universities should take this upcoming period of societal transition to carefully reflect on how their existing procurement decision-making processes enabled their adoption of such harmful technology.⁴⁵ These institutions have a slew of alternatives to subjecting their students to invasive and discriminatory software, and they should avail themselves of them.⁴⁶ More broadly, colleges and universities must also consider how they can better protect their students' privacy and civil rights from harmful surveillance, rather than reflexively adopting or retaining invasive technology that corrodes those rights further.⁴⁷ They should start by abandoning remote proctoring software.⁴⁸

This Article joins work by other legal scholars examining the pandemic's impact on privacy, equity, and the normalization of surveillance, and is the first to account in-depth for the rise, failure, and ramifications of remote proctoring software in American universities during the pandemic.⁴⁹ It will start by providing context

45. See Kelley & Zhang, *supra* note 43.

46. See *id.*

47. See generally *id.* (discussing students' privacy rights and the growing desire to pushback against online surveillance and automated exam proctoring).

48. See generally *id.* (discussing student led initiatives to discontinue the use of remote proctoring software).

49. See Tiffany Li, *Privacy in Pandemic: Law, Technology, and Public Health in the COVID-19 Crisis*, 52 LOY. U. CHI. L.J. 767, 789–804 (2021) [hereinafter Li, *Privacy in Pandemic*] (analyzing the pandemic's impact on student privacy and discussing remote proctoring software); Liane Colonna, *Legal Implications of Using AI as an Exam Invigilator*, in 2020-2021 STOCKHOLM FAC. L. RSCH. PAPER SERIES NO. 91 (forthcoming 2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3839287 [<https://perma.cc/QL9E-MF9V>] (describing the use of remote proctoring software in European universities and the GDPR); Neil Selwyn et al., *A Necessary Evil? The Rise of Online Exam Proctoring in Australian Universities*, MEDIA INT'L AUSTL. (2021), <https://doi.org/10.1177/1329878X211005862> [<https://perma.cc/RM4R-WUEF>] (exploring the use of remote proctoring software in Australian universities). See generally Alan Butler & Enid Zhou, *Disease and Data in Society: How the Pandemic Expanded Data Collection and Surveillance Systems*, 70 AM. U. L. REV. 101 (2021) (discussing the spread of surveillance technologies in response to the COVID-19 pandemic, including remote proctoring software); Tiffany Li, *Post-Pandemic Privacy Law*, 70 AM. U. L. REV. 1681 (2021), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3850505 [<https://perma.cc/HR85-864D>]; SUSAN LANDAU, PEOPLE COUNT: CONTACT-TRACING APPS AND PUBLIC HEALTH (1st ed. 2020); Meredith Van Natta et al., *The Rise and Regulation of Thermal Facial Recognition Technology During the COVID-19 Pandemic*, 1 J.L. & BIOSCIENCES 17 (2020), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7337876/> [<https://perma.cc/T8N5-FQ2U>]; Clarisa Long, *Privacy and Pandemics*, in LAW IN THE TIME OF COVID-19 89 (2020), <https://scholarship.law.columbia.edu/books/240> [<https://perma.cc/98NN-74Q7>];

about the use and functionality of remote proctoring software in higher education.⁵⁰ It will then discuss the privacy violations and discriminatory harms it inflicts, including the effects of surveillance anxiety on students, the harms and risks of harm stemming from expansive data collection practices, and algorithmic discrimination on the basis of race, disability, and other protected characteristics, using Laura Moy's taxonomy of inequities in policing technologies to analyze how these services transfer, replicate, obscure, and exacerbate different forms of inequity in higher education.⁵¹ Part IV will discuss the relative (and limited) merits of potential legal avenues for addressing the privacy and discriminatory harms of remote proctoring software; Part V will provide recommendations for how colleges and universities should consider remote proctoring software and other technologies in education, specifically those with surveillance functions and those that use automated decision-making to assess students; and Part VI will conclude.⁵²

I. REMOTE PROCTORING SOFTWARE IN HIGHER EDUCATION

The COVID-19 pandemic rapidly accelerated the use of remote proctoring software—programs that include identity verification, limitations on how the test-taker can use their computer, video and/or audio surveillance of the test-taker, and alerts for “suspicious” conduct in universities, but did not create it out of thin air.⁵³ ProctorU was founded in 2008, and claimed to monitor “tens of thousands of online exams for over 200 partner institutions” in 2012 and 2 million exams for more than 750,000 students seven years later.⁵⁴ Respondus, another popular vendor, has been offering versions of its

Vincent J. Samar, *Cyber-Security, Privacy, and the COVID-19 Attenuation?*, 47 J. LEGIS. 1 (2021), <https://scholarship.law.nd.edu/jleg/vol47/iss1/1> [<https://perma.cc/UR9N-QHPC>].

50. See *infra* Parts I, II.

51. See *infra* Part III; Moy, *supra* note 18, at 162–63.

52. See *infra* Parts IV–VI.

53. Colleen Flaherty, *Big Proctor*, INSIDE HIGHER ED (May 11, 2020), <https://www.insidehighered.com/news/2020/05/11/online-proctoring-surg-ing-during-covid-19> [<https://perma.cc/5TPR-Y5JZ>].

54. ProctorU Proctoring Platform, MEASURE LEARNING, <https://www.measurelearning.com/products/proctoru-online-proctoring> [<https://perma.cc/U384-UTSG>]; ProctorU Launches Online Proctoring Industry's First API, Rolls Out New Integration with UNC Online System, MEASURE LEARNING (Aug. 28, 2012), <https://www.proctoru.com/industry-news-and-notes/proctoru-launches-online-proctoring-industrys-first-api-rolls-out-new-integration-with-unc-online-system> [<https://perma.cc/9HBT-9DGX>]; see also Harwell, *supra* note 2.

browser-limiting software since 2000.⁵⁵ *Inside Higher Ed*, a publication for university educators and administrators, noted the existence of at least fifteen companies providing remote proctoring services in 2017.⁵⁶

Prior to the pandemic, these services generally existed as a substitute for exams for online courses that would have otherwise been administered in a testing center with human proctors.⁵⁷ The logistical difficulties of identifying suitable testing sites for students taking exams from anywhere in the world, as opposed to on a single campus, made the possibility of a digitally administered exam that could be taken anywhere attractive for many students and institutions.⁵⁸ Students struggled to find available locations that their institutions would approve, which became even more difficult over time as the online degrees grew more popular and demand for testing locations rose.⁵⁹ Remote proctoring services addressed these concerns, and were often embraced by students, teachers, and administrators, though privacy concerns were simultaneously raised.⁶⁰

Remote proctoring programs rely on a range of capacities to monitor test-takers and identify conduct that they deem indicative of possible cheating, and most vendors offer a few different products with varying levels of scrutiny.⁶¹ Many of the most popular proctoring programs are web browser extensions and often specify a particular browser (usually Google's Chrome) or a few (Internet Explorer, Firefox, Safari, or Opera).⁶² The process generally starts

55. See Hubler, *supra* note 1.

56. See Jean Dimeo, *Online Exam Proctoring Catches Cheaters, Raises Concerns*, INSIDE HIGHER ED (May 10, 2017), <https://www.insidehighered.com/digital-learning/article/2017/05/10/online-exam-proctoring-catches-cheaters-raises-concerns> [<https://perma.cc/N7JR-BKX7>].

57. See *id.*

58. Mark Lieberman, *Exam Proctoring for Online Students Hasn't Yet Transformed*, INSIDE HIGHER ED (Oct. 10, 2018), <https://www.insidehighered.com/digital-learning/article/2018/10/10/online-students-experience-wide-range-proctoring-situations-tech> [<https://perma.cc/938U-YUMQ>].

59. See *id.*

60. See Dimeo, *supra* note 56; see also Natasha Singer, *Online Test-Takers Feel Anti-Cheating Software's Uneasy Glare*, N.Y. TIMES (Apr. 5, 2015), <https://www.nytimes.com/2015/04/06/technology/online-test-takers-feel-anti-cheating-software-uneasy-glare.html> [<https://perma.cc/SJ6N-WVX3>].

61. See Harwell, *supra* note 2.

62. See *How to Download and Set Up the ProctorU Browser Extension*, UTS, <https://www.uts.edu.au/current-students/managing-your-course/classes-and->

with some form of identity verification, often a comparison of the test-taker's school ID card with an image of their face captured by the software.⁶³

Many programs rely on facial recognition or detection algorithms to identify the test taker or to search for other people in the room once the test has begun, though the variation in language in the companies' characterizations of their software and lack of transparency make it difficult to unequivocally identify the technologies being used.⁶⁴ ExamSoft refers to "facial identification analysis" and Kryterion to "facial recognition," while TopHat refers to "advanced facial detection."⁶⁵ Proctorio takes assiduous care to distinguish its technology as "detection" rather than "recognition," as does Respondus Monitor.⁶⁶ ProctorU and ProctorTrack refer to "facial confirmation," while the latter also characterizes its desktop app as using "continuous facial recognition throughout" the exam in addition to the initial identification protocol.⁶⁷ Products from

assessment/exams/online-exams/how-download-and-set-proctoru-browser-extension [https://perma.cc/P46C-FY4H] (last visited Oct. 3, 2022).

63. See Harwell, *supra* note 2.

64. See *id.*

65. See *ExamID: Auto-Identity Verification Tool*, EXAMSOFT, <https://examsoft.com/resources/examid-auto-identity-verification-tool/> [https://perma.cc/Q9UV-39M2] (last visited Oct. 3, 2022); *How To Launch an Online Proctored (OLP) Exam*, KRYTERION ONLINE, https://kryterion.force.com/support/s/article/Launching-your-Online-exam?language=en_US [https://perma.cc/2RW3-G9QH] (last visited Jan. 13, 2023); *ProctorU Live+*, PROCTORU, https://www.sc.edu/about/offices_and_divisions/distributed_learning/documents/proctoru_liveplus.pdf [https://perma.cc/NB6W-MEDF] (last visited Jan. 24, 2023); *Top Hat Announces Free Secure Remote Proctoring for Tests and Exams*, TOP HAT (Mar. 20, 2020), <https://tophat.com/blog/remote-proctoring-announcement/> [https://perma.cc/5YFR-PKBJ].

66. *Frequently Asked Questions*, PROCTORIO, <https://proctorio.com/frequently-asked-questions#general> [https://perma.cc/Y724-N4SE] (last visited Oct. 3, 2022); Scott Klum, David Smetters, *Algorithm Fairness and Respondus Monitor Proctoring: A Study Using Casual Conversations*, RESPONDUS MONITOR (last visited Jan. 13, 2023); Todd Feathers, *Proctorio is Using Racist Algorithms to Detect Faces*, VICE (Apr. 8, 2021), <https://www.vice.com/en/article/g5xg3/proctorio-is-using-racist-algorithms-to-detect-faces> [https://perma.cc/9QLR-EZSY] (responding to a reporter's inquiry about connections between Proctorio's code and facial recognition algorithms that have been demonstrated to be racially discriminatory, the Proctorio spokeswoman responded "[w]hile the public reports don't accurately capture how our technology works in full, we appreciate that the analyses confirm that Proctorio uses face detection (rather than facial recognition)").

67. See *How It Works*, PROCTORTRACK, <https://www.proctortrack.com/how-it-works/> [https://perma.cc/V324-2YVL] (last visited Jan. 16, 2023) ("Multi-factor

ProctorU, Proctortrack, Examsoft and others require students to keep their computer's webcam and microphone on during the duration of the exam, with the student often having to provide a 360-degree view of their environment before the test can begin.⁶⁸

When the test is underway, the programs use either automated detection of "suspicious" behavior, a live proctor who watches the student via their webcam, or both to monitor the test-taker, and may record the test-taker's screen for perceived anomalies.⁶⁹ Some offer a record-and-review model, where the test-taker is recorded during the exam and the footage is subsequently reviewed by a human proctor, in lieu of a proctor monitoring the test-taker during the exam and interrupting the test in the event of a perceived anomaly.⁷⁰ The programs generally limit the test-taker's ability to fully access their computer, whether by blocking certain websites and other applications (or blocking all other websites or applications by default, and permitting a select few),⁷¹ preventing them from using copy and paste, right-clicking their mouse, printing, or taking screenshots.⁷² Some, like Proctorio, record the student's web traffic

biometric authentication upon entry and continuous facial recognition throughout."); *Mobile App*, PROCTORTRACK, <https://www.proctortrack.com/mobile-app/> [<https://perma.cc/U4DT-4CPV>] (last visited Oct. 3, 2022); *Advanced Remote Exam Security*, MEASURE LEARNING, <https://www.measurelearning.com/services/advanced-remote-exam-security> [<https://perma.cc/J8JX-MN5K>].

68. See *Mobile App*, *supra* note 67; *Compare our online proctoring features and benefits with other solutions*, MEASURE LEARNING (last visited Jan. 16, 2023), <https://www.measurelearning.com/exam-technology/proctoru-online-proctoring/compare-proctoring-features> [<https://perma.cc/4X55-ACDR>].

69. See, e.g., *Comprehensive Guide to Online Evaluations*, HONORLOCK, <https://honorlock.com/blog/comprehensive-guide-to-online-exams/> [<https://perma.cc/B953-ZTJU>] (last visited Oct. 3, 2022).

70. See *Automated or Live Online Proctoring*, PROCTORIO, <https://proctorio.com/platform/exam-monitoring> [<https://perma.cc/LCC6-EGRB>] (last visited Jan. 16, 2023); *Online Proctoring for Higher Education*, PSI, <https://www.psionline.com/education/online-proctoring> [<https://perma.cc/WU2X-87FH>] (last visited Oct. 3, 2022).

71. See *ProctorLive AI Level 4 couples our certified proctors with our industry-leading automated technology. An industry break-through offering*, PROCTORTRACK, <https://www.proctortrack.com/proctorlive-ai/> [<https://perma.cc/TS6R-TNWV>] (last visited Jan. 16, 2023) (describing ProctorTrack's ability to "whitelist" and "blacklist" apps).

72. See, e.g., *Respondus Lockdown Browser-Overview*, RESPONDUS, <https://web.respondus.com/he/lockdownbrowser/> [<https://perma.cc/D4ED-HHWD>] (last visited Jan. 16, 2023); VICTORIA BROWN, *EVALUATING TECHNOLOGY TO DETECT ACADEMIC INTEGRITY VIOLATIONS IN ONLINE ENVIRONMENTS 2* (describing the capacities of various proctoring services); Harwell, *supra* note 8 (describing features of similar services).

during the exam.⁷³ Honorlock detects any other devices the test-taker might be using and records the screen of those devices to identify “suspicious activity” and “provide evidence in the event of a violation.”⁷⁴ These programs generally offer an algorithmically-generated breakdown of potentially “suspicious” behaviors for the instructor’s review, with that assessment sometimes undergoing an initial review by a human proctor employed by the company.⁷⁵ Kryterion, for example, warns test-takers that if its program perceives a third party in the test-taker’s presence or detects the voice of any third party that their session may be “immediately terminated and the test stopped,” with the test-taker forfeiting any testing fees and receiving no academic credit for whatever work they’ve completed on the test.⁷⁶ Test-takers are not provided with the video recording of their exams, and generally do not have visibility into the software’s assessments of their character.⁷⁷

The intensely virulent spread of COVID-19 around the globe compelled educators accustomed to in-person teaching to rapidly adjust their practices, including how they gave exams. Instructors reported concerns about students cheating without the accountability of human proctors—one survey found that sixty percent of instructors believed students were more likely to cheat on remotely administered tests, while another found that ninety-three percent of instructors believed that cheating was more likely in those

73. See Letter from Proctorio to Senators Blumenthal, Wyden, Van Hollen, Smith, Warren, and Booker (Jan. 7, 2021), <https://epic.org/privacy/dccppa/online-test-proctoring/Proctorio-senate-response-010721.pdf> [<https://perma.cc/C7R7-GNMK>] [hereinafter Proctorio Response Letter].

74. *Comprehensive Guide to Online Evaluations*, HONORLOCK, <https://honorlock.com/blog/comprehensive-guide-to-online-exams/> [<https://perma.cc/B953-ZTJU>] (last visited Oct. 3, 2022).

75. See *Comprehensive Guide to Online Evaluations*, HONORLOCK, <https://honorlock.com/blog/comprehensive-guide-to-online-exams/> [<https://perma.cc/B953-ZTJU>] (last visited Jan. 16, 2023).

76. *Privacy Policy*, KRYTERION, <https://www.kryteriononline.com/privacy> [<https://perma.cc/L9XZ-KQ5K>] (last visited Jan.. 16, 2023).

77. See, e.g., Kashmir Hill, *Accused of Cheating by an Algorithm, and a Professor She Had Never Met*, N.Y. TIMES (May 27, 2022), <https://www.nytimes.com/2022/05/27/technology/college-students-cheating-software-honorlock.html> [<https://perma.cc/3DN8-48H3>] (describing a teenage student falsely accused of cheating as a “rare example of an accused cheater who received the evidence against her: a 50-second clip from her hourlong Honorlock recording”) (emphasis added).

circumstances.⁷⁸ An engineering professor's remark to the Washington Post that "[y]ou cannot give an exam if it is not proctored" succinctly summarizes the prevailing mood, as does the Jacksonville University Director of Academic Integrity's description of her colleagues to *Teen Vogue*: "[t]he faculty had this perception that online students are more likely to cheat than students in face-to-face classes. And it's just not true."⁷⁹ But those fears need not be accurate to have impacted teaching methods and university procurement, and cheating fears seem to have motivated administrators and instructors to adopt testing surveillance services during the pandemic.⁸⁰

Remote proctoring companies like Proctorio went from adding an average of 100 new universities to its roster per year to evaluating 120 leads per day, with the CEO reporting a 900% growth in business between March and April 2020.⁸¹ It claims to have proctored 21 million exams in 2020, after proctoring 6 million in 2019.⁸² ProctorU now claims to work with 1,500 schools nationwide.⁸³ Another popular company, Respondus, reportedly went

78. Doug Lederman, *Best Way to Stop Cheating in Online Courses? 'Teach Better,'* INSIDE HIGHER ED (July 22, 2020), <https://www.insidehighered.com/digital-learning/article/2020/07/22/technology-best-way-stop-online-cheating-no-experts-say-better> [https://perma.cc/KAP6-HNY5]; see also WILEY, ACADEMIC INTEGRITY IN THE AGE OF ONLINE LEARNING 2 (2020).

79. Derek Newton, *Another Problem with Shifting Education Online: A Rise in Cheating*, WASH. POST (Aug. 7, 2020), https://www.washingtonpost.com/local/education/another-problem-with-shifting-education-online-a-rise-in-cheating/2020/08/07/1284c9f6-d762-11ea-aff6-220dd3a14741_story.html [https://perma.cc/9XCB-3R3K]; Maya Eashwaran, *Remote Learning and Cheating: Professors and Students Weigh In*, TEEN VOGUE (March 4, 2021), <https://www.teenvogue.com/story/cheating-remote-learning-chegg-slader> [https://perma.cc/8Z2J-E7NF].

80. See, e.g., Sarah Silverman, et. al., *What Happens When You Close the Door on Remote Proctoring? Moving Toward Authentic Assessments with a People-Centered Approach*, 39 EDUC. DEV. TIME CRISES 115, 122 (2021) [hereinafter *Moving Toward Authentic Assessments*] ("In the wake of the decision to strongly discourage remote proctoring, the Hub staff noticed that faculty were reluctant to continue giving exams in a remote fashion because of academic integrity concerns."); Lederman, *supra* note 78.

81. See Harwell, *supra* note 2; Hubler, *supra* note 1.

82. See Tawnell D. Hobbs, *Cheating at School Is Easier Than Ever—and It's Rampant*, WALL ST. J. (May 12, 2021), <https://www.wsj.com/articles/cheating-at-school-is-easier-than-everand-its-rampant-11620828004> [https://perma.cc/F3L9-F7XP].

83. Shawn Hubler, *Keeping Online Testing Honest? Or an Orwellian Overreach?*, N.Y. TIMES (May 10, 2020), <https://www.nytimes.com/2020/05/10/>

from 1,500 to 2,500 companies using its services in just a few weeks.⁸⁴ But other sources also seem to illustrate a spike in use over the period.⁸⁵ An independent study of students' privacy and security perceptions of remote proctoring software found that the use of remote proctoring software rose 720% during the pandemic, based on the number of user reviews on the Chrome Web Store during 2018, 2019, and 2020.⁸⁶ Advocacy group Fight for the Future provided additional information with its 2021 survey of sixty-seven "prominent colleges and universities" about their use of remote proctoring software, which provides another limited metric: it reported that forty-six were using remote proctoring software, of which seven responded that they "might" and fourteen reported that they "won't" be using remote proctoring software during the fall 2021 semester.⁸⁷ But even discounting the reliability of precise figures, the use of remote proctoring software has clearly risen during the COVID-19 pandemic, given the sudden need for schools to educate students remotely, and the perception of many educators and administrators that remote assessments would invite cheating.⁸⁸

As is not unusual among ed tech vendors, remote proctoring companies don't provide rigorous evidence to support heated claims about the prevalence of cheating on remote exams or the ability of their software to stop it.⁸⁹ Without support, the executives at these

us/online-testing-cheating-universities-coronavirus.html [https://perma.cc/EL7U-FXNW].

84. See *id.* These figures should be taken with a grain of salt, as they originate from the companies themselves, which are motivated to represent themselves as successful and influential.

85. See, e.g., David G. Balash et al., *Examining the Examiners: Students' Privacy and Security Perceptions of Online Proctoring Services*, in PROCS. SEVENTEENTH SYMP. USABLE PRIV. & SEC. 633, 635 (2021) (describing methodology used to illustrate a usage spike) [hereinafter *Examining the Examiners*].

86. See *id.*

87. *Protect Student Privacy: Ban EProctoring*, FIGHT FOR THE FUTURE, <https://www.baneproctoring.com/> [https://perma.cc/LY33-TAVK] (last visited Oct. 3, 2022) (providing information about key schools but not providing information as to how the schools were selected).

88. See Harwell, *supra* note 2 (documenting the rise of remote proctoring software use by universities during the pandemic); see also Young, *supra* note 42 (documenting the rise of remote proctoring software use by universities during the pandemic).

89. See Simon Coghlan et al., *Good Proctor or "Big Brother"? Ethics of Online Exam Supervision Technologies*, 34 PHIL. & TECH. 1581, 1586, 1592–93 (2021) ("But, as we have noted, the operation of such systems is often opaque, and although claims are made about accuracy, the OP company websites rarely if ever cite rigorous studies to justify their claims and to eliminate concerns about false

companies have claimed that without using their products, universities risk saddling students with “corona degrees” that “employers won’t accept as valid”⁹⁰; that proctored online exams are the only acceptable method of “preparing students for the workplace”⁹¹; that proctored exams “prevent negative career effects due to missed deadlines”⁹²; that ceasing to use their products will “make cheating more common than it already is, escalating a severe threat to all higher education”⁹³; and that students and faculty may feel “ripped off” by the cheating that will occur in the absence of remote proctoring software.⁹⁴ In a *New Yorker* interview, Proctorio CEO Mike Olsen remarked that while he agreed that the company’s service shouldn’t be used for all testing circumstances, “you [also] have people who can literally kill people as students—like, at the pharmacy school, in their second year, they’re in the hospital giving out drugs.”⁹⁵

Yet the existing research does little to support the existence of the problem their software is intended to solve, and the evidence that remote proctoring is an effective anti-cheating measure is similarly

positives (e.g. Examity, 2020; Proctorio, 2020).”); see also CAHN ET AL., *supra* note 28, at 4; Gabriel Geiger, *Students Are Easily Cheating ‘State-of-the-Art’ Test Proctoring Tech*, VICE: MOTHERBOARD (Mar. 5, 2021, 10:01 AM), <https://www.vice.com/en/article/3an98j/students-are-easily-cheating-state-of-the-art-test-proctoring-tech> [<https://perma.cc/566L-Q8FF>]; Todd Feathers, *Colleges Say They Don’t Need Surveillance Tools to Stop Cheating*, VICE: MOTHERBOARD (Nov. 16, 2020, 10:28 AM), <https://www.vice.com/en/article/88ag8z/colleges-say-they-dont-need-exam-surveillance-tools-to-stop-cheating> [<https://perma.cc/VG7G-LVFW>].

90. See Feathers, *supra* note 89.

91. See Geiger, *supra* note 89 (“Currently, online exams are the only option when it comes to giving students access to testing, which ultimately prevent negative career effects due to missed deadlines,” the [Proctorio] spokesperson continued. ‘Exam results demonstrate the competencies and achievements required for academic advancement and further employment. An exam process that is aligned with the requirements of the pandemic is a basic requirement for degree programs.’”).

92. See *id.*

93. See Feathers, *supra* note 10.

94. See Jillian Berman, *Colleges Turned to Software to Catch Cheaters During the Pandemic – So Why Are Some Schools Banning It?*, MARKETWATCH (May 18, 2021), <https://www.marketwatch.com/story/colleges-turned-to-software-to-catch-cheaters-during-the-pandemic-inside-one-schools-decision-to-ban-it-11621288371> [<https://perma.cc/5JH2-HUAV>].

95. See Nora Caplan-Bricker, *Is Online Test-Monitoring Here to Stay?*, NEW YORKER (May 27, 2021), <https://www.newyorker.com/tech/annals-of-technology/is-online-test-monitoring-here-to-stay> [<https://perma.cc/2AW5-99TL>].

scarce.⁹⁶ As the Surveillance Technology Oversight Project notes in a detailed report on the harms of remote proctoring, the same concerns about cheating that precipitated the rise of remote proctoring software were raised in response to the initial rise of online education, and found to be empty.⁹⁷ Studies have found that students are more likely to cheat in in-person settings, or no more likely to cheat on a remote test than they would on an in-person test.⁹⁸ Increased stress interfering with academic performance would likely account for relatively lower grades on remotely proctored exams, rather than academic dishonesty bolstering grades on unproctored exams to relative heights.⁹⁹ And whatever cheating students may feel compelled to attempt isn't necessarily going to be stopped by remote proctoring software, as students have evaded the software's gaze with methods as simple as spreading notes on the floor or taping them to the wall behind their computer.¹⁰⁰ Even if cheating were

96. See Elizabeth Laird, *Laird: Remote Proctoring of Exams Is an Invasive Tool Without Clear Security Protections. States & Districts Should Avoid Rushing In*, THE74 (May 18, 2021), <https://www.the74million.org/article/laird-remote-proctoring-of-exams-is-an-invasive-tool-without-clear-security-protections-states-districts-should-avoid-rushing-in/> [<https://perma.cc/PJ2D-V8BW>] (“There is no independently verified evidence that remote proctoring software works; however, there is evidence that it discriminates against students who might fall outside the norm”); see also Albert Fox Cahn & Grace Deng, *Remote Testing Software is an Inaccurate, Privacy-Invasive Mess*, FAST CO. (Dec. 16, 2020), <https://www.fastcompany.com/90586386/remote-test-taking-software-is-an-inaccurate-privacy-invading-mess> [<https://perma.cc/MFS5-KD92>] (“But there isn’t conclusive evidence the technology is needed. Maybe students cheat more during remote exams, maybe they cheat less. The research on this topic from before the pandemic began is actually quite mixed, though some recent studies have pointed to evidence of cheating.”).

97. See Cahn et al., *supra* note 89, at 4, n. 21.

98. George Watson & James Sottile, *Cheating in the Digital Age: Do Students Cheat More in Online Courses?*, 13 ONLINE J. DISTANCE LEARNING ADMIN. 1, 5 (2010) (finding that cheating was more prevalent for in-person courses); Victoria Beck, *Testing a Model to Predict Online Cheating—Much Ado About Nothing*, 15 ACTIVE LEARNING HIGHER EDUC. 65, 72 (2014) (finding that students are no more likely to cheat on remote exams than on in-person exams); Albert Fox Cahn & Grace Deng, *Remote Test-taking Is an Inaccurate, Privacy-invading Mess*, FAST CO. (Dec. 6, 2020), <https://fastcompany.com/90586386/remote-test-taking-software-is-an-inaccurate-privacy-invading-mess> [<https://perma.cc/LA5A-WHAF>]; Hubler, *supra* note 1.

99. See Caplan-Bricker, *supra* note 95.

100. See Geiger, *supra* note 89 (“Motherboard spoke to 10 university students from various countries who claimed to have cheated on exams where Proctorio was in place. While their motivations and techniques varied, there was one common denominator: none of them got caught. The relative ease with which the

rampant and remote proctoring software stopped it reliably, its use would do far more harm than good.¹⁰¹ But the evidence supporting the severity of the problem and the necessity of the solution are simultaneously lacking.¹⁰²

Meanwhile, though rigorous numbers on false positives rates are difficult to come by given the corporate incentives against transparency, reports of students being incorrectly flagged or struggling to get the software to work have been plentiful.¹⁰³ A UCLA student was repeatedly flagged during her exam because her allergies caused her to sneeze, and the software interpreted her tissues as illicit scrap paper.¹⁰⁴ Students at North Carolina A&T University were surprised to receive an email from their professor castigating them for the high rate of “suspicious” movements flagged by Proctorio and one student’s “776 head and eye movements” in six minutes.¹⁰⁵ Students have reported being flagged for jotting down notes, reading questions aloud, and looking away from their monitors to think.¹⁰⁶ Students consistently report severe anxiety over being subjected to such invasive surveillance and the risk of being arbitrarily flagged as a cheater.¹⁰⁷

Test-takers’ fears of arbitrary sanction are well-founded, given the minefield of anodyne behaviors that could subject them to in-time or post-exam flagging.¹⁰⁸ Looking away from the screen for more than four seconds, looking away from the screen twice in one minute, moving your head, moving your mouth, returning to a website multiple times, background noise, briefly leaving the view of the webcam, any other “unnecessary or excessive movement and gestures,” the presence of hair, sunglasses, or a hat that in any way obscures the camera’s view of your face, speaking, clicking or

students cheated, and the fact that each student could point to multiple peers who had done the same (one American student estimated that 90 percent of her class had cheated), raises the question of how effective online proctoring software like Proctorio actually is—and whether it is worth the hefty price tag or the invasion of privacy.”).

101. See Hubler, *supra* note 1.

102. See Gieger, *supra* note 89.

103. See Hubler, *supra* note 1.

104. See *id.*

105. See Harwell, *supra* note 8.

106. See *id.*; see also Retta, *supra* note 6.

107. See, e.g., *infra* notes 142–144 and accompanying text.

108. See *Student FAQ on Proctorio*, CAL. ST. UNIV. CHICO, <https://www.csuchico.edu/tlp/proctorio/student.shtml> [https://perma.cc/Z7BK-F7RB] (last visited Oct. 3, 2022).

scrolling too much or too little, resizing an application window, the presence of water or food, two test-takers using the same WiFi network, or the loss of WiFi access could result in the test-taker being flagged for review or assessed as “suspicious.”¹⁰⁹ And as is so often the case with surveillance technologies, the harms of remote proctoring software have been disproportionately felt by vulnerable and marginalized students, as the next section will discuss in detail.¹¹⁰

Remote proctoring services have failed students through overinclusive heuristics for cheating, but they’ve also caused stress and interfered with students’ academic performance through basic operational errors.¹¹¹ ExamSoft paid more than \$2 million to test-taker plaintiffs in 2015 when technical errors interfered with bar exams in forty-three states.¹¹² Software crashes interrupted exams or practice exams for examinees New York, California, Illinois, Nevada, Indiana, Florida, and other states in 2020, including one examinee who was informed that he had failed the bar when he had passed, due to software support addressing technical failures during the test, which ultimately led to his answers being erroneously scored.¹¹³ Some graduate programs decided to drop their GRE

109. See Harwell, *supra* note 2; Proctorio Response Letter, *supra* note 73, at 4; *Student FAQ on Proctorio*, CAL. ST. UNIV. CHICO, <https://www.csuchico.edu/tlp/proctorio/student.shtml> [<https://perma.cc/E23K-Z5YE>] (last visited Oct. 3, 2022); A.I. Proctoring/*Invigilation Exam Day Guide*, EXAMSOFT (Aug. 31, 2020), <https://examsoft.com/resources/proctoring-invigilation-exam-day-guide> [<https://perma.cc/DQ23-AGSM>]; *What Counts As Cheating?*, VERIFICENT TECHS. SUPPORT (Apr. 6, 2018, 11:09 PM), <https://verificent.freshdesk.com/support/solutions/articles/1000165264-what-counts-as-cheating-> [<https://perma.cc/Y5EY-BSW5>]; *Comprehensive Guide to Online Exams*, HONORLOCK (Feb. 19, 2021), <https://honorlock.com/blog/comprehensive-guide-to-online-exams/> [<https://perma.cc/5KGH-RLEH>]; Feathers, *supra* note 9; Patil & Bromwich, *supra* note 4.

110. See Feathers, *supra* note 9.

111. See Colin Lecher, *Remote Exam Software Is Crashing When the Stakes Are the Highest*, THE MARKUP (Oct. 13, 2020, 08:00 AM), <https://themarkup.org/coronavirus/2020/10/13/remote-exam-software-failures-privacy> [<https://perma.cc/Q8TS-DT2K>].

112. See *id.*

113. See Stephanie Francis Ward, *Amid Claims That Online Bar Exam Went Well, Some Test-Takers Have a Different View*, ABA J. (Oct. 20, 2020, 9:28 AM), <https://www.abajournal.com/web/article/amid-claims-that-online-bar-exam-went-well-some-test-takers-have-a-different-view> [<https://perma.cc/8J2K-VPDU>] (describing software failures for New York and California examinees); see also Stephanie Francis Ward, *October Online Bar Is Less Than a Month Away, and Test-Takers Report Significant Software Problems*, ABA J. (Sept. 17, 2020, 2:02 PM), <https://www.abajournal.com/web/article/october-online-bar-is-less-than-a-month-away-and-test-takers-report-significant-software-problems> [<https://perma.cc/U9X9->

requirements for applicants during the pandemic due to the ubiquity of technical errors hindering online administration of the test.¹¹⁴ Incompetent assistance from the remote proctoring companies for malfunctions, reports of which are similarly widespread, can further compound the anxiety and academic interference of the original technical errors.¹¹⁵

These problems have not gone unnoticed.¹¹⁶ Students, parents, instructors, advocates, policymakers, and even some educational institutions have been vocal about the harms of remote proctoring software.¹¹⁷ The Electronic Frontier Foundation counted sixteen “larger” petitions from college students calling on their schools to drop the software due to privacy invasions and discrimination against students of color and students with disabilities in September 2020, and the trade publication EdSurge estimated that 60,000 students had signed such petitions later that year.¹¹⁸ Students have sued proctoring companies and dug into the technical issues with the software, demonstrating security problems and links to databases that have produced racially biased outcomes when used to train other algorithms.¹¹⁹ 2,000 parents sent a petition to McGraw-Hill calling on the company to end its partnership with Proctorio.¹²⁰ A group of six

H89C] (detailing software problems in Illinois); Stephanie Francis Ward, *Software Provider Pulls Out of Remotely Proctored Exams Because of Technology Concerns*, ABA J. (Aug. 18, 2020, 2:41 PM), <https://www.abajournal.com/web/article/due-to-technology-concerns-software-provider-pulls-out-of-remotely-proctored-bar-exams> [https://perma.cc/WX46-LHV7] (detailing software issues in Nevada, Florida, and Indiana); Stephanie Francis Ward, *Man Who Was Told He Failed Bar Exam Actually Passed and He Blames Software*, ABA J. (Jan. 26, 2021, 2:36 PM), <https://www.abajournal.com/news/article/man-who-was-told-he-failed-bar-exam-actually-passed-and-he-blames-software> [https://perma.cc/4PSM-QLFG].

114. See Jane C. Hu, *Graduate Programs Drop GRE After Online Version Raises Concerns About Fairness*, SCI. (June 24, 2020), <https://www.sciencemag.org/careers/2020/06/graduate-programs-drop-gre-after-online-version-raises-concerns-about-fairness> [https://perma.cc/5QFN-MX76].

115. See Caplan-Bricker, *supra* note 95.

116. See, e.g., Kelley, *supra* note 43; Young, *supra* note 41.

117. See Kelley, *supra* note 43; Young, *supra* note 41.

118. See Kelley, *supra* note 43; Young, *supra* note 41.

119. See *infra* note 371 (listing BIPA lawsuits against remote proctoring companies); Thomas Germain, *Poor Security at Online Proctoring Company May Have Put Student Data at Risk*, CONSUMER REPS. (Dec. 10, 2020), <https://www.consumerreports.org/digital-security/poor-security-at-online-proctoring-company-proctortrack-may-have-put-student-data-at-risk/> [https://perma.cc/4ENB-7GFV]; see also Feathers, *supra* note 66.

120. See Jeffrey R. Young, *2,000 Parents Petition McGraw-Hill to Stop Using Remote Proctoring Tools*, EDSURGE (Dec. 17, 2020),

United States Senators sent letters to ExamSoft, Proctorio, and ProctorU asking about privacy, security, and discrimination problems and the companies' compliance with related laws.¹²¹ Some instructors have also made their distaste for their software known in the press and to their universities, adapted their evaluation methods to avoid the use of the software, and boycotted conferences funded by remote proctoring vendors.¹²² Some universities have rejected calls to prohibit the software or to decline to renew their contracts with vendors; others have heeded them, disabled particularly invasive or faulty features, or simply declined to use the software to begin with.¹²³

II. PRIVACY AND EQUITY IMPLICATIONS OF REMOTE PROCTORING SOFTWARE

Remote proctoring software raises issues similar to those implicated by other ed tech services and surveillance technologies used in schools, such as the invasion of students' privacy, security vulnerabilities, surveillance anxiety, and fears of invasive data collection shaping "permanent records" that students can never escape.¹²⁴ Remote proctoring software has also created problems specific to marginalized students.¹²⁵ Students of color have reported struggling to get the software to recognize their faces, both at the beginning and in the middle of their exams.¹²⁶ Disabled students have

<https://www.edsurge.com/news/2020-12-17-2-000-parents-petition-mcgraw-hill-to-stop-using-remote-proctoring-tools-in-courseware> [<https://perma.cc/N4VD-HLHX>].

121. See Press Release, Richard Blumenthal, U.S. Senator for Connecticut, Blumenthal Leads Call for Virtual Exam Software Companies to Improve Equity, Accessibility & Privacy for Students Amid Troubling Reports (Dec. 3, 2020), <https://www.blumenthal.senate.gov/newsroom/press/release/blumenthal-leads-call-for-virtual-exam-software-companies-to-improve-equity-accessibility-and-privacy-for-students-amid-troubling-reports> [<https://perma.cc/KK2Z-VAV9>]; see also Karen Sloan, *New York Lawmakers Get an Earful Over Online Bar Exam*, ALM LAW.COM: N.Y.L.J. (Dec. 9, 2020), <https://www.law.com/newyorklawjournal/2020/12/09/new-york-lawmakers-get-an-earful-over-online-bar-exam/> [<https://perma.cc/N59L-J5TG>] (describing the New York Assembly's Committee on the Judiciary's hearing on the remote bar exam).

122. See Todd Feathers, *Schools Are Abandoning Invasive Software After Student Backlash*, VICE: MOTHERBOARD (Feb. 26, 2021), <https://www.vice.com/en/article/7k9ag4/schools-are-abandoning-invasive-proctoring-software-after-student-backlash> [<https://perma.cc/53EL-EJRZ>].

123. See *infra* notes 461–489 and accompanying text.

124. See *supra* note 119 and accompanying text.

125. See *supra* note 121 and accompanying text.

126. See *id.*

been questioned by proctors for their use of approved accommodations during tests, and have been flagged as “suspicious” for manifestations of their disabilities.¹²⁷ Low-income students have described feelings of shame at having to show proctors a 360-degree view of their bedrooms, and distracting concerns that the software might flag them for cheating because of the unavoidable presence of family members in the home.¹²⁸ Software that violates students’ privacy, subjects marginalized students to algorithmic bias, and exacerbates existing inequities in higher education creates problems far more worrisome than those it purports to solve.¹²⁹

A. Privacy

Remote proctoring software raises a number of privacy concerns, particularly the chilling effects of anxiety; the fear of being forced to reveal private facts against one’s will; data security risks; and the potential harms to students’ educational prospects, professional prospects, and well-being that stem from for-profit companies creating, collecting, and using sensitive information about them.¹³⁰ Remote proctoring software also provides a stark example of the inadequacy of consent as a privacy safeguard, as students have negligible choice around their use of the software, and the consent they provide rarely constitutes a meaningful exercise of agency.¹³¹

Remote proctoring software’s rising prevalence co-exists with the normalization of surveillance technologies on college campuses in recent years.¹³² Surveillance scholars criticized the panoptical implications of security cameras proliferating on college campuses in the wake of the 9/11 terror attacks and the terror-instilling massacre at Virginia Tech in 2007—and cameras have only become cheaper,

127. See *id.*

128. See *supra* note 18 and accompanying text.

129. See *supra* note 121 and accompanying text.

130. See *id.*

131. See generally Daniel J. Solove, *Privacy Self-Management and the Consent Dilemma*, 126 HARV. L. REV. 1880, 1880–82 (2013); Joel R. Reidenberg et al., *Privacy Harms and the Effectiveness of the Notice and Choice Framework*, 11 I/S: J.L. & POL’Y FOR INFO. SOC’Y. 485, 491 (2015) (characterizing the failures of notice and choice).

132. See Joe Lewis, *The College Campus as Panopticon: How Security and Surveillance Are Undermining Free Inquiry*, in 410 COUNTERPOINTS, POLICING THE CAMPUS: ACADEMIC REPRESSION, SURVEILLANCE, AND THE OCCUPY MOVEMENT 136 (Anthony J. Nocella & David Gabbard eds., 2013).

higher-quality, and more culturally accepted since.¹³³ More recently, the Atlas of Surveillance Project, a collaboration between the Electronic Frontier Foundation and the University of Nevada, identifies college and university acquisitions of policing technologies, including drones, automatic license plate readers, facial recognition systems, video analytics programs, and social media monitoring software.¹³⁴ Some schools may even extend their gaze beyond campus grounds: Atlas of Surveillance located three campus police departments in Maryland that maintain lists of cameras operated by nearby residents and businesses, enabling those police departments to access surveillance footage of students off-campus more easily.¹³⁵

Ubiquitous surveillance of academic spaces chills intellectual development and exploration.¹³⁶ As Neil Richards eloquently describes it, “[Intellectual privacy] rests on the idea that free minds are the foundation of a free society, and that surveillance of the activities of belief formation and idea generation can affect those activities profoundly and for the worse.”¹³⁷ Students may decline to express their political beliefs or protest injustice when they know that their political expression may subject them to surveillance via social media monitoring software, as UNC Chapel Hill students at an anti-racism protest later discovered their school had done.¹³⁸ They may be incorrectly accused of wrongdoing if they’re misidentified by a facial recognition system, like the ones operated by five universities in the San Diego area until the state temporarily banned their use.¹³⁹ The proliferation of surveillance technologies on college

133. See *id.* at 135–44.

134. See Dave Maass, *Scholars Under Surveillance: How Campus Police Use High Tech to Spy on Students*, ELEC. FRONTIER FOUND. (Mar. 9, 2021), <https://www.eff.org/deeplinks/2021/03/scholars-under-surveillance-how-campus-police-use-high-tech-spy-students> [<https://perma.cc/FRP6-7QCZ>].

135. See *id.*

136. See Neil M. Richards, *The Dangers of Surveillance*, 126 HARV. L. REV. 1934, 1935 (2013).

137. See *id.* at 1946.

138. See Ari Sen, *UNC Campus Police Used Geofencing Tech to Monitor Antiracism Protestors*, NBC NEWS (Dec. 21, 2019, 7:01 AM), <https://www.nbcnews.com/news/education/unc-campus-police-used-geofencing-tech-monitor-antiracism-protestors-n1105746> [<https://perma.cc/CMX2-KSK8>].

139. See Kashmir Hill, *Wrongfully Accused by an Algorithm*, N.Y. TIMES (June 24, 2020), <https://www.nytimes.com/2020/06/24/technology/facial-recognition-arrest.html> [<https://perma.cc/4F4P>]; Kashmir Hill, *Another Arrest, and Jail Time, Due to a Bad Facial Recognition Match*, N.Y. TIMES (Dec. 29, 2020),

campuses is fundamentally incompatible with the academic freedom that higher education claims to cherish.¹⁴⁰

Surveillance anxiety seems like an inevitable side effect of services that require test-takers to undergo an already-stressful experience on camera under the unflinching eye of a stranger who has access to their computer.¹⁴¹ Test-takers have reported that remote proctoring programs caused or exacerbated anxiety about what the software would reveal, how they might be erroneously flagged, and how their test performance would be affected.¹⁴² They've also reported urinating or vomiting in the presence of a proctor out of fear that leaving the view of the camera would result in their being flagged for cheating.¹⁴³ Many students found the knowledge of being watched to be worrisome and distracting, and they found that their fears of being flagged pulled their focus from the exam itself.¹⁴⁴ The anxiety that test-takers have reported is as unsurprising as it is undesirable, given the invasiveness of the services in the already tense context of a university exam.¹⁴⁵ Students have previously reported anxiety, paranoia, and fears of unpredictable, unavoidable, and damaging consequences in response to surveillance by facial recognition-enabled cameras and CCTV, making the anxiety that remote proctoring software provoked that much more predictable.¹⁴⁶

The use of remote proctoring software would already be ill-advised given its implications for students' well-being, but its use is also pedagogically counter-productive.¹⁴⁷ Awareness and fear of being monitored may constrain one's intellectual abilities, as Neil Richards and others have explored in prior work.¹⁴⁸ Surveillance has

<https://www.nytimes.com/2020/12/29/technology/facial-recognition-misidentify-jail.html> [<https://perma.cc/BPM6-BTZ3>]; Maass, *supra* note 134.

140. See Lewis, *supra* note 132, at 145.

141. See Hubler, *supra* note 1.

142. See *id.* (describing student experiences with virtual exam software as “creepy,” “dystopian,” and “eerie”).

143. See Harwell, *supra* note 8.

144. See Harwell, *supra* note 2.

145. See *id.*

146. Xue Yujie, *Camera Above the Classroom*, SIXTH TONE (Mar. 26, 2019), <https://www.sixthtone.com/news/1003759/camera-above-the-classroom> [<https://perma.cc/BP7K-MKZX>].

147. See Richards, *supra* note 23, at 388–89.

148. See Richards, *supra* note 23, at 389, 416–17 (“Intellectual privacy is the ability, whether protected by law or social circumstances, to develop ideas and beliefs away from the unwanted gaze or interference of others. Surveillance or interference can warp the integrity of our freedom of thought and can skew the way

a chilling effect on the freedom to think and express oneself, and the fear of repercussions from figures of authority can promote conformity, prevent the exploration of unusual or radical ideas, and stifle creativity.¹⁴⁹ Other scholars' research on the human effects of surveillance similarly illustrates why remote proctoring software is harmful for students, such as Elana Zeide's analysis of the hindering effects of pervasive surveillance on students' ability to explore new ideas.¹⁵⁰ And as Margot Kaminski and Shane Witnov noted in their examination of surveillance and chilling effects, the anxiety caused by awareness of surveillance can also inhibit cognitive abilities and complex decision-making—capacities that tend to come in handy for the kinds of educational assessments deemed sufficiently significant to merit a proctor.¹⁵¹ As is intuitive to most of us, it's hard to do your best when you're uncomfortable and afraid.¹⁵²

The added anxiety of being stared at by a stranger, on camera, after being compelled to show that proctor your home and allow them to control key functions of your computer, could worsen existing test anxiety for students and worsen academic outcomes, as one study of 631 university students using ProctorU found.¹⁵³ Richards has also observed that spatial privacy, the physical ability to formulate ideas free from the observation or intrusion of others, is necessary to enable meaningful freedom of thought; one can draw a direct line from Richards' notion of spatial privacy to remotely proctored test-takers being compelled to give human or automated proctors a 360-degree view of their bedrooms.¹⁵⁴ Schools should dedicate their resources to teaching methods that reduce student

we think, with clear repercussions for the content of our subsequent speech or writing.”).

149. See *id.* at 389.

150. See *Education Purpose Limitations*, *supra* note 23, at 517–18.

151. See Margot E. Kaminski & Shane Witnov, *The Conforming Effect: First Amendment Implications of Surveillance, Beyond Chilling Speech*, 49 RICH. L. REV. 465, 501–03 (2015).

152. See *id.*

153. See Daniel Woldeab & Thomas Brothen, *21st Century Assessment: Online Proctoring, Test Anxiety, and Student Performance*, 34 INT'L J. E-LEARNING & DISTANCE EDUC. 1, 6–7 (2019).

154. See Richards, *supra* note 23, at 412–13, 416 (“Spatial privacy provides isolation and inaccessibility, which in turn allow the detachment necessary for contemplation and the exercise of our cognitive liberty. Creativity in isolation enables us to think for ourselves, free from the warping effect that the gaze of others might have on us.”).

anxiety rather than increase it, and facilitate intellectual exploration rather than stymie it.¹⁵⁵

The ramifications of collecting sensitive information from students is another concern.¹⁵⁶ Student privacy scholars have worried about data collection enabling the creation of inescapable “permanent record[s]” that could unfairly limit students’ life choices since the earliest appearances of computers in education.¹⁵⁷ The logic is intuitive: schools should enable intellectual exploration and give students the ability to take risks and make instructive mistakes, and that freedom can be threatened by the creation and retention of student profiles that calcify youthful errors and limit growth.¹⁵⁸ Congress passed FERPA, the federal student privacy law that limits access to students’ educational records, in response to those concerns.¹⁵⁹

As Elana Zeide has explored in her student privacy scholarship, the rise of data-collecting technologies in education has given those worries new force, given the lucrative market for data about students,¹⁶⁰ and the insufficiency of FERPA and other student privacy laws to constrain ensuing harms to student privacy, fairness, and well-being.¹⁶¹ Even before the COVID-19 pandemic forced schools to move so many of their traditional functions online, pervasive data collection was already impossible for students at all levels to avoid, thanks to the rise of lucrative ed tech products and services, the insufficiency of student privacy laws to constrain its misuse, and the lucrative market for student data.¹⁶² Learning management systems like Blackboard and Canvas have proliferated on campuses alongside surveillance systems, each with distinct implications for students’ privacy, well-being, and futures.¹⁶³

155. See *id.* at 416.

156. See *Education Purpose Limitations*, *supra* note 23, at 498–99.

157. See *id.* at 499; Joel R. Reidenberg & Florian Schaub, *Achieving Big Data Privacy in Education*, 16 *THEORY & RSCH. EDUC.* 263, 264 (2018) (“But, at the same time, privacy of student information is important for education because of the adverse impact that inappropriate uses or disclosures may have on student learning and social development.”).

158. See *Achieving Big Data Privacy in Education*, *supra* note 157, at 270.

159. See *Student Privacy Principles*, *supra* note 23, at 354; *Education Purpose Limitations*, *supra* note 23, at 498–99.

160. See N. Cameron Russell et al., *Transparency and the Marketplace for Student Data*, 22 *VA. J.L. & TECH.* 107, 114 (2019).

161. See *Education Purpose Limitations*, *supra* note 23, at 510–11.

162. See, e.g., Russell, *supra* note 160, at 117–19.

163. See *Education Purpose Limitations*, *supra* note 23, at 505.

Students are put in a particularly precarious position when their interests conflict with the school's motivation for adopting a new surveillance or analytics program, such as a university's desire to heighten its prestige and appeal through the appearance of exclusivity.¹⁶⁴ In 2019, the Wall Street Journal reported that College Board, the nonprofit organization that owns the SAT, was selling lists of student names along with their ethnicities, parents' education, and approximate PSAT or SAT scores to universities looking for students to reject for the sake of appearing more exclusive, and thus prestigious and attractive to applicants.¹⁶⁵ The ACT, the organization that administers the SAT's primary competitor test, also sold students' names to universities, along with their gender, race or ethnicity, citizenship status, family income, whether they had a physical or learning disability, their religion, and their parents' level of education.¹⁶⁶ Some colleges use cookies on their websites to collect information about potential applicants' web-browsing habits, and assess them on that basis before they've even applied.¹⁶⁷ When students' thoughts and actions are constantly digitized and assessed by private companies, these inferences can potentially be used to deny them educational opportunities, a risk made more likely when that quantification redounds to their college's benefit.¹⁶⁸

Like these prior pedagogical technologies and surveillance systems, remote proctoring software creates and collects all kinds of sensitive data about students, which can contribute to their anxiety and be used against them in harmful ways.¹⁶⁹ Vendors also tend to offer capacious descriptions of their collection, use, deletion, and

164. See Douglas Belkin, *For Sale: SAT-Takers' Names. Colleges Buy Student Data and Boost Exclusivity*, WALL ST. J. (Nov. 5, 2019), <https://www.wsj.com/articles/for-sale-sat-takers-names-colleges-buy-student-data-and-boost-exclusivity-11572976621> [perma.cc/SU9N-6Y8T].

165. See *id.*

166. See Scott Jaschik, *ACT Ends Practice Some Said Hurt Students with Disabilities*, INSIDE HIGHER ED (Oct. 8, 2018), <https://www.insidehighered.com/admissions/article/2018/10/08/act-ends-practice-over-which-it-was-sued-advocates-students> [https://perma.cc/2EZM-9S69].

167. See Douglas MacMillan & Nick Anderson, *Student Tracking, Secret Scores: How College Admissions Offices Rank Prospects Before They Apply*, WASH. POST (Oct. 14, 2019, 5:02 PM), <https://www.washingtonpost.com/business/2019/10/14/colleges-quietly-rank-prospective-students-based-their-personal-data/> [https://perma.cc/X3HU-SC24].

168. See *id.*

169. See, e.g., *Achieving Big Data Privacy in Education*, *supra* note 157, at 270.

retention practices.¹⁷⁰ Biometrics like a person's face print, iris scan, or knuckle scan are a common type of collected data, as these programs generally include some sort of identification feature.¹⁷¹ ProctorU's privacy policy reports that it retains data for as long as is "necessary to perform the Services described in this Policy, as long as necessary for us to perform any contract with you or your institution, or as long as needed to comply with our legal obligations."¹⁷² Proctorio and Respondus Monitor claim the right to use certain types of 'anonymized' information collected from their services with the consent of the university offering the exam.¹⁷³ Given the well-documented failures of "de-identification" measures, that isn't much of a guarantee; for context, one recent study

170. See, e.g., *Privacy Policy*, MEASURE LEARNING, <https://www.measurelearning.com/privacy-policy> [<https://perma.cc/KH6K-DEXN>] Jan.. 24, 2023) (stating that ProctorU informs students that it collects identifiers, including "name, alias, postal address, unique personal identifier, online identifier, internet protocol address, email address, account name, driver's license or state identification card number, passport number, signature, physical characteristics or description, telephone number, education, employment, credit card number, debit card number, or any other financial information, or other similar identifiers"; "Internet and other electronic network activity information including, but not limited to, browsing history, search history, and information about your interactions with internet websites, applications, or advertisements" and biometric information.) [hereinafter *ProctorU Privacy Policy*].

171. See, e.g., *ID Verification*, PROCTORIO, <https://proctorio.com/platform/id-verification> [<https://perma.cc/YT72-LQ6Q>] (last visited Oct. 3, 2022); *ProctorU Live+*, PROCTORU, https://www.sc.edu/about/offices_and_divisions/distributed_learning/documents/proctoru_liveplus.pdf [<https://perma.cc/4MCN-6NKJ>] (last visited Oct. 3, 2022); *Additional Privacy Information*, RESPONDUS MONITOR, <https://web.respondus.com/privacy/privacy-additional-monitor/> [<https://perma.cc/B4SS-33XN>] (last visited Oct. 3, 2022); *Exam Monitor*, EXAMSOFT, <https://examsoft.com/solutions/exam-monitor> [<https://perma.cc/74ZA-6LDL>] (last visited Oct. 3, 2022); *Student Guide for Nash Community College*, VERIFICIENT TECHS., <https://verificent.freshdesk.com/support/solutions/articles/1000278189-student-guide-for-nash-community-college> [<https://perma.cc/5V6N-4NGL>] (last visited Oct. 3, 2022); *Test Delivery*, KRYTERION, <https://www.kryteriononline.com/our-services/test-delivery> [<https://perma.cc/7GHR-T8QV>] (last visited Oct. 3, 2022).

172. See *Privacy Policy*, PROCTORU, <https://www.proctoru.com/privacy-policy> [<https://perma.cc/6VUU-ZWJX>] (last visited Oct. 3, 2022).

173. See *Privacy Policy*, PROCTORIO, <https://proctorio.com/privacy> [<https://perma.cc/X9Z4-STGA>] (last visited Oct. 3, 2022) [hereinafter *Proctorio Privacy Policy*]; *Terms of Use-Respondus Monitor (Institution)*, RESPONDUS MONITOR, <https://web.respondus.com/tou-monitor-admin/> [<https://perma.cc/53VZ-Z7E9>].

demonstrated how 99.98% of Americans could be re-identified from any dataset using just fifteen demographic attributes.¹⁷⁴

The breadth of information these companies collect is further discredited by the coercive circumstances under which students are “choosing” to use their products.¹⁷⁵ Students may not have an alternative to using remote proctoring software once they’re in a given class, like Neil, who opted to drop his microeconomics class when his professor gave him no alternative to using Honorlock for class exams.¹⁷⁶ They may need to take a class for their major or minor, a constraint that becomes even more inescapable when remote proctoring software is used for high stakes standardized entrance tests, like the GRE or the LSAT, or high-stakes licensing tests like the bar exam.¹⁷⁷ After Sydney was repeatedly interrupted by a live proctor who questioned their approved accommodations during a ProctorU-monitored LSAT-Flex, they reported that the stressful and distracting experience made them unlikely to try for a better score by taking the test again.¹⁷⁸ Students may fear the consequences of objecting to the use of the software, or, in some cases correctly, believe that they have no choice other than to use it.¹⁷⁹ And the power imbalance inherent to the student-teacher

174. See Luc Rocher et al., *Estimating the Success of Re-identifications in Incomplete Datasets Using Generative Models*, 10 NATURE COMM’NS 3069 (2019), <https://www.nature.com/articles/s41467-019-10933-3/> [<https://perma.cc/39MS-UDZK>]; see also Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. REV. 1701 (2010); ARVIND NARAYANAN & EDWARD FELTEN, NO SILVER BULLET: DE-IDENTIFICATION STILL DOESN’T WORK (2014); Tyler Elliot Bettilyon, *Why ‘Anonymized Data’ Isn’t So Anonymous*, ONEZERO (Apr. 24, 2019), <https://onezero.medium.com/why-anonymized-data-isn-t-so-anonymous-535d2db75a2d> [<https://perma.cc/UH5K-VTTF>]; *Student Privacy Principles*, *supra* note 23, at n. 195.

175. See Harwell, *supra* note 2 (“‘Students are asked to agree to these decisions, but they have no meaningful power not to consent,’ said Guy McHendry, an associate professor at Creighton University, which has used Examity for some proctored exams.”).

176. See *id.*

177. See *id.*; Patil & Bromwich, *supra* note 4; David Rubenstein & Marsha Griggs, *It’s Time to Re-Set the Bar for Online Proctoring*, BLOOMBERG L. (Mar. 24, 2021), <https://news.bloomberglaw.com/banking-law/its-time-to-re-set-the-bar-for-online-proctoring> [<https://perma.cc/8VAS-CJR3>].

178. See Patil & Bromwich, *supra* note 4.

179. See, e.g., *Online Test Proctoring*, <https://www.ocean.edu/programs-and-courses/online-proctoring/> [<https://perma.cc/V546-PZNT>] (last visited Oct. 3, 2022) (“Proctoring is not optional. All students are required to ensure that their computer and Internet connectivity meet HonorLock’s system requirements. Students who do

relationship could make it less likely for students to feel comfortable objecting to a surveillance-mediated exam.¹⁸⁰

As companies wishing to soften the perception of their data collection practices often are, remote proctoring software vendors seem keen to emphasize the autonomy of their users, or to simply deflect responsibility onto schools, teachers, and students themselves.¹⁸¹ A ProctorTrack FAQ assures the reader that “ProctorTrack goes to great lengths to inform students of when monitoring is taking place,” and pointedly qualifies that it collects personal information “after receiving consent from you.”¹⁸² Proctorio emphasized in its response letter to a group of senators concerned about the impact of the software on students that it is “committed to transparency and providing information to its users about the privacy and security of its products,”¹⁸³ and the first FAQ on its website, “Is Proctorio ever on without my permission,” is answered with a vehement “No.”¹⁸⁴ Respondus’ privacy policy similarly highlights the role of consent, noting that “[w]e strongly believe in both minimizing the data we collect and limiting its use and purpose to only that for which we have been given permission.”¹⁸⁵ Taking a slightly different approach to the same theme, Kryterion chides test-takers that “it is your responsibility to monitor your Online proctored testing environment.”¹⁸⁶

This ubiquitous emphasis on students’ agency ignores how limited their choices really are. In a 2021 study of students’ perceptions of remote proctoring software, ninety-seven percent of the surveyed students told researchers that their remotely-proctored

not complete assessments through required proctoring are subject to failing their test or quiz.”).

180. See Kaminski & Winov, *supra* note 151, at 501–03.

181. See *Will Proctortrack Be Able to Access a User's Personal Computer Files and Documents Without Their Knowledge?*, VERIFICENT, <https://verificent.freshdesk.com/support/solutions/articles/1000065465-will-proctortrack-be-able-to-access-a-user-s-personal-computer-files-and-documents-without-their-know> [<https://perma.cc/7H3L-4FFN>] (last visited Jan. 21, 2023).

182. See *Privacy Policy*, PROCTORTRACK (June 22, 2022), <https://www.proctortrack.com/privacy-policy/> [<https://perma.cc/DCM9-JE3G>].

183. See Proctorio Reponse Letter, *supra* note 73, at 18.

184. See *Frequently Asked Questions*, PROCTORIO, <https://proctorio.com/frequently-asked-questions> [<https://perma.cc/AE8X-HD46>] (last visited Jan. 21, 2023).

185. See *Respondus Privacy Policy*, RESPONDUS, <https://web.respondus.com/privacy-policy/> [<https://perma.cc/N2EJ-79K8>] (last visited Jan. 21, 2023).

186. See *Privacy Policy*, KRYTERION, <https://www.kryteriononline.com/privacy> [<https://perma.cc/L9XZ-KQ5K>] (last visited Jan. 21, 2023).

exams had been required by their institutions.¹⁸⁷ In addition to academic constraints and power dynamics that limit students' ability to decline to take an invasively-administered test, test-takers have little visibility into the privacy risks created by remote proctoring software. Transparency is hardly a new problem for ed tech services¹⁸⁸ or universities, and remote proctoring software is no different. Even if the instructor were to provide students with the remote proctoring software's privacy policy ahead of time, it wouldn't contain sufficient information for the student to adequately ascertain the privacy risks—most people struggle to correctly evaluate privacy policies, they're confusingly written with insufficient detail, and cognitive biases that affect how human beings evaluate risk hinder the ability of test-takers to process whatever information they can manage to glean.¹⁸⁹ Students might not have access to the additional agreement that the remote proctoring software company has with the school, making whatever information they can obtain incomplete.¹⁹⁰ While the Department of Education recommends that ed tech vendors make such agreements available to students, the practice appears to be rare.¹⁹¹ While ProctorU's privacy policy (for example) advises users

*"If you do not agree with the terms of this Privacy Policy, do not use our Services,"*¹⁹²

this is not a choice that is functionally available to the overwhelming majority of its users—as the company and its peers know perfectly well.¹⁹³

187. See *Examining the Examiners*, *supra* note 85, at 634.

188. See LAURA MOY ET AL., COMMENTS OF CAMPAIGN FOR A COMMERCIAL-FREE CHILDHOOD 8 (2019); Russell et al., *supra* note 160, at 109; *Student Privacy Principles*, *supra* note 23, at 352.

189. See Solove, *supra* note 131, at 1880; *Student Privacy Principles*, *supra* note 23, at 353, 359 ("Rather than deferring to user privacy preferences, FERPA creates a framework that gives parents and students few opportunities to exercise control over information disclosure while affording educational entities considerable discretion and minimal obligation to be transparent regarding the procedure, criteria, and record-keeping surrounding these decisions.").

190. See *Student Privacy Principles*, *supra* note 23, at 353.

191. See DEP'T OF EDUC., RESPONSIBILITIES OF THIRD-PARTY SERVICE PROVIDERS UNDER FERPA 3 (2015).

192. See *ProctorU Privacy Policy*, *supra* note 170 (emphasis added).

193. One might also question Proctorio's commitment to student autonomy in particular given its CEO's remark to a reporter that "it's hilarious, students pretending to care where their data goes." Harwell, *supra* note 8.

As is not uncommon among companies that profit from data collection, remote proctoring software vendors are eager to portray themselves as trustworthy stewards of student data without any apparent willingness to constrain profitable and harmful practices. Their websites are filled with cheerful assurances that the companies don't sell personally identifiable information,¹⁹⁴ share it with third parties,¹⁹⁵ or use it for targeted advertising.¹⁹⁶ ProctorU's privacy policy begins with three separated, bolded lines proclaiming "ProctorU does not use any test-taker's personal information for any purpose other than for facilitating the proctoring of online exams"; "[w]e never sell personal information to third parties"; and "[w]e do not market to test-takers, nor do we share personal information for the purpose of marketing to test-takers."¹⁹⁷ The companies tend to feature repeated privacy assurances separate and apart from their privacy policies, such as FAQs, blog posts, and white papers attesting to their devotion to student privacy.¹⁹⁸ Some "proudly" tout their adherence to industry codes of conduct.¹⁹⁹

194. See *Student Privacy Statement*, HONORLOCK, <https://honorlock.com/student-privacy-statement/> [<https://perma.cc/9SCX-7JMX>] (last visited Jan. 24, 2023) [hereinafter *Honorlock Student Privacy Statement*].

195. See *Proctorio Privacy Policy*, *supra* note 173; *Honorlock Student Privacy Statement*, *supra* note 194.

196. See *Proctorio Privacy Policy*, *supra* note 173.

197. See *ProctorU Privacy Policy*, *supra* note 170.

198. For example, Respondus' website features a "Privacy Center" where it outlines its "Privacy Principles," Honorlock's website offers a Student Privacy Statement, Student Privacy FAQs, and a FERPA statement in addition to its privacy policy, and Proctorio's website features a "Privacy" page, a "Data Security" page, separate FAQ pages for FERPA, COPPA, and other privacy questions, and blog posts addressing privacy topics, all distinct from its actual privacy policy.

Privacy Center, RESPONDUS, <https://web.respondus.com/privacy/> [<https://perma.cc/42A5-5WRE>] (last visited Oct. 3, 2022); *Honorlock Student Privacy Statement*, *supra* note 194; *Student Privacy FAQs*, HONORLOCK, <https://honorlock.com/studentprivacy/#faq> [<https://perma.cc/P344-XXJ3>] (last visited Oct. 3, 2022); *FERPA Statement*, HONORLOCK, <https://honorlock.com/ferpa/> [<https://perma.cc/9T5X-7AZ3>] (last visited Oct. 3, 2022); *Privacy By Design*, PROCTORIO, <https://proctorio.com/about/Privacy> [<https://perma.cc/PDR3-ART3>] (last visited Oct. 3, 2022); *Data Security*, PROCTORIO, <https://proctorio.com/about/data-security> [<https://perma.cc/PDR3-ART3>] (last visited Oct. 3, 2022); *FAQs*, PROCTORIO, <https://proctorio.com/frequently-asked-questions> [<https://perma.cc/AE8X-HD46>] (last visited Oct. 3, 2022); *Proctorio Blog*, PROCTORIO, <https://blog.proctorio.com/> [<https://perma.cc/U7SH-JMXR>] (last visited Oct. 3, 2022).

199. See, e.g., *Proctortrack*, PROCTORTRACK, <https://www.proctortrack.com/> [<https://perma.cc/XP4A-7PLY>] (last visited Oct. 3, 2022) (stating "proud signatory of the Student Privacy Pledge" on the homepage; the page has since been updated,

But the clear desire to evince concern about student privacy has little bearing on the actual existence of privacy-protective practices. A company's promise not to sell student data doesn't preclude using it for other nefarious purposes that the company accomplishes without the assistance of a third party, such as automated assessments of student "integrity" or determinations of their skills that are subsequently used to fuel hiring tools for future employers. Claims about stringent protocols relating to student personal information exclude "de-identified" information,²⁰⁰ which is not all that difficult to re-identify, and are further undermined by the possibility of creating personally identifiable information from more anodyne information.²⁰¹

Other privacy claims aren't quite as sweeping or categorical as they first appear after a more stringent examination that most students won't be in a position to perform. One study also found that nearly half of the students surveyed failed to uninstall remote proctoring browser extensions once the exam was complete.²⁰² Similarly, when remote proctoring software companies advertise their FERPA compliance, they're claiming the dubious mantle of adherence to a framework that doesn't effectively curb privacy abuses, as Section III.A discusses in detail.²⁰³

Remote proctoring software also introduces privacy invasions that are categorically distinct from those implicated by in-person proctoring.²⁰⁴ A proctor overseeing an in-person exam could have up to an entire class to monitor; they cannot watch every student at the

with a separate page devoted to the Pledge.) *Privacy Pledge*, PROCTORTRACK, <https://www.proctortrack.com/students/privacy-pledge/>, [https://perma.cc/RX5C-V6CL] (last visited Jan. 21, 2023). See also, *Audits*, PROCTORIO <https://proctorio.com/privacy/audits> [https://perma.cc/NTU6-PVAR] ("Proctorio has proudly signed the Student Privacy Pledge.").

200. See *supra* note 173.

201. See Paul Ohm, *Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization*, 57 UCLA L. REV. 1701, 1704 (2010); Jason Schultz & Kate Crawford, *Big Data and Due Process: Toward a Framework to Redress Predictive Privacy Harms*, 55 B.C. L. REV. 93, 98 ("Based on existing publicly available information, Big Data's processes can generate a predictive model of what has a high probability of being PII, essentially *imagining* an individual's data.").

202. See *Examining the Examiners*, *supra* note 85, at 643.

203. See *infra* Section IV.A.

204. See Harwell, *supra* note 8 ("[Proctorio CEO Mike Olsen] has also criticized the student backlash as misguided . . . and based largely on 'regurgitated' criticism of how the service works. Most students, he said, just need to get used to it: 'College is stressful. . . . It's always been stressful.'").

same time or from a close distance. In contrast, a live proctor on video staring at the student subjects the test-taker to a greater degree of scrutiny because they have fewer students to observe at once.²⁰⁵ The practical obscurity resulting from the limits of human memory is lost when the test taker is recorded on video, or the proctor is an algorithm that analyzes video files.²⁰⁶ Unlike the vendors of remote proctoring software, the human proctor has no incentive to extensively retain and monetize what she remembers, or the ability to absorb as much information as her digital analogue can. And as opposed to the proctor observing the student on a university campus or at a testing center, they will frequently observe the test-taker in their home, making the scrutiny more invasive.²⁰⁷ The privacy implications of remote proctoring software are categorically dissimilar from the experience of being scrutinized by a human proctor.²⁰⁸

Data collection also necessarily creates data security concerns.²⁰⁹ The data companies collect is data that becomes subject to risks of wrongful access and theft, putting students at risk of identity fraud, physical harm, loss of their time spent responding to financial vulnerabilities created by the breach, loss of dignity, and anxiety.²¹⁰ Compromised biometrics create additional concerns, as data like a face print, fingerprint, or knuckle scan, are either impossible or impracticable to change.²¹¹

205. Examity's live proctor product, for example, deploys one proctor per student. See Monica Chin, *Exam Anxiety: How Remote Proctoring Is Creeping Students Out*, THE VERGE (Apr. 29, 2020), <https://www.theverge.com/2020/4/29/21232777/examity-remote-test-proctoring-online-class-education> [<https://perma.cc/5SM5-WMKP>].

206. See Evan Selinger & Woodrow Hartzog, *Obscurity and Privacy*, ROUTLEDGE COMPANION TO PHIL. OF TECH. 1, 2 (Joseph Pitt & Ashley Shew eds., 2014), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2439866 [<https://perma.cc/N5CE-A55S>] (explaining practical obscurity); see also *Student Privacy Principles*, *supra* note 23 at 373 ("FERPA relies on the practical obscurity of physical records to provide sufficient security against unauthorized access.").

207. See Chin, *supra* note 205.

208. See *id.*

209. See, e.g., Daniel J. Solove & Danielle Keats Citron, *Risk and Anxiety: A Theory of Data Breach Harms*, 96 TEX. L. REV. 738, 744–46 (2018).

210. See *id.*; see *infra* note 376, (citing the FTC's actions against Chegg).

211. See Andrea Peterson, *The Biometrics Revolution is Already Here – And You May Not Be Ready For It*, WASH. POST (Oct. 17, 2014), <https://www.washingtonpost.com/news/the-switch/wp/2014/10/17/the-biometrics-revolution-is-already-here-and-you-may-not-be-ready-for-it/> [<https://perma.cc/43B8-9D9T>].

Remote proctoring companies have also proven concerns about their security to be entirely reasonable.²¹² Hackers published more than 400,000 of ProctorU's records in July 2020, including names, passwords, and home addresses, while Verificent Technologies, the company that licenses Proctortrack, was hacked two months after MIT students urged it to address vulnerabilities that put students' information at risk.²¹³ Proctorio has not reported a breach, but it was alerted by a first-year computer science undergraduate student in 2020 that he found a vulnerability in the company's encryption protocols.²¹⁴ ExamSoft was hacked during the July 2020 sitting of the Michigan bar exam.²¹⁵ The security of students' computers will also be jeopardized by students failing to uninstall remote proctoring browser extensions, as may be widespread.²¹⁶ These vulnerabilities invite long-lasting harms such as anxiety, invasions of privacy, financial loss, or safety risks, none of which students should be subjected to as the price of their education.²¹⁷

B. Algorithmic Bias

The creation and collection of data inherently invites the risk of that data being wrongfully obtained and abused by hackers, but it also creates the risk of abuses by the entity that collected it.²¹⁸ Concerns about pervasive data collection from students are deeply intertwined with concerns about algorithmic harms, given the rise of personalized learning and predictive analytics in education and the pervasive spread of algorithmic assessments of other important life opportunities once students leave school.²¹⁹ Remote proctoring

212. See Germain, *supra* note 119.

213. See *id.*

214. See Sara Morrison & Rebecca Heilweil, *How Teachers are Sacrificing Student Privacy To Stop Cheating*, RECODE (Dec. 18, 2020), <https://www.vox.com/recode/22175021/school-cheating-student-privacy-remote-learning> [<https://perma.cc/54QD-WUVX>].

215. See Lecher, *supra* note 111.

216. See *Examining the Examiners*, *supra* note 85, at 643.

217. See Natasha Singer, *A Cyberattack Illuminates the Shaky State of Student Security*, N.Y. TIMES (July 31, 2022), <https://www.nytimes.com/2022/07/31/business/student-privacy-illuminate-hack.html> [<https://perma.cc/8Q4N-HYZD>].

218. See *id.*

219. See, e.g., Cade Metz & Adam Satariano, *An Algorithm That Grants Freedom, or Takes It Away*, N.Y. TIMES (Feb. 7, 2020), <https://www.nytimes.com/2020/02/06/technology/predictive-algorithms-crime.html> [<https://perma.cc/5EEH-S4BU>].

software's flawed and discriminatory assessments of student integrity fit neatly into a larger ecosystem of predictive analytics and automated evaluations that promise to revolutionize education while replicating and reinforcing its inequities, which Section II.C will analyze using Laura Moy's taxonomy of equity-based harms.²²⁰

The market for automated assessments of students precedes the rise of remote proctoring software, and perhaps makes the idea of software that rates a student's trustworthiness according to her blinking frequency seem more reasonable to universities than it should. Indeed, universities have been employing predictive analytics to assess students for years, often in an attempt to improve retention rates.²²¹ A New America report identified four broad categories of predictive analytics programs in higher education, those that trigger "early-alerts" for intervention when a student is perceived to be struggling academically, with their mental health, or with other needs; recommender systems, which suggest future courses and majors for students; adaptive technologies, otherwise known as personalized learning; and enrollment management systems, which guide recruitment efforts and distribution of financial aid.²²² These programs rely on a rich array of student data collected from a variety of sources, such as whether they download notes for a class, participate in an online discussion board, or how early they finish their assigned reading;²²³ their prior grades;²²⁴ their social

220. See Moy, *supra* note 18, at 143.

221. See Chris Jutting, *Universities are Tracking Their Students. Is it Clever or Creepy?*, THE GUARDIAN (Aug. 3, 2016), <https://www.theguardian.com/higher-education-network/2016/aug/03/learning-analytics-universities-data-track-students> [https://perma.cc/TK59-EHFP]; Sophie Quinton & National Journal, *Are Colleges Invading Their Students' Privacy?*, THE ATLANTIC (Apr. 6, 2015), <https://www.theatlantic.com/education/archive/2015/04/is-big-brothers-eye-on-campus/389643/> [https://perma.cc/44L9-4X4C]; Joseph B. Treaster, *Will You Graduate? Ask Big Data*, N.Y. TIMES (Feb. 2, 2017), <https://www.nytimes.com/2017/02/02/education/edlife/will-you-graduate-ask-big-data.html> [https://perma.cc/U2BA-PDPL]; Drew Harwell, *Colleges are Turning Students' Phones Into Surveillance Machines, Tracking the Locations of Hundreds of Thousands*, WASH. POST (Dec. 24, 2019), <https://www.washingtonpost.com/technology/2019/12/24/colleges-are-turning-students-phones-into-surveillance-machines-tracking-locations-hundreds-thousands/> [https://perma.cc/NZ9J-U9M78] ("But some schools go even further, using systems that calculate personalized 'risk scores' based on factors such as whether the student is going to the library enough.").

222. See MANUELA EKOWO & IRIS PALMER, PREDICTIVE ANALYTICS IN HIGHER ED: FIVE GUIDING PRACTICES FOR ETHICAL USE 3 (2017).

223. See Douglas Belkin, *No Place to Hide: Colleges Track Students, Everywhere*, WALL ST. J. (Mar. 5, 2021), <https://www.wsj.com/articles/the-many->

media posts;²²⁵ financial aid data;²²⁶ their web browsing habits on school computers;²²⁷ and location data, such as where they swipe their student cards,²²⁸ which WiFi networks they use,²²⁹ or signals from their phone to a sensor installed in a classroom.²³⁰

“Personalized learning” programs, software that provides teachers and students with individualized assignments of students’ learning styles and skills, have been a significant area of focus for educators, vendors, scholars, and advocates given their perceived efficiencies and the sensitivity of the task being automated.²³¹ Learning management software like Canvas and Blackboard not only create and collect all kinds of data about and from students—they can provide assessments of the students themselves, identify “at-risk” students,²³² and predict grades.²³³ Software designed for teachers might provide assessments of individuals and groups of students, including recommendations that a student focus on certain skills or topics and potential interventions for students perceived to be struggling.²³⁴

Automated decision-making has also taken a larger role in grading, including products with a specific focus on policing

ways-college-students-may-be-tracked-on-campus-11583354852
[<https://perma.cc/U9Y5-4CPU>].

224. See Treaster, *supra* note 221.

225. See Belkin, *supra* note 223.

226. See *id.*

227. See Belkin, *supra* note 223.

228. See Shannon Liao, *University of Arizona Tracks Student ID Cards to Detect who Might Drop Out*, THE VERGE (Mar. 12, 2018, 10:44 AM), <https://www.theverge.com/2018/3/12/17109224/university-of-arizona-tracking-smartchips-student-ids-privacy-drop-out> [<https://perma.cc/659J-MBFN>].

229. See Harwell, *supra* note 221.

230. See *Frequently Asked Questions*, SPOTTER, <https://spotteredu.com/faq> [<https://perma.cc/KL49-78LA>] (last visited Oct. 3, 2022).

231. See Reidenberg & Schaub, *supra* note 157, at 269 (describing personalized learning).

232. See *What are Analytics?*, CANVAS CMTY., [https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-Analytics/ta-p/88#:~:text=Analytics%20evaluate%20individual%20components%20of,the%20system%20is%20being%20used](https://community.canvaslms.com/t5/Canvas-Basics-Guide/What-are-Analytics/ta-p/88#:~:text=Analytics%20evaluate%20individual%20components%20of,the%20system%20is%20being%20used.). [<https://perma.cc/A484-R7MD>] (last visited Oct. 3, 2022).

233. See, e.g., *5j. Monitor Student Performance*, PENN ST. CANVAS LEARNING PATH, <https://psu.instructure.com/courses/1741795/pages/5j-monitor-student-performance> [<https://perma.cc/6EJC-6DBS>] (last visited Oct. 3, 2022).

234. See Reidenberg & Schaub, *supra* note 157, at 270.

academic dishonesty.²³⁵ Instructors are using dedicated programs like Gradescope or components of learning management systems, like Canvas's CodeGrade or the automated comment function in McGraw-Hill's Connect writing software, to assess homework, quizzes, participation in online fora, and tests, including written essays as well as multiple choice questions and problem sets.²³⁶ Faculty at the University of California, Berkeley and the University of Michigan, Ann Arbor have also built their own automated grading tools.²³⁷ Some of these services, like Gradescope, incorporate functionality to flag unoriginal work; other plagiarism-flaggers are components of learning management systems, like Google's "originality reports" or Blackboard's SafeAssign.²³⁸ Turnitin, a stand-alone plagiarism detection product, is one of the most widely used services and one of the most notorious, thanks to accuracy problems, a business model that relies on building its comparison database

235. See *Check for Missing Citations Quickly and Easily with Originality Reports*, GOOGLE, <https://edu.google.com/products/originality/> [https://perma.cc/JD2M-6QAP] (last visited Oct. 3, 2022).

236. See Blake Montgomery, *Gradescope Raises \$2.6M to Apply Artificial Intelligence to Grading Exams*, EDSURGE NEWS (Apr. 18, 2016), <https://www.edsurge.com/news/2016-04-18-gradescope-raises-2-6m-to-apply-artificial-intelligence-to-grading-exams> [https://perma.cc/CRU3-KVD7]; see also *How Automatic Grading Makes Continuous Assessment in Programming Courses Easy with CodeGrade in Canvas*, INSTRUCTURE (May 20, 2020), <https://www.instructure.com/canvas/resources/all/how-automatic-grading-makes-continuous-assessment-in-programming-courses-easy-with-codegrade-in-canvas-4> [https://perma.cc/7GXR-ZKCH]; Dian Schaffhauser, *McGraw-Hill Adds AI to Writing Software for High-Enrollment Courses*, CAMPUS TECH. (Mar. 5, 2020), <https://campustechnology.com/articles/2020/03/05/mcgraw-hill-adds-ai-to-writing-software-for-high-enrollment-courses.aspx> [https://perma.cc/A2RY-KTS8]; Rhea Kelly, *Online Discussion Platform Adds Auto-Grading*, CAMPUS TECH. (Jan. 1, 2021), <https://campustechnology.com/Articles/2021/01/22/Online-Discussion-Platform-Adds-Auto-Grading.aspx> [https://perma.cc/7UCQ-JY79].

237. See Lindsay McKenzie, *Autograding System Goes Awry, Students Fume*, INSIDE HIGHER ED (Nov. 30, 2018), <https://www.insidehighered.com/news/2018/11/30/autograder-issues-upset-students-berkeley> [https://perma.cc/2TR7-FC42]; see also Jessica Leigh Brown, *How U of Michigan Built Automated Essay-Scoring Software to Fill 'Feedback Gap' for Student Writing*, EDSURGE NEWS (June 6, 2017), <https://www.edsurge.com/news/2017-06-06-how-u-of-michigan-built-automated-essay-scoring-software-to-fill-feedback-gap-for-student-writing> [https://perma.cc/2PH5-LN3D].

238. See *Check for Missing Citations Quickly and Easily with Originality Reports*, *supra* note 235; see also *Blackboard SafeAssign: A Plagiarism Prevention Tool*, BLACKBOARD, <https://www.blackboard.com/teaching-learning/learning-management/safe-assign> [https://perma.cc/BWX2-GCK5] (last visited Oct. 3, 2022).

from students' work, and its demonstration to students of their instructors' lack of trust.²³⁹

Just as FERPA's drafters feared, data collected from students and created to describe them can also be used to shape their lives as they enter the world as adults.²⁴⁰ Once students graduate, they face algorithmic screening tools increasingly favored by employers to identify candidates or assess applicants, as well as employment ads based on personal information that could be targeted to or hidden from potential applicants on a biased basis.²⁴¹ Some landlords rely on predictive assessments from companies like RealPage, HelloRented, or TransUnion to inform their decision to rent to a tenant.²⁴² The companies assessing students' academic performance, behavior, and well-being could sell or license those assessments to corporate recruiters or data aggregators.²⁴³ Companies that assess students could also use that data to fuel their own hiring services, following the example of e-learning platform Piazza, which based its "Piazza Careers" service for employers on student profiles created with information collected from its learning management service.²⁴⁴ The data collected and created about college students can impact their lives long after they've left their dorm rooms behind.²⁴⁵

These automated assessments can shape the behavior of students, teachers, and universities in impactful, and sometimes discriminatory ways, as Priscilla Regan, Elana Zeide, Joel Reidenberg, and others have previously observed.²⁴⁶ Machine

239. See Morris & Stommel, *A Guide for Resisting Edtech: the Case Against Turnitin*, HYBRID PEDAGOGY (June 15, 2017), <https://hybridpedagogy.org/resisting-edtech/> [<https://perma.cc/4HHT-QJ2H>].

240. See BOGEN & RIEKE, *HELP WANTED: AN EXAMINATION OF HIRING ALGORITHMS, EQUITY, AND BIAS* 11–13 (2018).

241. See *id.*; see also Moy, *supra* note 18, at 186–87 (describing the phenomenon of biased employment ad targeting and citing ProPublica and NYT reporting that documented it).

242. See Katy McLaughlin, *Robots are Taking Over (the Rental Screening Process); Landlords are Using Artificial Intelligence to Vet Prospective Renters*, WALL ST. J. (Nov. 21, 2019), <https://www.wsj.com/articles/robots-are-taking-over-the-rental-screening-process-11574332200> [<https://perma.cc/F68X-3Z28>].

243. See Reidenberg & Schuab, *supra* note 157, at 8.

244. See *id.*

245. See *id.*

246. See Priscilla Regan & Jolene Jesse, *Ethical Challenges of EdTech, Big Data and Personalized Learning: Twenty-First Century Student Sorting and Tracking*, ETHICS & INFO. TECH. 167, 168 (2019), <https://doi.org/10.1007/s10676-018-9492-2> [<https://perma.cc/Y9WV-AUR2>]; see also Zeide, *Education Purpose Limitations*, *supra* note 23, at 522; Zeide, *Student Privacy Principles*, *supra* note 23,

learning algorithms trained on data sets that reflect structural bias against marginalized populations will reflect those biases in their predictions; training those algorithms on datasets where data is disproportionately drawn from certain genders, demographic groups, and other attributes will not provide accurate predictions for members of minority groups.²⁴⁷ Predictions about students' future academic performance can skew which classes or majors they choose to pursue, leading advisors to push students into "easier" majors or classes and failing to afford students adequate opportunity to explore new passions, or giving students another reason to make that judgment themselves.²⁴⁸ Awareness and concern about the quantification of their behavior could lead students to eschew risky choices that they might learn from, or which could ultimately be beneficial.²⁴⁹ Schools could be further incentivized to prioritize their needs over the needs of their students when the two are at odds, such as by declining to admit students deemed more likely to struggle academically in order to preserve the school's retention rate.²⁵⁰ And assessments of future performance based on prior performance rests on the assumption that future performance is necessarily influenced by the past, as opposed to assuming, as educators should, the possibility of growth.²⁵¹

EAB Navigate's analytics software provides an unsettling example of how automated predictions of students' attributes and skills can be discriminatory.²⁵² The software provides universities

at 351; Elana Zeide, *The Structural Consequences of Big Data-Driven Education*, 5 BIG DATA 164, 167 (2017) [hereinafter *Structural Consequences*]; Reidenberg & Schaub, *supra* note 157, at 6–7; René F. Kizilcec & Hansol Lee, *Algorithmic Fairness in Education*, ETHICS OF A.I IN EDUC. (forthcoming 2020); Renzhe Yu et al., *Towards Accurate and Fair Prediction of College Success: Evaluating Different Sources of Student Data*, in PROC. OF THE 13TH INT'L CONF. ON EDUC. DATA MINING 292, 299 (2020).

247. See Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 CALIF. L. REV. 671, 681–94 (2016).

248. See Todd Feathers, *Major Universities Are Using Race as a "High Impact Predictor" of Student Success*, THE MARKUP (Mar. 2, 2021, 8:00 AM), <https://themarkup.org/news/2021/03/02/major-universities-are-using-race-as-a-high-impact-predictor-of-student-success> [https://perma.cc/LCT3-5NHJ].

249. See *id.*

250. See Zeide, *Education Purpose Limitations*, *supra* note 23, at 515–16; Feathers, *supra* note 248.

251. See Zeide, *Structural Consequences*, *supra* note 246, at 167.

252. See *Student Success Predictive Model Report – University of Houston*, EAB, <https://www.documentcloud.org/documents/20494040-predictive-model-reports> [https://perma.cc/JU9R-FUPV] (last visited Oct. 3, 2022).

with risk scores for students it deems likely to struggle academically or drop out based on “high impact predictors” and “other predictors” selected by the university.²⁵³ The Markup found that four of seven “predictive model reports” it was able to obtain highlighted race as a “high impact predictor,” and that Black students were deemed “high risk” at alarming rates.²⁵⁴ High risk scores can leave a professor or advisor with a damaging perception of the student, and lead them to counsel the student to choose less challenging classes.²⁵⁵ EAB Navigate’s models for each school are trained on prior student outcomes from that institution, which means that any past outcomes shaped by structural racism, sexism, or other biases will be projected onto new students.²⁵⁶ A university that has failed to provide sufficient support for female students and students of color in STEM classes will produce data indicating that those students are less likely to succeed in those classes, thus training the model to warn those students against those classes.²⁵⁷ The EAB models also incorporate SAT scores, when the SAT has been widely criticized for measuring family wealth instead of student aptitude and generally doing a poor job of fairly assessing students of color.²⁵⁸

Shoddy and inaccurate data providing arbitrary outcomes are another concern.²⁵⁹ Flawed calculations based on incomplete information or misleading heuristics could prompt unnecessary intervention from an advisor, embarrassing the student and wasting

253. See *id.*; see also Feathers, *supra* note 248.

254. See Feathers, *supra* note 248 (“At the University of Massachusetts Amherst, for example, Black women are 2.8 times as likely to be labeled high risk as White women, and Black men are 3.9 times as likely to be labeled high risk as White men.”).

255. See *id.* (“‘You can easily find situations where there are two students who have similar low GPAs and different risk scores, and there’s no obvious explanation for why that’s the case,’ said Maryclare Griffin, a statistics professor at UMass Amherst. ‘I’ve looked at several examples of students in STEM that have a moderate risk score; they are underrepresented in their major, and the Major Explorer [a function within the software] is saying you should push them to another major where their risk score is lower.’”).

256. See *id.*

257. See Barocas & Selbst, *supra* note 247, at 673–74.

258. See Ember Smith & Richard V. Reeves, *SAT Math Scores Mirror and Maintain Racial Inequity*, BROOKINGS INST. (Dec. 1, 2020), <https://www.brookings.edu/blog/up-front/2020/12/01/sat-math-scores-mirror-and-maintain-racial-inequity/> [<https://perma.cc/Z7NN-E42W>]; see also Bruce G. Hammond, *The SAT and Systemic Racism*, INSIDE HIGHER ED (Aug. 17, 2020), <https://www.insidehighered.com/admissions/views/2020/08/17/history-sat-reflects-systemic-racism-opinion> [<https://perma.cc/4KJZ-B2KT>].

259. See Harwell, *supra* note 221.

school resources.²⁶⁰ An automated assessment that flags a student as “at-risk” of lower grades, dropping out, or some other undesirable outcome when the student stops going to the library could have no way of knowing that the student has simply chosen to study in their room, or in a friend’s apartment.²⁶¹ A system like SpotterEDU, which uses a smartphone app installed on students’ phones and accompanying sensors to provide teachers or advisors with alerts when a student is more than two minutes late to class, leaves class early, or leaves for a break could fail to account for reasonable justifications for absence or tardiness.²⁶² Yet, the app also uses these metrics to create scores for students that some professors implement into their grading.²⁶³

Against this backdrop of algorithmic fairness scholarship and universities’ use of automated decision-making systems to assess their students, we turn to remote proctoring software’s assessments of students’ trustworthiness. ExamSoft’s ranks which students are “high-performing,” “average,” or “underperforming”; ProctorTrack’s categorizes students as “high integrity” or “low integrity,” and Proctorio provides “suspicion ratings” for individual test-takers.²⁶⁴ A student’s university might use the assessment to steer them into particular courses or majors, despite the erroneous and potentially

260. See *id.*

261. See Harwell, *supra* note 221.

262. See *id.* (describing SpotterEDU).

263. See *id.*

264. See *White Paper: Improving Student Learning Outcomes Through Exam Item Categorization*, EXAMSOFT (Dec. 14, 2018), <https://examsoft.com/resources/improving-student-learning-outcomes-exam-item-categorization> [<https://perma.cc/LRG4-D7BB>] (on file with author); see also *How Do I Prepare My Testing Environment?*, VERIFICENT TECHS., <https://verificent.freshdesk.com/support/solutions/articles/1000165250-how-do-i-prepare-my-testing-environment-> [<https://perma.cc/LWB8-MH9C>] (last visited Jan. 21, 2023) (“Hair, sunglasses, hats or anything that covers your face can cause test to be flagged for low integrity”). Proctorio’s website refers to “suspicion ratings” and once described its approach to “integrity” assessments more fulsomely, but has since removed that description from its website. *Track Integrity for Test-Taker Success*, PROCTORIO (Nov. 6, 2020), <https://web.archive.org/web/20201106073359/https://proctorio.com/platform/data-analytics> (“Our software allows administrators to track academic integrity across courses, departments and semesters. Aggregate data can spot general trends such as rates of testing violations, while individualized data can track test-takers over the length of their academic careers and even assign suspicion ratings.”); *Proctorio*, ONLINE PROCTORING, <https://proctorio.com/products/online-proctoring>, [<https://perma.cc/WFR6-P3DL>] (“You [the instructor] will have access to a full exam integrity report with full recordings, color-coded suspicion ratings...”).

biased methodology for reaching the conclusion that a student is “struggling” or of “low integrity.”²⁶⁵ As noted above, a student being categorized by arbitrary and biased software as unintelligent or untrustworthy could skew or threaten their potential opportunities when that categorization is shared and recycled by various clearinghouses or even used by the company itself in a recruitment product.²⁶⁶

The reliance of most remote proctoring services on various forms of automated facial analysis to identify test-takers or detect the presence of additional people introduces algorithmic bias into the testing process, particularly for test-takers of color.²⁶⁷ Studies of widely used facial recognition algorithms have repeatedly demonstrated that many of them disproportionately err when assessing non-white faces, particularly the faces of Black women.²⁶⁸ It is thus not surprising that students of color have reported their faces being repeatedly rejected by remote proctoring software.²⁶⁹ The instructions for these programs (or contractors staffing vendors’ helplines) regularly urge test-takers to seek better lighting, despite the close proximity of a large window or bright lamps.²⁷⁰ Students of color are subjected to the anxiety of being rejected by their testing software at a high pressure moment, and could be forced to devote

265. See, e.g., Feathers, *supra* note 248.

266. See generally Reidenberg & Schaub, *supra* note 157, at 8–9.

267. The list includes Honorlock, ExamSoft, ProctorTrack, Kryterion, ProctorU, Respondus Monitor, Proctorio, and Top Hat. See notes 63–67 and accompanying text; see also Coghlan et al., *supra* note 89, at 1591.

268. See NIST Study Evaluates Effects of Race, Age, Sex on Face Recognition Software, *supra* note 18; see also Buolamwini & Gebru, *supra* note 18, at 2; Raji & Buolamwini, *supra* note 18; Buolamwini, *supra* note 18; Keyes, *supra* note 18, at 16; Moy, *supra* note 18, at 162; Barrett, *supra* note 18, at 225.

269. See Adam A. Lam, *BIPOC Students Face Disadvantages with Exam Monitoring Software at the University of Toronto*, THE STRAND (Feb. 2, 2021), <https://thestrاند.ca/bipoc-students-face-disadvantages-with-exam-monitoring-software-at-the-university-of-toronto/> [<https://perma.cc/V4JE-LJPY>]; see also Avi Asher-Schapiro, “Unfair surveillance”? Online Exam Software Sparks Global Student Revolt, REUTERS (Nov. 10, 2020, 7:25 AM), <https://www.reuters.com/article/us-global-tech-education-feature-trfn/unfair-surveillance-online-exam-software-sparks-global-student-revolt-idUSKBN27Q1Q1> [<https://perma.cc/4RZQ-A8CK>]; Kelly Meyerhofer, 3 UW-Madison Students say Online Exam Software Didn’t Detect Their Darker Skin, WIS. STATE J. (Apr. 3, 2021), https://madison.com/wsj/news/local/education/university/3-uw-madison-students-say-online-exam-software-didnt-detect-their-darker-skin/article_891b3e5a-a9e3-5529-8859-e20908dee0b6.html [<https://perma.cc/PVX8-PGPM>]; Patil & Bromwich, *supra* note 4.

270. See Patil & Bromwich, *supra* note 4.

valuable test time to getting the software to work, as one law school graduate using ExamSoft to take the bar exam in 2020 was told he would have to do if the software couldn't recognize him.²⁷¹ Students could also have to take their tests in optimally lit but uncomfortable positions that undermine their concentration and academic performance.²⁷² Moreover, it is fundamentally dehumanizing to be forced to convince an algorithm, or an employee of the company that deploys it, that you are in fact a person.²⁷³

Remote proctoring software also subjects students with disabilities to disproportionate errors through false positive flags for "suspicious" behavior.²⁷⁴ The very fact that these services police "abnormal" movements, sounds, and technology prioritizes disabled students with a range of needs for unwarranted scrutiny: As disability rights advocate Lydia Brown astutely observed, "[t]he point [of remote proctoring services] is to identify and flag atypical movement, behavior, or communication; disabled people are by *definition* going to move, behave, and communicate in atypical ways."²⁷⁵ Students with ADHD, who are more likely to fidget, stare off into space, or both, have reported being flagged for doing exactly that, as well as struggling more than usual with concentration due to distracting program functionality or by fears of being flagged.²⁷⁶ Students with all kinds of movement disorders are subject to the same problem, as are blind or autistic students with atypical eye movements.²⁷⁷ Assistive technology could subject students with disabilities to wrongful flagging, such as speech-to-text program being flagged as prohibited noise, or other assistive programs being flagged by keystroke logging software.²⁷⁸ Software that defines behavior that disabled students are more likely to engage in, and

271. See *id.*

272. See *id.*

273. See *id.* (recounting several anecdotes from prior test-takers about issues with the online test-taking programs to illustrate the dehumanizing effects of such systems).

274. See *id.*

275. See Brown, *supra* note 19.

276. See generally Retta, *supra* note 6; see also Harwell, *supra* note 8 (talking about the difficulties of having disabilities and using the software).

277. See Brown, *supra* note 19; see also E-mail from Allison Kushner, ADA Coordinator, Dir., ADA Div., Off. for Access & Equity & Kevin Pitts, Vice Provost for Undergraduate Educ., Univ. of Illinois, Urbana-Champaign (last visited Oct. 3, 2022) (available at <https://emails.illinois.edu/newsletter/1970177238.html>) [<https://perma.cc/A7E2-EPQX>].

278. See *supra* note 277 and accompanying text.

unable to avoid engaging in, as “suspicious” subjects those students to heightened anxiety, and greater risk of being wrongly disciplined.²⁷⁹

In responding to criticism of their software’s biased assessments, remote proctoring software vendors frequently emphasize the role of instructors in choosing to use certain settings or act on the alerts the software provides.²⁸⁰ Proctorio’s CEO assured a reporter that critics of his company’s software are simply failing to grasp how it works, as Proctorio “do[es] not directly identify cheaters, but simply flag[s] suspicious behavior to [the] universities.”²⁸¹ Or as ProctorU’s founder put it, “[w]hen a smoke detector goes off, [the software] doesn’t call the fire department. It goes off and there’s a human in the house who has to figure out if there’s a fire or did you burn toast.”²⁸² That analogy’s logic depends on a reliable ability to distinguish conflagration and kitchen mishaps that educators’ responses to the software have frequently belied.²⁸³

279. See Brown, *supra* note 19.

280. See Proctorio Response Letter, *supra* note 73, at 4 (“Again, exam administrators, not Proctorio, use the information made available to make these determinations.”); *id.* at 7 (“All of the features described above (including those involving Proctorio’s human review) merely flag possible indications of exam integrity violations. Proctorio does not make any academic decisions.”); *id.* at 9 (“Our software does not make inaccurate determinations about violations of exam integrity because our software does not make *any* determinations about breaches of exam integrity.”); see also Lindsay McKenzie, *Time to Rethink AI Proctoring?*, INSIDE HIGHER ED (May 28, 2021), <https://www.insidehighered.com/news/2021/05/28/are-colleges-checking-ais-work-remote-exam-proctoring> [<https://perma.cc/BMB8-3S46>] (“That’s kind of the main way that these proctoring companies are sidestepping accountability when it comes to discrimination. No company is saying that they determine if there is cheating. They all say that they flag suspicious behavior, then it’s up to individual institutions to determine if there’s cheating.”).

281. See Asher-Schapiro, *supra* note 269.

282. See Sara Weissman, *Online Proctoring Companies Respond to Senators’ Equity Concerns*, DIVERSE: ISSUES IN HIGHER EDUC. (Jan. 27, 2021), <https://www.diverseeducation.com/home/article/15108554/online-proctoring-companies-respond-to-senators-equity-concerns> [<https://perma.cc/N8HR-CC6Q>].

283. See Todd Feathers & Janus Rose, *Students Have To Jump Through Absurd Hoops To Use Exam Monitoring Software*, MOTHERBOARD (Nov. 9, 2020, 9:00 AM), <https://www.vice.com/en/article/88anxg/students-have-to-jump-through-absurd-hoops-to-use-exam-monitoring-software> [<https://perma.cc/FQ99-H9K8>] (“‘I must be able to see [your face, both hands, your scratch paper, calculator, and the surface of your desk] at all times while testing. If you have a webcam built into your computer, you will need to move your computer back from you to fit all of this in,’ the instructor wrote in the email [to their students], which detailed instructions

ProctorU appears to have learned this lesson the hard way: While its cheapest service used to include automated suspicion assessments without human review on the assumption that instructors would evaluate them and catch mistakes, the company now requires two ProctorU staff members to review the reports first because “that wasn’t happening.”²⁸⁴ Automation bias, or the tendency of human beings to trust machine-made judgments over their own despite their potential or demonstrated capacity for error, make toast/fire confusions all the more likely, while also making it harder for students to successfully contest wrongful accusations.²⁸⁵ And when instructors or administrators lack information about how the software works or context about its fallibility—as most of them will—they may misinterpret the software’s assessments, ignore false positives, or fail to detect technical failures, leaving students vulnerable to the mistakes that remote proctoring companies claim will be addressed by human intervention.²⁸⁶

The inadequacy of university safeguards was demonstrated to a painful degree when Dartmouth Medical School accused seventeen students of cheating on remote exams based on screenshots of Canvas activity on the backup devices they were required to have available during their exams.²⁸⁷ Students were denied access to the evidence being used against them, and the evidence in multiple cases did not support the charges, as students had not been instructed to log out of Canvas, students frequently keep multiple course pages open, Canvas can automatically generate activity, and the activity documented was in some cases unrelated to the test questions.²⁸⁸ Dartmouth dropped seven cases almost immediately, while the remaining ten faced the possibility of expulsion, suspension, or the

for taking exams with ProctorU. ‘If I cannot see all of this, I will have to set your exam score to 0%.’”).

284. See McKenzie, *supra* note 280.

285. See Linda J. Skitka et al., *Automation Bias and Errors: Are Crews Better than Individuals?*, 10 INT’L J. OF AVIATION PSYCH. 85, 85, 86 (2000); See Jason Kelley et al., *Proctoring Tools and Dragnet Investigations Rob Students of Due Process*, ELEC. FRONTIER FOUND. (Apr. 15, 2021), <https://www.eff.org/deeplinks/2021/04/proctoring-tools-and-dragnet-investigations-rob-students-due-process> [<https://perma.cc/TZU8-G4JL>].

286. See Kelley et al., *supra* note 285.

287. See Natasha Singer & Aaron Krolik, *Online Cheating Charges Upend Dartmouth Medical School*, N.Y. TIMES (May 9, 2021), <https://www.nytimes.com/2021/05/09/technology/dartmouth-geisel-medical-cheating.html> [<https://perma.cc/NG6C-HVSM>].

288. See *id.*

need to retake courses or a full year of school, which would cost the student nearly \$68,000 in tuition alone.²⁸⁹ Dartmouth eventually dropped the charges against every accused student with the apologies of the dean of the medical school.²⁹⁰ The idea that human review or university safeguards will sufficiently prevent wrongful and discriminatory accusations is willfully simplistic and ignores how people and institutions respond to the perceived authority of automated decision-making systems.²⁹¹

C. Entrenching Existing Inequity in Higher Education

The normative odiousness of the harms that remote proctoring software inflicts on students are magnified by their disproportionate severity for marginalized students.²⁹² Laura Moy's work on the racial inequity of new policing technologies provides a helpful framework that can shed light on remote proctoring software's relationship to inequity in higher education, and lends a more precise vocabulary to a discussion of the technology's effects.²⁹³ Moy has argued that analysis of how new policing technologies can create or exacerbate racial inequities can be improved by reference to a consistent taxonomy of harms, and identified five different problems that could be generalized to any new potential technology a police department—or other institution, such as a school—might consider adopting.²⁹⁴ She identifies these problems as replicating inequity; transferring new inequity; exacerbating existing inequity; masking inequity; and compromising oversight.²⁹⁵

Per Moy's taxonomy, technology that mirrors structural racism that already exists in a system, like a drop-out risk prediction

289. See *id.*; see also *Tuition & Fees*, DARTMOUTH GEISEL SCH. OF MED., <https://geiselmed.dartmouth.edu/admissions/costs-and-financial-aid/> [<https://perma.cc/4Y4A-K6YK>] (last visited Oct. 3, 2022).

290. See Natasha Singer, *Dartmouth Medical School Drops Online Cheating Cases Against Students*, N.Y. TIMES (June 10, 2021), <https://www.nytimes.com/2021/06/10/technology/dartmouth-cheating-charges.html> [<https://perma.cc/6SL9-P7GW>].

291. See Kelley, *supra* note 285.

292. See generally Moy, *supra* note 18.

293. See generally *id.*

294. See *id.* at 189–92 (explaining how a school assignment personalization service could replicate existing inequity by generating assignments based on students' past performance, if that data reflected biased treatment by teachers or assessments performed by biased tools).

295. See *id.* at 154.

algorithm trained on a university's historical retention data when the university has previously failed to adequately support minority college students, will *replicate* that existing bias.²⁹⁶ A technology that produces biased results could *transfer* new inequities into a system when the technology's bias is derived from a source outside of the institution into which it is introduced, like an essay grading machine-learning algorithm trained on essays from students at other schools or on other kinds of writing.²⁹⁷ New technologies can also *exacerbate* existing inequities when the technology itself is not discriminatory, but its use nevertheless magnifies the existing disparities between how different demographic groups are treated within a system.²⁹⁸ Mistaken claims about the inherent neutrality of algorithmic decision-making systems can *mask* existing inequities, in addition to the new inequities the algorithmic system creates.²⁹⁹ And the convoluted business relationships between vendors, subcontractors, and the insufficient transparency that shields how exactly those companies collect and use student data can *compromise oversight* by making it more difficult for students, teachers, administrators, and policymakers to identify sources of bias and hold vendors accountable.³⁰⁰ As Moy notes, technologies will often fit into more than one of these categories.³⁰¹

Indeed, remote proctoring software's privacy invasions and discriminatory architecture fit into every category Moy identifies, disproportionately harming students of color, disabled students, low-income students, and others.³⁰² To start, remote proctoring software transfers inequity into higher education.³⁰³ Facial recognition algorithms trained to identify a face by analyzing databases of primarily white faces can err on a racially discriminatory basis, and the use of those algorithms can thus inject the inequity reflected in their construction into the new ecosystem of which they are now a

296. See *id.* at 154–59.

297. See *id.* at 162–66; see also Todd Feathers, *Flawed Algorithms Are Grading Millions of Students' Essays*, MOTHERBOARD (Aug. 20, 2019, 9:00 AM), <https://www.vice.com/en/article/pa7dj9/flawed-algorithms-are-grading-millions-of-students-essays> [<https://perma.cc/L4SD-ACS7>].

298. See Moy, *supra* note 18, at 166–72.

299. See *id.* at 159.

300. See *id.* at 172–74.

301. See *id.* at 154.

302. See *id.* (introducing the five categories of problems that lead to disproportionate effects in the use of policing technology).

303. See *supra* note 297 and accompanying text.

part.³⁰⁴ When remote proctoring software disproportionately fails to recognize the faces of students with darker skin, it can cause them anxiety during the test and potentially impede their performance by forcing them to use valuable time fixing the problem or focusing on avoiding the algorithm from erring again rather than on test questions.³⁰⁵ These harms—anxiety, dehumanization, and interference with academic performance, caused by a biased technology whose source of bias is derived from outside the university—are a transfer of inequity into higher education.³⁰⁶ The use of these programs also transfers inequity that harms disabled students into universities, as the technology disproportionately flags students as “suspicious” in a way that ignores how disabilities will create false positives.³⁰⁷

Security vulnerabilities created by remote proctoring software may replicate inequity by creating another source of distraction, anxiety, and financial precarity for low-income students.³⁰⁸ Sara Greene has argued that low-income individuals are more attractive targets for identity thieves given the relatively lower risk that the victim will pursue technical or legal redress and other factors.³⁰⁹ When a remote proctoring company’s sloppy security practices leave a student’s computer vulnerable to attack, the low-income student is more vulnerable to identity theft than her peers, which exacerbates

304. See Moy, *supra* note 18, at 164 (describing empirical studies and reporting on the higher error rates that many common facial recognition technologies produce for faces belonging to demographics other than white males, and noting that one of the two most commonly understood explanations for that problem is the overrepresentation of white male faces in widely-used datasets used for training facial recognition algorithms). See generally, Barocas & Selbst, *supra* note 247, at 684 (“Decisions that depend on conclusions drawn from incorrect, partial, or nonrepresentative data may discriminate against protected classes. The individual records that a company maintains about a person might have serious mistakes, the records of the entire protected class of which this person is a member might also have similar mistakes at a higher rate than other groups, and the entire set of records may fail to reflect members of protected classes in accurate proportion to others Even a dataset with individual records of consistently high quality can suffer from statistical biases that fail to represent different groups in accurate proportions.”).

305. See *supra* notes 266–271 and accompanying text.

306. See Moy, *supra* note 18, at 162–66.

307. See *supra* notes 252–257 and accompanying text.

308. See Sara S. Greene, *Stealing (Identity) From the Poor*, 106 MINN. L. REV. 59, 64 (2021).

309. See generally *id.*

the precarity that may already make it more difficult for her to concentrate on academics.³¹⁰

Flagging students based on heuristics that correlate with financial precarity can exacerbate the inequity that low-income students already experience. Low-income students can face all kinds of barriers to academic success that their peers don't face, such as difficulty or inability to afford textbooks, a laptop, or other tools that can help make studying easier, less time to focus on academics due to the need to maintain a simultaneous job, and a relative lack of access to informational networks.³¹¹ When a remote proctoring program flags a student because it detects multiple voices, it could be unfairly punishing students whose economic circumstances don't allow for a quieter work space.³¹² Low-income students could also be unfairly flagged for failures of WiFi connectivity, given the expense of reliable internet service, and the high broadband speeds remote proctoring software requires.³¹³ These circumstances already make it harder for students to successfully complete their studies, and when a remote software program flags them as "suspicious" for material circumstances beyond their control, it replicates existing inequity.³¹⁴ Being flagged as morally suspect for material circumstances beyond their control also communicates to those students that higher education is "not for them," compounding anxieties and psychological barriers that low-income students may already struggle with.³¹⁵

310. See *id.* at 77 (noting that low-income individuals may be more susceptible to security breaches because they often connect to the internet using less-secure devices).

311. See Anthony Abraham Jack, *I Was a Low-Income College Student. Classes Weren't the Hard Part*, N.Y. TIMES (Sept. 10, 2019), <https://www.nytimes.com/interactive/2019/09/10/magazine/college-inequality.html> [<https://perma.cc/A7JP-QRK2>].

312. See, e.g., *Privacy Policy*, KRYTERION, <https://www.kryteriononline.com/privacy> [<https://perma.cc/EEC6-SEU9>] (last visited Oct. 3, 2022).

313. See LINDSAY MCKENZIE, *BRIDGING THE DIGITAL DIVIDE: LESSONS FROM COVID-19*, 1, 5 (2021).

314. See generally Alvin Chang, *The Subtle Ways Colleges Discriminate Against Poor Students, Explained with a Cartoon*, VOX (Sept. 12, 2018, 8:46 AM), <https://www.vox.com/2017/9/11/16270316/college-mobility-culture> [<https://perma.cc/ZYV6-7NTC>](discussing existing inequities).

315. See NICOLE M. STEPHENS ET AL., *SOCIAL CLASS AND MODELS OF COMPETENCE: HOW GATEWAY INSTITUTIONS DISADVANTAGE WORKING-CLASS AMERICANS AND HOW TO INTERVENE* 518 (Andrew J. Elliot et al. eds., 2d. ed. 2017) (describing how cultural mismatch engendered class-coded expectations and

Similarly, students with disabilities are already disproportionately policed in higher education, and a system that disproportionately flags them as “suspicious” will replicate those inequities by providing new justifications for wrongful accusations.³¹⁶ Stigma and heightened suspicion about testing accommodations plague disabled students, and a testing system that disproportionately flags their conduct as suspicious adds to the mistrust and disproportionate rates of discipline they already experience.³¹⁷ Disabled students have had to interrupt their tests to justify their accommodations to proctors mid-test, a disruption that could interfere with their academic performance in addition to being demoralizing.³¹⁸ Heuristics of “cheating” that subject all students to flags for anodyne behavior will also disproportionately harm students with disabilities, such as students with GI problems being flagged for briefly leaving the room to use the restroom.³¹⁹ Interference with disabled students’ ability to take their exams in a manner that allows them to demonstrate their academic achievements exacerbated by tech-washed accusations of cheating replicate inequity for disabled students in higher education.³²⁰

Institutional failure to grapple with remote proctoring’s harms for disabled students may also exacerbate pre-existing inequity for

emphases in university settings can lead first-generation students to believe that they do not “belong” there).

316. See West Resendes, *Police in Schools Continue to Target Black, Brown, and Indigenous Students with Disabilities. The Trump Administration Has Data That’s Likely to Prove It*, ACLU (July 9, 2020), <https://www.aclu.org/news/criminal-law-reform/police-in-schools-continue-to-target-black-brown-and-indigenous-students-with-disabilities-the-trump-administration-has-data-thats-likely-to-prove-it> [https://perma.cc/8BPG-D93Q].

317. See Katie Eyer, *Claiming Disability*, 101 B.U. L. REV. 547, 603 (2021) (“One of the most stubborn forms of disability bias is the presumption that a claim of disability identity is inherently a claim on resources: that all disabled people are ‘takers’ and perhaps, as legal scholar Doron Dorfman puts it, ‘fakers’ as well.”); Doron Dorfman, *Fear of the Disability Con: Perceptions of Fraud and Special Rights Discourse*, 53 L. & SOC’Y REV. 1051, 1078 (2019) (noting that “suspicion of disability con has a pernicious effect on the lives of many people with disabilities,” including with respect to academic accommodations); see also DEP’T OF EDUC. OFF. OF CIV. RTS., PROTECTING CIVIL RIGHTS, ADVANCING EQUITY: REPORT TO THE PRESIDENT AND SECRETARY OF EDUCATION, UNDER SECTION 203(B)(1) OF THE DEPARTMENT OF EDUCATION ORGANIZATION ACT, FY13–14 (2015) [hereinafter OCR 2013–14 REPORT].

318. See Patil & Bromwich, *supra* note 4.

319. See NAT’L DISABLED L. STUDENTS ASS’N, REPORT ON CONCERNS REGARDING ONLINE ADMINISTRATION OF BAR EXAMS 15 (2020).

320. See generally *id.*

disabled students, who face a range of barriers in obtaining appropriate testing accommodations.³²¹ While some schools may recognize how remote proctoring software disproportionately harms disabled students, not all of them are fulfilling their normative and legal obligations to proactively identify how remote proctoring software could create obstacles for disabled students.³²² In a poll of 312 higher education institutions conducted by Educause, sixty percent of respondent institutions reported that the remote proctoring services they used met the institution's accessibility standards, while twenty-six percent reported that "some" of the services they used did not meet their standards, and eight percent reported not assessing proctoring services for accessibility concerns at all.³²³ This reflects other findings that universities struggle to make their services, including technology, accessible to students with disabilities.³²⁴ Using this software despite awareness of the obstacles it creates for disabled students requires those students to demand the fair treatment they're entitled to, which may preclude students from being treated fairly given the difficulty of receiving accommodations, hesitation among disabled students to ask for accommodations due to stigma associated with receiving them, and a range of obstacles that prevent people with disabilities from identifying as such.³²⁵ Remote proctoring software compounds the difficulties that disabled students experience in obtaining fair testing circumstances in higher education.

321. See generally EMILY KREBS, BACCALAUREATES OR BURDENS? COMPLICATING "REASONABLE ACCOMMODATIONS" FOR AMERICAN COLLEGE STUDENTS WITH DISABILITIES, 1 (2019); see also U.S. GOV'T ACCOUNTABILITY OFF., GAO-12-40, HIGHER EDUCATION AND DISABILITY: IMPROVED FEDERAL ENFORCEMENT NEEDED TO BETTER PROTECT STUDENTS' RIGHTS TO TESTING ACCOMMODATIONS (2011).

322. See Susan Grajek, *EDUCAUSE COVID-19 QuickPoll Results: Grading and Proctoring*, EDUCAUSE R. (Apr. 10, 2020), <https://er.educause.edu/blogs/2020/4/educause-covid-19-quickpoll-results-grading-and-proctoring> [<https://perma.cc/9UAR-UNY5>].

323. See *id.*

324. See, e.g., *infra* notes 438–442 and accompanying text.

325. See KREBS, *supra* note 321; Mimi Corcoran, *OPINION: Fearful That They Will Be Seen As 'Lazy' or 'Unintelligent,' Most College Students with Disabilities Don't Seek Accommodation*, THE HECHINGER REP. (Nov. 28, 2017), <http://hechingerreport.org/opinion-fearful-will-be-seen-lazy-unintelligent-college-students-disabilities-dont-look-for-accommodation/> [<https://perma.cc/99D7-Y6MQ>]; Eyer, *supra* note 317, at 565–73 (explaining the relative rarity of disability self-identification).

Remote proctoring software could also exacerbate the bias that students of color face in higher education.³²⁶ Data from the U.S. Department of Education on discipline disparities, which the agency does not collect from colleges and universities, has repeatedly shown that students of color in K-12 schools are disciplined at higher rates and more severely than their peers in other groups, particularly Black students.³²⁷ Other documentation of racism in higher education makes the disappearance of that phenomenon once students enter college unlikely.³²⁸ A report examining the University of Virginia's student-run Honor Committee, for example, found that when compared with their demographic share of the student body, white students were underrepresented among students reported to the committee by their fellow students, while Black and Asian students were overrepresented.³²⁹ Education scholars Shaun R. Harper and Charles H.F. Davis III observe that high-performing black male students are frequently accused of cheating by professors who assume their academic success could not be legitimate, the prevalence of which is likely aided by the fact that faculty members at undergraduate institutions are disproportionately white.³³⁰ Remote

326. See *NIST Study Evaluates Effects of Race, Age, Sex on Face Recognition Software*, *supra* note 18 (noting that the error rates of facial recognition software increase for nonwhite test-takers).

327. See Jason P. Nance, *School Surveillance and the Fourth Amendment*, 2014 WIS. L. REV. 79, 85 (2014); OCR 2013–14 REPORT, *supra* note 317, at 13–14, 20.

328. See Nora Gordon, *Disproportionality In Student Discipline: Connecting Policy to Research*, BROOKINGS INST. (Jan. 18, 2018), <https://www.brookings.edu/research/disproportionality-in-student-discipline-connecting-policy-to-research/> [<https://perma.cc/Y339-H6XA>]; Valerie Strauss, *Racial Bias in Campus Discipline: When Will Universities Look in the Mirror?*, WASH. POST (Apr. 22, 2018, 10:05 AM), <https://www.washingtonpost.com/news/answer-sheet/wp/2018/04/22/racial-bias-in-campus-discipline-when-will-universities-look-in-the-mirror/> []; Ben Trachtenberg, *How University Title IX Enforcement And Other Discipline Processes (Probably) Discriminate Against Minority Students*, 18 NEV. L.J. 107, 109 (2017) (“Given the disproportionate suspensions of black students by elementary and secondary schools, along with what is known about racial bias in the criminal justice system, it would be a miracle if university disciplinary procedures did not produce outcomes that excessively punish black students, along with members of other disadvantaged minority groups.”).

329. See Anna G. Bobrow, *Restoring Honor: Ending Racial Disparities in University Honor Systems*, 106 VA. L. REV. ONLINE 47, 51–52 (2020).

330. See Shaun R. Harper & Charles H. F. Davis III, *Eight Actions To Reduce Racism In College Classrooms*, AM. ASS'N OF UNIV. PROFESSORS, <https://www.aaup.org/article/eight-actions-reduce-racism-college-classrooms#.YTwoBWZJHzc> [<https://perma.cc/YGR9-2W3Y>] (last visited Oct. 3, 2022); Ian Shapira, *A Black VMI Cadet was Threatened with a Lynching, Then with*

proctoring software that hinders their performance on tests through biased algorithms creates another obstacle for Black students that their peers in other demographic groups will not encounter, and provides another pretext for damaging assumptions and accusations to be made by their instructors.³³¹

Surveillance anxiety caused by remote proctoring software, or fear of discriminatory treatment by a biased algorithm, can also exacerbate inequity for marginalized students.³³² Transgender students may feel forced to out themselves to their professor or their proctor, given that most remote proctoring programs require students to match a picture of their face to a form of identification, which could reflect an outdated name, recorded gender, or gendered appearance.³³³ Students with disabilities may feel compelled to reveal conditions to their professor that they did not want to reveal, and would not have had to reveal without the threat of erroneous disciplinary action by a remote proctoring program.³³⁴ Students experiencing poverty may feel anxiety or shame at the prospect of having to display their living quarters to a stranger, with the possibility that the professor will review the footage at a later date.³³⁵ Students might consider the privacy implications of a remotely proctored exam required by a class and simply decide to drop the class, as Neil did when he was informed that he had no option but to take his microeconomics exam via Honorlock.³³⁶ In the case of an entry exam like the LSAT, they might choose to pursue a different vocation or settle for a lower score rather than endure the trauma of

Expulsion, WASH. POST (Dec. 21, 2020), <https://www.washingtonpost.com/education/2020/12/21/vmi-lynching-racism-expulsion/> [<https://perma.cc/2Z4C-GS7Q>]; *Race/Ethnicity of College Faculty*, NAT'L CTR. EDUC. STATS., <https://nces.ed.gov/fastfacts/display.asp?id=61> [<https://perma.cc/6ZYD-YRBN>] (noting that, in fall 2020, nearly seventy-five percent of full-time faculty were white) (last visited Oct. 3, 2022).

331. See Shea Swauger, *Software That Monitors Students During Tests Perpetuates Inequality and Violates Their Privacy*, MIT Tech. Rev. (Aug. 7, 2020), <https://www.technologyreview.com/2020/08/07/1006132/software-algorithms-proctoring-online-tests-ai-ethics/> [<https://perma.cc/BTD6-BBE3>].

332. See generally *id.*

333. See, e.g., Retta, *supra* note 6.

334. See Harwell, *supra* note 2.

335. See generally Jason Kelley, *Federal Judge: Invasive Online Proctoring "Room Scans" Are Unconstitutional*, EFF (Aug. 25, 2022), [eff.org/deeplinks/2022/08/federal-judge-invasive-online-proctoring-room-scans-are-also-unconstitutional](https://www.eff.org/deeplinks/2022/08/federal-judge-invasive-online-proctoring-room-scans-are-also-unconstitutional) [<https://perma.cc/8CZJ-PCV2>].

336. See Harwell, *supra* note 2.

retaking the test, as Sydney considered doing.³³⁷ And first-generation college students like Jazi, the student flagged as “suspicious” due to the noises of younger siblings that she was unable to prevent, might feel as she did that they do not belong in their institutions, leading to damaged morale, feelings of shame, anxiety, and isolation, and potentially affecting their academic choices and performance.³³⁸

If a test-taker’s ability to complete a required exam for a course comes at the cost of being forced to reveal private facts about their lives against their will, such as the existence of a medical condition or former gender identity, or the fear that the software won’t recognize their face due to their skin color, some students may be dissuaded from pursuing that area of study or professional path, stymieing their educational attainment or thwarting their professional goals.³³⁹ Even the message that a student like them does not belong and that their attempts to obtain an education will be obstructed by their identity or material conditions is harmful, and should be antithetical to the objectives of educators.³⁴⁰

In addition to depriving students of opportunities to explore and thrive in new pursuits, these winnowing effects impoverish the disciplines that are rendered more homogenous by marginalized students’ absence from them. In some cases, formal education need not be necessary for a student to pursue a given discipline, nor does it preclude their contributing groundbreaking new ideas to it.³⁴¹ But the resources and structure of formal education can offer a support system for students as they delve into a new discipline, providing them with needed repositories like libraries and research databases, and formal guidance for writing and research.³⁴² And some disciplines *do* require access to institutional resources, such as

337. See Patil & Bromwich, *supra* note 4 (“Overall, the test ‘took an hour longer than I expected total,’” Sydney said. (ProctorU did not return a request for comment on experiences like Sydney’s.) Sydney has not yet decided whether to retake the test, though they are leaning toward keeping whatever score they receive. ‘It doesn’t seem worth it to me to risk experiencing issues with ProctorU yet again,’ they said.”).

338. See *id.*

339. See generally Swauger, *supra* note 331.

340. See, e.g., Patil & Bromwich, *supra* note 4.

341. See, e.g., Maryalene LaPonsie, *25 Best Jobs That Don’t Require a College Degree*, U.S. News (Jan. 25, 2022, 2:49 PM), <https://money.usnews.com/money/careers/slideshow/25-best-jobs-that-dont-require-a-college-degree>.

342. See e.g., Andrew Nelson, *Models of Learning in Formal and Non-Formal Sources of Education*, ANDYHUB, <https://andyhub.com/archive/models-of-learning-in-formal-and-non-formal-sources-of-education/> [<https://perma.cc/2BLT-SBJ6>].

archives for historical research, labs with appropriate equipment and environments for scientific experiments, and advanced computers for resource-intensive calculations or modeling sequences, or passing scores on entry or licensing tests. To be licensed as a lawyer in the overwhelming majority of U.S. states, a person needs to take the LSAT and the bar exam.³⁴³ Medical schools, nursing schools, and other medical vocations generally require a laundry list of prerequisite courses, all of which are traditionally dependent on exam-based assessments and lab-based courses.³⁴⁴ Invasive proctoring software that makes students feel like a university education is not for them, and that educational discovery comes at the cost of degrading invasions of privacy or discriminatory accusations of cheating, threatens intellectual privacy and exploration, and it damages the disciplines that will lose the fledgling participants they drove away.

Insidiously, remote proctoring software masks inequity by providing a supposedly “empirical” basis for the disproportionate scrutiny.³⁴⁵ Misjudgments of student behaviors may not be a new phenomenon, but an app creating and crystallizing those judgments creates a new opportunity for those mistakes to be made.³⁴⁶ Automated decision-making processes change the perceptions, decisions, and values of the people co-existing in the system they’ve been inserted into, a phenomenon that one group of researchers labeled “the Ripple Effect Trap” when those effects are ignored.³⁴⁷ The assumption that algorithmic assessments are inherently neutral and less biased than human decisions may cause the people in that system to ignore algorithmic mistakes and fail to see how the use of

343. See e.g., Sally Kane, *Education, Training, and Testing to Become a Lawyer*, LIVEABOUTDOTCOM (June 25, 2019), <https://www.liveabout.com/lawyer-education-2164358> [<https://perma.cc/6UKZ-QWD2>].

344. See e.g., Ilana Kowarski, *How To Fulfill Med School Admission Requirements*, U.S. NEWS (Aug. 25, 2022), <https://www.usnews.com/education/best-graduate-schools/top-medical-schools/articles/how-to-make-sure-you-fulfill-medical-school-requirements-for-admission> [<https://perma.cc/QNS8-KEM4>].

345. Cf. Rebecca Heilweil, *Why Algorithms Can Be Racist and Sexist*, VOX (Feb. 18, 2020, 12:20 PM), www.vox.com/recode/2020/2/18/21121286/algorithms-bias-discrimination-facial-recognition-transparency [<https://perma.cc/T7DJ-CPA2>] (describing an instance when an AI program used to detect the best applicants for a job based on prior hiring decisions did not choose female applicants or applicants of color because the company did not traditionally hire females or people of color).

346. See e.g., Harwell, *supra* note 8.

347. See Zeide, *Education Purpose Limitations*, *supra* note 23, at 521–22; ANDREW D. SELBST ET AL., FAIRNESS AND ABSTRACTION IN SOCIOTECHNICAL SYSTEMS 7 (2018).

the technology changed the relevant criteria considered in a given decision, as well as the moral objectives the system is intended to serve.³⁴⁸

Trusting algorithmic proctors that flag blinking as “suspicious” will allow those systems to further spread the biases that shape their design—the choice of heuristics for suspicion, the implicit or explicit biases of the engineers who chose those heuristics, and the demographic composition of any training data used to teach the algorithm behind the software what, for example, a face looks like.³⁴⁹ And as discussed above, automation bias will make it harder for students to correct errors when they do occur, as was the case for a Temple University student athlete whom SpotterEDU flagged as late or absent to classes when he had been neither.³⁵⁰ Nor is awareness of algorithmic bias sufficient to prevent it: while Proctorio has touted its engagement of a bias audit, there are no agreed-upon standards for what such audits are intended to accomplish, little transparency about their methods, and no guarantees of their rigor.³⁵¹ Remote proctoring vendors’ lack of transparency further masks the inequities created or calcified by their products.

III. PRIVACY AND CIVIL RIGHTS LAWS ARE INSUFFICIENT TO COUNTER THE HARMS OF REMOTE PROCTORING SOFTWARE

The harms inflicted by remote proctoring software—its violations of students’ privacy, the anxiety it provokes, and the inequities that it creates, shields, and entrenches—are even more concerning given the inefficacy of applicable laws to curb them.³⁵²

A. Privacy Protections

The privacy practices of remote proctoring software vendors do not exist in a legal vacuum, but the range of applicable protections have so far failed to limit their harmful effects on students. Remote proctoring software vendors are subject to the same damaging

348. See, e.g., Heilweil, *supra* note 345.

349. See Harwell, *supra* note 221.

350. See *id.*

351. See Alfred Ng, *Can Auditing Eliminate Bias from Algorithms?*, THE MARKUP (Feb. 23, 2021, 8:00 AM), <https://themarkup.org/ask-the-markup/2021/02/23/can-auditing-eliminate-bias-from-algorithms> [<https://perma.cc/DX2B-BC3Z>].

352. See discussion *infra* Sections III.A, III.B.

incentives that encourage abusive practices by other technology companies in the United States.³⁵³ The laws that apply to their products are generally under-inclusive of pertinent issues and under-enforced, and the profits potentially available from unethical data collection and use are large, which gives companies little reason to consider the possibility of enforcement a significant business risk.³⁵⁴ In the case of protections that could allow for private litigation, such as Illinois' BIPA, procedural hurdles diminish the likelihood of success.³⁵⁵ In many cases, forced arbitration clauses will also pose a substantial obstacle for plaintiffs looking to sue remote proctoring software companies.³⁵⁶ While some applicable privacy protections could be enforced more effectively to curb the abuses of remote proctoring software, they've done little to deter privacy invasions thus far and are insufficient to tackle the full range of harms this technology inflicts.³⁵⁷

1. Consumer Protection Laws: Unfair and Deceptive Trade Practices and BIPA

Like most companies, a remote proctoring software vendor that lies about its privacy practices or subjects students to unfair practices like weak security protocols could face an enforcement action by the FTC or a state Attorney General.³⁵⁸ Misleading statements or

353. See, e.g., Ari Ezra Waldman, *The New Privacy Law*, 55 U.C. DAVIS L. REV. ONLINE 19, 23, 41 (2021) (describing the digital privacy ecosystem as one of "ubiquitous commodification and corporate surveillance" and recommending that policymakers "consider new legal paradigms that can rein in data extraction and its attendant power asymmetries and injustices").

354. See discussion *infra* Subsections III.A.1, III.A.2.

355. See, e.g., Julie E. Cohen, *Information Privacy Litigation as Bellwether for Institutional Change*, 66 DEPAUL L. REV. 535, 575–78 (2017).

356. See, e.g., Chao Liu & Adam Schwartz, *Stop Forced Arbitration in Data Privacy Legislation*, EFF (Apr. 19, 2022), <https://www.eff.org/deeplinks/2022/04/stop-forced-arbitration-data-privacy-legislation> [<https://perma.cc/JPF8-TJ8R>] (describing and criticizing the prevalence of forced arbitration clauses in user agreements for online services).

357. See generally, Sara Morrisison & Rebecca Heilweil, *How Teachers Are Sacrificing Student Privacy To Stop Cheating*, Recode (Dec. 18, 2020 9:30 AM), <https://www.vox.com/recode/22175021/school-cheating-student-privacy-remote-learning> [<https://perma.cc/3UQL-6MGM>].

358. See Fed. Trade Comm'n, *FTC Policy Statement on Deception* (Oct. 14, 1983), <https://www.ftc.gov/public-statements/1983/10/ftc-policy-statement-deception> [<https://perma.cc/D4GJ-2YAW>]; Fed. Trade Comm'n, *FTC Policy Statement on Unfairness* (Dec. 17, 1980), <https://www.ftc.gov/public-statements/1980/12/ftc-policy-statement-unfairness> [<https://perma.cc/6FCJ-YE6E>].

omissions about the kinds of information these companies collect, the degree of control students can exert over collection, or about their retention, deletion, sharing, or security policies could all subject a vendor to liability.³⁵⁹ The deceptive statement or omission must be likely to impact the reasonable consumer's conduct or decisions had they been fully informed.³⁶⁰ Deception enforcement is both a valuable regulatory tool and inherently limited, as failure to lie about normatively execrable privacy practices would leave a company in the clear.³⁶¹ Unfair business practices, or those that cause a substantial injury or the likelihood thereof, when a reasonable consumer could not have avoided the injury and the practice does not otherwise benefit consumers or competition, are also relevant.³⁶² Unreasonable security practices, such as storing passwords in plain text as Proctortrack's parent company Verificient did, could be found to be unfair.³⁶³ The sensitivity of the information—which could include the student's "suspicion" score, the video of their test and potentially their home, whether they receive academic accommodations for a disability, and the source of the disability—could further support a finding of substantial injury.³⁶⁴ Students are not in a position to avoid these risks, as Section II.A describes in detail.³⁶⁵

The FTC's unfairness or deception authority could also be used to address a company's misrepresentation of, or the substantive injuriousness of, remote proctoring software that produces discriminatory outcomes on the basis of race, disability, or other protected classes, as the FTC emphasized in a 2021 blog post.³⁶⁶ The

See generally Danielle K. Citron, *The Privacy Policymaking of State Attorneys General*, 92 NOTRE DAME L. REV. 747 (2016).

359. See FED. TRADE COMM'N, FTC'S USE OF ITS AUTHORITIES TO PROTECT CONSUMER PRIVACY AND SECURITY 2 (2020).

360. See *id.*

361. See generally Dale Pollack & Bruce Teichner, *The Federal Trade Commission's Deception Enforcement Policy*, 35 DEPAUL L. REV. 125 (1985).

362. See FED. TRADE COMM'N, *supra* note 359.

363. See Germain, *supra* note 119.

364. See e.g., *Online Proctoring*, PROCTORIO, <https://proctorio.com/products/online-proctoring> [<https://perma.cc/DC3F-LWSC>] (last visited Oct. 3, 2022) (Proctorio's software provides a "full exam integrity report, with full recordings, color-coded suspicion ratings, exam analytics, annotations, and computer performance directly from within your assessment platform").

365. See discussion *supra* Section II.A.

366. See Elisa Jillson, *Aiming for Truth, Fairness, and Equity in Your Company's use of AI*, FED. TRADE COMM'N (Apr. 19, 2021), <https://www.ftc.gov/news-events/blogs/business-blog/2021/04/aiming-truth-fairness->

post observed that using a discriminatory model that “causes more harm than good”—say, by using gestures and eye movements as a cheating heuristic and disproportionately flagging students with disabilities as “suspicious” or by using a facial recognition algorithm that disproportionately errs for students of color—could constitute an unfair trade practice.³⁶⁷ It also noted that misrepresenting the fairness of an algorithm’s outcomes could be deceptive, which might have had some effect on Proctorio’s choice to modify language on its website describing its software as “eliminat[ing] human error [and] bias” to software that “attempts to remove human bias and error.”³⁶⁸ As learning technology expert Ian Linkletter observed, the language had not been modified in two years, and the change took place eleven days after the FTC’s blog post was published.³⁶⁹

The FTC has not previously prioritized cases involving ed tech, but the rise of remote education during the pandemic and the prominent backlash to the use of remote proctoring software could point to the possibility of enforcement.³⁷⁰ Promisingly, a new policy statement published by the agency on education technology and COPPA; statements by FTC Commissioner Bedoya describing the

equity-your-companys-use-ai. See also, Andrew Selbst and Solon Barocas’ important article exploring the FTC’s ability to combat discrimination in depth. Andrew Selbst & Solon Barocas, *Unfair Artificial Intelligence: How Ftc Intervention Can Overcome The Limitations Of Discrimination Law*, 171 U. PENN. L. REV. (forthcoming 2023).

367. See *id.*

368. See Ian Linkletter (@Linkletter), TWITTER (Apr. 30, 2021, 5:41 PM), <https://twitter.com/Linkletter/status/1388247175180685313> [<https://perma.cc/E9M8-DAYD>].

369. See *id.*

370. See FED. TRADE COMM’N, *Policy Statement of the Federal Trade Commission on Education Technology and the Children’s Online Privacy Protection Act*, https://www.ftc.gov/system/files/ftc_gov/pdf/Policy%20Statement%20of%20the%20Federal%20Trade%20Commission%20on%20Education%20Technology.pdf (May 19, 2022); FED. TRADE COMM’N, PREPARED REMARKS OF COMMISSIONER ALVARO M. BEDOYA TO THE NATIONAL ADVERTISING DIVISION ANNUAL CONFERENCE 5 (Sept. 20, 2022); FED. TRADE COMM’N, PROTECTING CONSUMER PRIVACY IN A TIME OF CRISIS: REMARKS OF ACTING CHAIRWOMAN REBECCA KELLY SLAUGHTER AS PREPARED FOR DELIVERY 4 (2021); FED. TRADE COMM’N, *FTC Brings Action Against Ed Tech Provider Chegg for Careless Security that Exposed Personal Data of Millions of Customers*, <https://www.ftc.gov/news-events/news/press-releases/2022/10/ftc-brings-action-against-ed-tech-provider-chegg-careless-security-exposed-personal-data-millions> (Oct 31, 2022). While the Education Technology and COPPA policy statement does not apply directly to test-takers in higher education (COPPA only governs the information of children under the age of 13), the statement nevertheless represents agency highlighting student privacy as a priority.

discriminatory risks of remote proctoring software as germane to the agency's recent Advance Notice of Proposed Rulemaking on Commercial Surveillance and Data Security, and those by FTC Commissioner Slaughter highlighting ed tech and racially discriminatory algorithms as key oversight concerns; and recent action against an education technology company for inadequate security protocols demonstrate new attention to student privacy concerns (and in the case of Commission Bedoya, to the risks of remote proctoring software specifically). At the very least, the prospect of unfair or deceptive trade practice enforcement seems to have had a minimal deterrence effect on harmful practices so far.

Biometrics laws in some states seem like useful tools to address the expansive collection and use of identifiers like fingerprints and face prints.³⁷¹ But only the Biometric Information Privacy Act (BIPA) in Illinois is a remotely plausible vehicle for challenging the use of this software, and even plaintiffs under that law would face an uphill battle thanks to skeptical judges, the obstacles created by arbitration waivers, and the weighty time and financial demands of suing.³⁷²

What's more, such suits are limited in scope, given the jurisdictional constraint, and their focus on biometrics alone.³⁷³ The other harms inflicted by remote proctoring software—other kinds of data collection and use, the discriminatory effects of automated “suspicion” flags for disabled students—would not be addressed by

371. See Lauraann Wood, *More Students Hit Testing Software Co. Over Facial Scans*, LAW360 (Apr. 5, 2021, 10:59 PM), <https://www.law360.com/classaction/articles/1371876/more-students-hit-testing-software-co-over-facial-scans> [<https://perma.cc/WV8S-S4ZH>] (describing two ongoing BIPA lawsuits brought by university students against Respondus, regarding its remote proctoring service Respondus Monitor); Erin Shaak, *Online Test-Taking Software ProctorU Violates Ill. Privacy Law, Class Action Alleges*, CLASSACTION.ORG (Mar. 15, 2021), <https://www.classaction.org/news/online-test-taking-software-proctoru-violates-ill-privacy-law-class-action-alleges> [<https://perma.cc/ZM5S-CPMH>] (describing BIPA class action brought by undergraduates against ProctorU).

372. See Barrett, *supra* note 18, at 264–65 (2020) (describing the limitations of the biometrics statutes in Washington and Texas); see also Ryan Calo, *Privacy Harm Exceptionalism*, 12 COLO. TECH. L.J. 361, 364 (2014) (describing judicial skepticism and hostility to recognizing privacy harms); Danielle K. Citron & Daniel J. Solove, *Privacy Harms*, 102 B.U. L. REV. 793 (2022) (describing judicial skepticism and hostility to recognizing privacy harms).

373. See, e.g., Hannah Oswald & Kenneth Suh, *BIPA's Scope Shaped by Courts with No Legislative Relief in Sight*, JD SUPRA (Jul. 6, 2022), <https://www.jdsupra.com/legalnews/bipa-s-scope-shaped-by-courts-with-no-9815599/#3> [<https://perma.cc/X7ZX-5UET>].

such suits unless the remedy resulting from successful litigation involved the school ceasing to use such software altogether (or if public pressure and image concerns provoked the school to cease using the software without being compelled to do so by a court).³⁷⁴ Even a successful BIPA suit is unlikely to have transformative effects on the full range of harms that remote proctoring software inflicts on students.

2. FERPA

The most broadly applicable student privacy law, FERPA, also doesn't sufficiently constrain remote proctoring companies from collecting vast amounts of sensitive data about students and using it in concerning ways.³⁷⁵ Joel Reidenberg, Elana Zeide, and other privacy scholars have long criticized how FERPA's heavy reliance on consent as a privacy safeguard doesn't protect students' privacy effectively, and their critiques are entirely correct.³⁷⁶ Those observations join a broader chorus of scholars, advocates, and policymakers who have criticized the myopia of notice-and-choice privacy protections for decades, and their concerns about the informational limits of privacy policies and the cognitive biases constraining individuals' privacy decision-making are deeply relevant to remote test-taking.³⁷⁷ The logic of protecting privacy via corporate disclosures assumes the provision of full information, transparency into the ramifications of the decision, and meaningful alternatives that don't punish the decision-maker for choosing them, all of which are rarely present for the overwhelming majority of privacy decisions and generally do not exist for students taking remotely proctored exams.³⁷⁸ Students do not receive anything approaching adequate notice, and they are not able to exercise meaningful choice.³⁷⁹

The circumstances when schools even need to seek written consent before disclosing student personally identifiable information

374. See, e.g., Brown, *supra* note 19.

375. See generally 34 C.F.R. § 99.31.

376. See Reidenberg & Schaub, *supra* note 157; *Education Purpose Limitations*, *supra* note 23, at 494, 497 (noting that “[i]n theory, the statute relies on parental consent to ensure appropriate information practices. In practice, it delegates most of these decisions to schools with minimal transparency and accountability”).

377. See *supra* notes 131, 189.

378. See *supra* Section II.A.

379. See *id.*

to ed tech vendors are also much rarer than FERPA's architecture might seem to depict.³⁸⁰ FERPA requires schools to obtain written consent from students' parents or guardians in order to share students' personally identifiable information from their educational records with any third parties.³⁸¹ But schools rely heavily on what is known as the "school official" exception to FERPA's consent requirements, which allows them to provide student personally identifiable information to third parties without student consent when certain conditions are met by the third party and the school.³⁸² Schools are most likely relying on the school official exception to provide remote proctoring software companies with students' personal information; Proctorio explicitly mentions its reliance on the school official exception in its privacy policy and in the FERPA statement on its website.³⁸³

Schools' frequent use of the school official exception to avoid obtaining student consent to share their personal information further erodes students' agency and privacy. Schools generally don't have sufficient oversight over the ed tech companies that they designate as "school officials," and neither schools nor students have sufficient visibility into what companies do with students' personally identifiable information.³⁸⁴ As Zeide has argued, the exception's limit to uses for "authorized purposes" is a procedural constraint whose efficacy varies according to what the school decides to authorize and the ability to ensure that the company only uses student data for

380. See, e.g., *Family Educational Rights and Privacy Act (FERPA)*, U.S. DEP'T OF EDUC., <https://www2.ed.gov/policy/gen/guid/fpco/ferpa/index.html> [<https://perma.cc/A7NH-JK5R>] (last visited Oct. 3, 2022).

381. Or the students themselves, once they turn 18 or enroll in a postsecondary institution. See 20 U.S.C. § 1232g (b)(1); 34 C.F.R. § 99.30; DEP'T OF EDUC. PRIV. TECH. ASSISTANCE CTR., *Responsibilities of Third-Party Service Providers under FERPA 2* (2015).

382. See 34 C.F.R. § 99.31(a)(6)(iii); *Student Privacy Principles*, *supra* note 23, at 339 (noting that "FERPA nominally operates on the notion of notice and consent but in practice delegates the bulk of data-related decisionmaking to educators through the school official exception.").

383. See *Proctorio Privacy Policy*, *supra* note 173 (matching the language verbatim in Proctorio's FERPA statement); *Frequently Asked Questions*, PROCTORIO, <https://proctorio.com/frequently-asked-questions> [<https://perma.cc/AE8X-HD46>] (last visited Oct. 3, 2022).

384. See *Education Purpose Limitations*, *supra* note 23, at 494; Jack Becker, *Commercial Companies and FERPA's School Official Exception: A Survey of Privacy Policies*, CTR. DEM. & TECH. (Jan. 22, 2021), <https://cdt.org/insights/commercial-companies-and-ferpas-school-official-exception-a-survey-of-privacy-policies/>.

those purposes, neither of which is sufficient to prevent abuse.³⁸⁵ Even strict adherence to authorized uses does not exclude uses of student data that could be harmful to the student, particularly in cases where the student's interests and the school's conflict.³⁸⁶ Ultimately, FERPA's primary guarantee of student privacy is student or parent consent—but the school official consent exception makes that guarantee leaky, given how frequently it allows schools to avoid seeking consent altogether.³⁸⁷

FERPA's consent exception for "directory information" creates another gap in the statute's consent-centric privacy protections.³⁸⁸ Schools need not obtain students' consent to disclose "directory information" from student records, which includes data such as the student's name, address, phone number, date of birth, photographs, height and weight of student athletes, and other forms of information that the school chooses, provided it issues an annual public notice to students detailing the kinds of information it has so designated and allowing them to opt out of a limited category of disclosures.³⁸⁹ As Zeide has previously observed, FERPA's drafters did not anticipate technologies that could quantify every aspect of the student experience, creating all kinds of data about students and their academic performance, inferences about their skills, aptitudes, or weaknesses, and other attributes and assessments, including from what might be considered directory information.³⁹⁰ FERPA also allows the sharing of "de-identified" student records without constraint, despite broad consensus among experts about the limits of anonymization techniques.³⁹¹ FERPA's approach to data collection limits is ill-adapted to the volume, sensitivity, and profit potential of the data that it allows companies to collect without students' consent.

But even for the conduct that FERPA does cover, remote proctoring companies ultimately have little to fear from violating the statute or regulations. An enforcement action against a school for violating FERPA would likely create reputational problems for the

385. See *Education Purpose Limitations*, *supra* note 23, at 494; see also Reidenberg & Schaub, *supra* note 157, at 268.

386. See *Education Purpose Limitations*, *supra* note 23, at 513–16.

387. See *id.* at 512–14.

388. See 34 C.F.R. § 99.37 (2022); Zeide, *Education Purpose Limitations*, *supra* note 18, at 502.

389. See 20 U.S.C. § 1232g(a)(5)(a); 34 C.F.R. § 99.37.

390. See *Education Purpose Limitations*, *supra* note 18, at 505–09.

391. See DEP'T OF EDUC. PRIVACY TECH. ASSISTANCE CTR., DATA DE-IDENTIFICATION: AN OVERVIEW OF BASIC TERMS 2 (2014).

remote proctoring software company it was working with, but the statute only provides for the sanctioning of educational institutions, not third parties.³⁹² The rarity of enforcement provides further comfort.³⁹³ Schools can have their funding withheld for not one violation of FERPA, but for a pattern of violative practices, and the Department of Education has never imposed that penalty in the history of the law.³⁹⁴ FERPA also does not have a private right of action, leaving its enforcement up to the Department of Education alone, which also hasn't offered guidance for schools or any other stakeholder regarding the use of remote proctoring software.³⁹⁵ Finally, to the limited extent that FERPA is a useful guardrail against certain harmful data collection and use practices, it does not address the discriminatory effects of ed tech services for students of color, disabled students, or other vulnerable groups.³⁹⁶ FERPA will do little, if anything at all, to mitigate the harms of remote proctoring software.

B. Protections Against Discrimination

While both constitutional and statutory protections prohibit discrimination against students on the basis of race or disability, they are similarly inadequate to address remote proctoring software's full spectrum of harms.³⁹⁷ Title VI and the Fourteenth Amendment's Equal Protection Clause are highly unlikely to limit the discriminatory effects of remote proctoring software, thanks to a requirement of discriminatory intent that will rarely be found.³⁹⁸ Certain uses of remote proctoring software might violate the Americans with Disabilities Act, and liability concerns could make a university less likely to start using the technology or to extend an existing contract.³⁹⁹ At the same time, such concerns have been insufficient to dissuade plenty of universities from using remote proctoring software, despite its discriminatory effects. The most relevant and comprehensive legal protections for students of color

392. See Zeide, *Student Privacy Principles*, *supra* note 23, at 368–69 (calling FERPA enforcement as “an empty threat”).

393. See *Education Purpose Limitations*, *supra* note 23, at 503.

394. See *id.*

395. See *Gonzaga University v. Doe*, 536 U.S. 273, 278–79 (2002).

396. See *generally Education Purpose Limitations*, *supra* note 23, at 494.

397. See U.S. CONST. amend. XIV, § 1; see, e.g., 42 U.S.C. § 2000d.

398. See *supra* notes 376–386 and accompanying text.

399. See *infra* Subsection III.B.2.

and students with disabilities against the harms of remote proctoring software are simply not enough.⁴⁰⁰

1. Racial Discrimination

Both of the most relevant federal prohibitions on racial discrimination by colleges and universities, the Fourteenth Amendment's Equal Protection Clause and Title VI of the Civil Rights Act of 1964, are ostensibly applicable and simultaneously unlikely to be effective in curtailing racially discriminatory uses of remote proctoring software.⁴⁰¹ The Fourteenth Amendment's Equal Protection Clause prohibits state actors, such as public colleges and universities, from denying any person the equal protection of the law on the basis of race, and Title VI prohibits any recipient of federal funds, such as a college or university, from racially discriminatory conduct.⁴⁰² But claims of racial discrimination through the use of remote proctoring software under either authority will be subjected to a requirement of discriminatory intent that plaintiffs will struggle to meet.⁴⁰³

Courts analyze racial discrimination cases under Title VI and the Equal Protection Clause as either disparate treatment, when individuals are intentionally treated adversely because of their race, or disparate impact or effects, in which a facially neutral policy has disproportionately adverse consequences for a particular racial group.⁴⁰⁴ But the Supreme Court's creation of an intent requirement in disparate impact cases has blurred the purported distinction between those two theories of discrimination and limits the viability of using Title VI or the Equal Protection Clause to pursue redress for students subjected to racially discriminatory testing experiences.⁴⁰⁵

400. See *infra* Subsection III.B.2.

401. See, e.g., Jennifer C. Braceras, *Killing the Messenger: The Misuse of Disparate Impact Theory to Challenge High-Stakes Educational Tests*, 55 VAND. L. REV. 1111, 1141 (2002).

402. See U.S. CONST. amend. XIV, § 1; 42 U.S.C. § 2000d.

403. See Braceras, *supra* note 401, at 1141 (noting that courts have generally treated the scope of rights covered under Title VI and the Equal Protection Clause as co-extensive).

404. See *Griggs v. Duke Power Co.*, 401 U.S. 424, 432 (1971); Stacy E. Seicshnaydre, *Is the Road to Disparate Impact Paved with Good Intentions?: Stuck on State of Mind in Antidiscrimination Law*, 42 WAKE FOREST L. REV. 1141, 1145–47 (2007) (describing the two standards and their treatment by courts).

405. See *Washington v. Davis*, 426 U.S. 229, 232 (1976); Amy B. Cyphert, *Tinker-ing with Machine Learning: The Legality and Consequences of Online*

This doctrinal turn has created an extremely high, if not entirely preclusive, barrier for potential plaintiffs subject to discriminatory treatment, which is incompatible with the vast majority of circumstances where algorithmic discrimination might otherwise entitle a plaintiff to redress.⁴⁰⁶

Scholars, advocates, and policymakers have been grappling with the incongruence of algorithmic discrimination with the intent requirement of disparate impact doctrine for years.⁴⁰⁷ The problem arises from inherent characteristics of automated decision-making systems that make discrimination both likely and difficult to identify and attribute to intentional animus.⁴⁰⁸ A machine learning model can accurately identify features in a dataset that correlate with a desired outcome, optimize for those features, and thus replicate the structural bias that those features reflect, despite an absence of racist intent.⁴⁰⁹

Surveillance of Students, 20 NEV. L.J. 457, 495–97 (2020) (discussing the impact of *Washington* on equal protection claims involving school discipline); *Alexander v. Sandoval*, 532 U.S. 275, 275–76 (2001); JARED P. COLE, CONG. RSCH. SERV., R45665, CIVIL RIGHTS AT SCHOOL: AGENCY ENFORCEMENT OF TITLE VI OF THE CIVIL RIGHTS ACT OF 1964 1 (2019) (noting that it remains unclear whether federal agencies still have the authority to promulgate Title VI regulations prohibiting racially discriminatory effects without an intent requirement).

406. See, e.g., Samuel R. Bagenstos, *The Structural Turn and the Limits of Antidiscrimination Law*, 94 CAL. REV. 1, 8 (2006) (describing disparate impact doctrine as no longer having “practical significance”); Michael Selmi, *Was the Disparate Impact Theory a Mistake?*, 53 UCLA L. REV. 701, 702 (2006) (declaring “yes,” the theory was a mistake); Aziz Z. Huq, *What is Discriminatory Intent?*, 103 CORNELL L. REV. 1211, 1230 (2018) (describing the difficulty of proving discriminatory intent and criticizing courts’ inconsistent approaches).

407. See generally Barocas & Selbst, *supra* note 247, at 674–75 (2016) (“Under Title VII, it turns out that some, if not most, instances of discriminatory data mining will not generate liability. . . . [T]he problem is likely not particular to Title VII. Rather, it is a feature of our current approach to antidiscrimination jurisprudence, with its focus on procedural fairness. The analysis will likely apply to other traditional areas of discrimination, such as housing or disability discrimination.”); BOGEN & RIEKE, *supra* note 240, at 9–12 (discussing the incongruence of Title VII and the use of automated decision-making in hiring); Joshua A. Kroll et al., *Accountable Algorithms*, 165 U. PENN. L. REV. 633, 680–83, 692–95 (2017) (describing three pathways through which machine learning models produce discriminatory results absent the discriminatory intent of their programmers, and discussing their implications for antidiscrimination law).

408. See, e.g., *Automated Decision Making Systems Are Making Some of the Most Important Life Decisions For You, But You Might Not Even Know It*, ACLU OF WASHINGTON (Sept. 22, 2021), <https://www.aclu-wa.org/story/automated-decision-making-systems-are-making-some-most-important-life-decisions-you-you-might> [<https://perma.cc/L8PZ-YZA3>].

409. See Barocas & Selbst, *supra* note 247, at 712–14.

If a machine learning algorithm is trained on a demographically unrepresentative dataset, it will err in its evaluations of people who belong to the underrepresented demographics, as is thought to be a primary cause of bias in facial recognition algorithms.⁴¹⁰ So despite remote proctoring software's discriminatory effects on students, the considerable body of literature documenting the racially discriminatory disproportionate error rates of the facial recognition and detection technologies will still not provide support for a finding of intentional racial animus.⁴¹¹ Moreover, it is highly unlikely that the remote proctoring software's engineers, or the administrator who procured the software, designed their software with racially discriminatory intent or selected it on that basis. That lack of intent does not diminish the reality of the software's racially discriminatory effects for students of color, but it does make them ill-suited to a Title VI or Equal Protection redress under the Supreme Court's current interpretation.

2. Disability

The most useful and relevant civil rights protections for students with disabilities in higher education are statutory, thanks to a combination of harmful Constitutional precedents establishing a difficult standard of review for disabled plaintiffs in equal protection cases and decades of tireless advocacy from disabilities rights constituencies.⁴¹² Title II of the ADA, Title III of the ADA, and Section 504 of the Rehabilitation Act of 1973 prohibit colleges and universities from discriminating on the basis of disability and require them to make reasonable accommodations to their procedures when failing to do so would discriminate against students with disabilities.⁴¹³ Colleges and universities must provide disabled

410. See *A Taxonomy of Police Technology's Racial Inequity Problems*, *supra* note 18 and accompanying text.

411. See *supra* note 18. An enterprising computer science student was even able to link Proctorio's software to a specific computer vision library that has had disproportionate errors for people with darker faces. See Feathers, *supra* note 66.

412. See, e.g., *City of Cleburne v. Cleburne Living Ctr., Inc.*, 473 U.S. 432, 442 (1985). See generally Michael E. Waterstone, *Disability Constitutional Law*, 63 EMORY L. J. 527, 529 (2014).

413. See 34 C.F.R. § 104.43(a), (b); 34 C.F.R. § 104.4(b)(2); 42 U.S.C. § 12181(7). Section 504 covers entities that receive federal funding, while Title II of the ADA extends to state and local governments (such as public colleges and universities). See Off. for Civ. Rts., *Protecting Students With Disabilities*, U.S.

students with the adjustments and services necessary to afford them the opportunity to obtain the same results, benefits, or levels of achievement as their peers without disabilities, and schools cannot provide students with disabilities the opportunity to benefit from services and programs that are unequal to those afforded to students without disabilities.⁴¹⁴ At the same time, schools are not required to offer assistance if it would result in a “fundamental alteration” of the program or impose an undue financial or administrative burden.⁴¹⁵ Title III of the ADA also requires private businesses that offer public accommodations, such as colleges and universities, to take “necessary steps to ensure individuals with disabilities are not excluded, denied services, segregated or otherwise treated differently because of the absence of auxiliary aids and services, such as accurate captioning of audible materials and labeling of visual materials.”⁴¹⁶

These statutes are enforced jointly by the Department of Justice and the Department of Education’s Office of Civil Rights (OCR), and Title III provides students with an additional private right of

DEP’T OF EDUC., <https://www2.ed.gov/about/offices/list/ocr/504faq.html> [<https://perma.cc/HYQ9-ADZR>] (last visited Oct. 3, 2022). According to the Department of Education’s Office for Civil Rights, which enforces both laws with respect to schools, their requirements are functionally the same, with any higher burdens demanded by Title II also applicable to state and local governments. See Off. for Civ. Rts., *Disability Discrimination Frequently Asked Questions*, U.S. DEP’T OF EDUC., <https://www2.ed.gov/about/offices/list/ocr/frontpage/faq/disability.html> [<https://perma.cc/P2PD-MARV>] (last visited Oct. 3, 2022); OFF. FOR CIV. RTS., U.S. DEP’T OF EDUC., *QUESTIONS AND ANSWERS ON THE ADA AMENDMENTS ACT OF 2008 FOR STUDENTS WITH DISABILITIES ATTENDING PUBLIC ELEMENTARY AND SECONDARY SCHOOLS 2* (2007); Off. for Civ. Rts., *Frequently Asked Questions About Section 504 and the Education of Children With Disabilities*, U.S. DEP’T OF EDUC., <https://www2.ed.gov/about/offices/list/ocr/504faq.html#interrelationship> [<https://perma.cc/83SZ-UP99>] (last visited Oct. 3, 2022).

414. See 34 C.F.R. § 104.44(c). Section 504 extends to qualified students with disabilities who attend schools that receive federal funding, which is functionally all colleges and universities, according to OCR. See *Disability Discrimination Frequently Asked Questions*, *supra* note 413.

415. Laura Rothstein, *Higher Education and Disability Discrimination: A Fifty Year Retrospective*, 36 J. COLL. & U.L. 843, 848–49 (2010) (citing Se. Cmty. Coll. V. Davis, 442 U.S. 397, 412 (1979)).

416. Off. Of Pub. Affs., Dept. of Justice, *Justice Department Reaches Settlement with edX Inc., Provider of Massive Open Online Courses, to Make its Website, Online Platform and Mobile Applications Accessible Under the Americans with Disabilities Act* (Apr. 2, 2015), <https://www.justice.gov/opa/pr/justice-department-reaches-settlement-edx-inc-provider-massive-open-online-courses-make-its> [<https://perma.cc/DPU4-5B6S>].

action to sue their (private) universities for violations.⁴¹⁷ OCR has provided guidance for universities on complying with applicable civil rights laws during the pandemic, but it has not weighed in publicly on the use of remote proctoring software.⁴¹⁸ Previous OCR investigations of inaccessible technology are nevertheless instructive, such as consent decrees involving e-books that didn't work with blind students' screen readers and massive open online courses that didn't provide closed captioning.⁴¹⁹ Any technology-based tools or services must be fully accessible to students with disabilities and provide them with "equal access to the educational benefits and opportunities afforded by the technology."⁴²⁰

Depending on the particular university's policy concerning remote proctoring software and the effects of the particular software on disabled students, some schools may be violating Section 504 (for any entity receiving federal funding), Title II (public schools) or Title III (private schools) of the ADA by requiring disabled students to use remote proctoring software without providing a reasonable alternative.⁴²¹ To receive accommodations on an individual basis, such as a student with a movement disorder requesting to be assessed without algorithmic flags of her movements, the student must identify their disabilities and documentation thereof to the school and

417. See 28 C.F.R. § 36.501.

418. See OFF. FOR CIV. RTS., U.S. DEP'T OF EDUC., QUESTIONS AND ANSWERS FOR POSTSECONDARY INSTITUTIONS REGARDING THE COVID-19 NATIONAL EMERGENCY 1–2 (2020) (noting that schools must still comply with Title II, Title III, Section 504, and other federal disability laws despite the logistical difficulties created by the pandemic); *Program Information: FAQs and Responses*, U.S. DEP'T OF EDUC., <https://www.ed.gov/coronavirus/program-information#highered> [<https://perma.cc/L8XT-GKPC>] (last visited Oct. 3, 2022) (collecting COVID-19 guidance documents for higher education).

419. Civ. Rts. Div., U.S. Dep't of Just. & Off. for Civ. Rts., U.S. Dep't of Educ., *Joint "Dear Colleague" Letter: Electronic Book Readers* (June 29, 2010), <https://www2.ed.gov/about/offices/list/ocr/letters/colleague-20100629.html> [<https://perma.cc/RK7B-97TU>] [hereinafter *Electronic Book Readers Dear Colleague Letter*].

420. See OCR 2013–14 REPORT, *supra* note 317. Other examples of technology-based assistance include "recording devices . . . if telephones are provided in dorm rooms, a TTY in your dorm room; and equipping school computers with screen-reading, voice recognition, or other adaptive software or hardware." See Off. for Civ. Rts., *Students with Disabilities Preparing for Postsecondary Education: Know Your Rights and Responsibilities*, U.S. DEP'T OF EDUC., <https://www2.ed.gov/about/offices/list/ocr/transition.html> [<https://perma.cc/PM5E-SLSD>] (last visited Oct. 3, 2022).

421. See Brown, *supra* note 19.

request the accommodation.⁴²² But schools still have a duty not to discriminate against students with disabilities by requiring them to use technology that hampers their academic performance on exams on the basis of their disabilities.⁴²³ And requiring students with disabilities to be assessed by software that will disproportionately flag them as “suspicious” fails to afford them the same opportunity to benefit from courses that their peers without disabilities receive.⁴²⁴ As noted above, they may experience heightened test anxiety; they could be subjected to testing conditions that hamper their academic performance; and they could suffer the reputational and academic consequences of being incorrectly accused of cheating, all thanks to technology that considers their existence inherently illicit.⁴²⁵

What’s more, most scenarios won’t provide the school with a robust defense if they fail to provide reasonable alternatives to tests conducted via remote proctoring software.⁴²⁶ Schools are not required to fundamentally alter their programs, undertake undue financial or administrative hardships, or lower their academic standards to provide reasonable accommodations for students with disabilities—none of which are required to assess students with disabilities without using remote proctoring software.⁴²⁷ Schools might claim that some disciplines or specific courses would be “fundamentally altered” by a lack of time-limited, closed-book assessments, though as the ingenuity of pedagogical experts during the pandemic has demonstrated, the evidence for such claims is likely limited.⁴²⁸ In cases where a university claims that assessments other than time-

422. See 28 C.F.R. § 35.108(e); LAURA ROTHSTEIN, A PRIMER ON DISABILITY DISCRIMINATION IN HIGHER EDUCATION 4 (2018) (“Individual[s] must make ‘known’ the disability and have appropriate documentation, and must do so in a timely manner in order to demonstrate that the program discriminated or failed to provide a reasonable accommodation.”).

423. See 28 C.F.R. § 36.201(a); 28 C.F.R. § 36.202(a), (c); 28 C.F.R. § 35.130(a), (b)(1)(ii); 34 C.F.R. § 104.4(b)(1)(ii); see also *Electronic Book Readers Dear Colleague Letter*, *supra* note 419. Universities have previously run afoul of the law by offering inaccessible educational resources, such as inaccessible PDFs or uncaptioned videos. See generally Vivian Cullipher, *Schools and Organizations that Serve Education: Beware OCR Complaints Addressing Online Accessibility*, LEXIS LEGAL NEWS (Nov. 15, 2017, 7:28 AM), <https://www.lexislegalnews.com/articles/21999/commentary-schools-and-organizations-that-serve-education-beware-ocr-complaints-addressing-online-accessibility> [<https://perma.cc/M42T-C2VG>].

424. See Brown, *supra* note 19.

425. See *id.*

426. See Rothstein, *supra* note 415, at 853.

427. See *supra* notes 413–415 and accompanying text.

428. See Rothstein, *supra* note 415, at 855.

limited, closed-book tests would constitute a fundamental alteration, the cost of a few research assistants used to monitor test-takers via web conference for an assessment, without any of the algorithmic flags that put disabled students at risk of discrimination, is unlikely to constitute an “undue burden” for the university.⁴²⁹ And as Laura Rothstein, a leading scholar of disability protections in higher education, has observed, schools rarely invoke financial burden as a defense, though she also notes that increasing challenges to academic budgets may modify that paradigm.⁴³⁰

Furthermore, as Section IV.A discusses, there is a wide range of assessment alternatives that a school could rely on in lieu of this software, some at substantially lower cost given the expensive licensing fees these companies charge.⁴³¹ And assessment modifications like a graduate student monitoring a test-taker take a closed-book, time-limited exam via Zoom in lieu of an error-prone automated program that flags a student with Tourette’s as “suspicious” for involuntary movement has no negative effect on academic standards.⁴³² If anything, they improve academic standards, by making timed exams a better measurement of academic ability, rather than of the presence or lack of disabilities in the student.⁴³³

Universities could likely continue to use remote proctoring software without violating Title II, Title III, or Section 504 provided they offer students with disabilities a reasonable accommodation or modified alternative that will allow them to be assessed under circumstances that allow them to demonstrate their skills equivalent with circumstances that their peers without disabilities are afforded.⁴³⁴ As noted above, that should not be difficult for schools to

429. See *id.* at 852–53.

430. See *id.* at 854–55; ROTHSTEIN, *supra* note 422, at 26.

431. See e.g., Joe Kottke, *Fordham Opts Out of Using Exam Monitoring Software*, THE OBSERVER (Apr. 22, 2020), <https://fordhamobserver.com/45738/news/fordham-opts-out-of-using-exam-monitoring-software/> [<https://perma.cc/EDK8-CWBK>] (noting that Fordham University is one university that declined to use Proctorio for reasons including its “prohibitively expensive” cost).

432. See *id.*

433. See *id.*

434. See *Electronic Book Readers Dear Colleague Letter*, *supra* note 419 (“[T]he universities agreed not to purchase, require, or recommend use of the Kindle DX, or any other dedicated electronic book reader, unless or until the device is fully accessible to individuals who are blind or have low vision, or the universities provide reasonable accommodation or modification so that a student can acquire the same information, engage in the same interactions, and enjoy the same services as sighted students with substantially equivalent ease of use.”)

provide for students with disabilities, given the range of available testing alternatives.⁴³⁵ But that fact should prompt schools to abandon remote proctoring software altogether in favor of these less invasive solutions, particularly given that not all students with disabilities identify their disabilities to their institutions and many struggle to receive proper testing accommodations.⁴³⁶

It's unclear at this point what impact concerns about accessibility and ADA liability will have on university decision-making regarding whether to adopt, retain, or abandon remote proctoring software.⁴³⁷ In a qualitative study of university procurement decision-making around accessibility during the COVID-19 pandemic, Jonathan Lazar found that the abrupt shift to online instruction seemed to have created a greater awareness of accessibility concerns among faculty, administrators, and IT professionals.⁴³⁸ Both better awareness of accessibility needs and attention paid to them by decision-makers, particularly when combined with pressure from students, parents, and faculty, could make a university more likely to decline to adopt a remote proctoring service, extend an existing contract, or even prohibit the use of such services altogether.⁴³⁹ Fears of an expensive and embarrassing investigation or a lawsuit could also prevent adoption, urge abandonment, or strengthen the likelihood of prohibition, as could the rise of ADA suits against universities during the pandemic related to online learning.⁴⁴⁰

At the same time, Lazar's respondents reported a lack of established processes to evaluate accessibility in technology procurement, which would complicate attempts to ensure accessibility despite heightened awareness.⁴⁴¹ Their observations are

435. See ROTHSTEIN, *supra* note 422, at 5.

436. See Eyer, *supra* note 317, at 602–03; Corcoran, *supra* note 325.

437. See Brown, *supra* note 19.

438. See Jonathan Lazar, *Managing Digital Accessibility at Universities During the COVID-19 Pandemic*, 21 UNIVERSAL ACCESS IN THE INFO. SOC'Y 749, 755 (Mar. 8, 2021) (noting that the director of IT accessibility at a small university stated that “COVID-19 solidified the need for accessibility procurement processes, and it focused us to test them in real time”).

439. See *id.* at 754.

440. See Lazar, *supra* note 438, at 752 (citing participants' fears of litigation as the basis for scrupulous anonymity procedures in his study); Cullipher, *supra* note 423; Betsy Foresman, *Increasingly Online, More Universities Are Being Sued By Students With Disabilities*, EDSCOOP (Aug. 19, 2020), <https://edscoop.com/increasingly-online-more-universities-being-sued-students-disabilities/> [<https://perma.cc/8WTF-C4HQ>].

441. See Lazar, *supra* note 438, at 754.

consistent with previous literature on approaches to accessibility in technology procurement by universities, including one study finding that schools with a designated official responsible for ensuring the accessibility of the school's websites did no better at ensuring website accessibility than the schools without one.⁴⁴² In addition, a respondent in Lazar's study reported how the use of emergency authorities to make procurement decisions more quickly meant that accessibility was even less carefully considered than it normally was, and they fretted that the reach of lengthy contracts for non-accessible technology services made hastily during the pandemic would have long-reaching effects for digital accessibility at her university.⁴⁴³ These phenomena are in tension.⁴⁴⁴ Greater awareness, litigation concerns, and internal and external pressures to avoid disability discrimination make it more likely that schools will cease using the software.⁴⁴⁵ But the financial and legal constraints of contracts enacted during the pandemic could strengthen the staying power of

442. See, e.g., Jill A. Sieben-Schneider & Valerie A. Hamilton-Brodie, *Doing The Right Thing: One University's Approach to Digital Accessibility*, 29 J. OF POSTSECONDARY EDUC. & DISABILITY 221, 230 (2016); KIMARIE W. WHETSTONE, UPHOLDING ACCESSIBILITY STANDARDS WHEN SELECTING TECH TOOLS 67 (2017) ("Research-supported guidelines to assist faculty with finding and evaluating online course tools and media that are accessible to learners taking online college courses in the United States are not generally available."); Kristen Betts et al., *Strategies To Increase Online Student Success For Students With Disabilities*, 17 J. OF ASYNCHRONOUS LEARNING NETWORKS 49, 52 (2013); Kathryn E. Linder et al., *Whose Job Is It? Key Challenges and Future Directions for Online Accessibility in US Institutions of Higher Education*, 30 OPEN LEARNING 21, 34 (2015) (Describing a national study of procedures surrounding online accessibility at American universities identifying a "need to better articulate who is responsible for online accessibility initiatives and policies; the need for an institutional investment when creating accessible online environments in terms of technology, staffing and other resources; and a sense of overwhelm at many institutions that are unsure of where to begin with making their online programmes [sic] and courses accessible for all students.").

443. See Lazar, *supra* note 438, at 757 ("While Denise [the director of IT at a medium-sized university] felt comfortable with the progress made over the summer in terms of event accessibility, she was still concerned about procurement, and the 'blow-back that will occur soon from all of the inaccessible technology that was procured.' . . . Denise opined that even if her team tried, it would not be effective to try to block any technology procurements, but she expressed concern about the future: 'we are going to be reaping the rotten effects of those contracts signed without accessibility, for years to come.'").

444. See *id.* at 759.

445. See *id.* at 758.

this software, and chaotic internal processes could prevent accessibility concerns from being adequately heeded.⁴⁴⁶

IV. RECOMMENDATIONS

Remote proctoring software facilitates discrimination against students of color and students with disabilities, while creating unnecessary anxiety and fear for many students of all backgrounds or ability status and invading their privacy. These harms are most severely felt by the most vulnerable students.⁴⁴⁷ This kind of punitive, surveillance-based approach to pedagogy should be rejected and dedicated remote proctoring software services along with it.⁴⁴⁸ The following Part will provide recommendations for how colleges and universities should consider remote assessments, as well as broader recommendations for their use of data-collecting tools and predictive software.

A. Recommendations For The Use of Remote Proctoring Software: Don't

This article has attempted to delineate the harms of remote proctoring software and illustrate the inadequacy of the legal protections that should constrain its use.⁴⁴⁹ The ultimate conclusion to be drawn from the stories of disabled students being disproportionately policed, students of color being told by a faceless program that it does not recognize them as people, and the anxiety that discriminatory flagging and privacy invasions can create for all students should be to get rid of it.⁴⁵⁰ In addition to its impact on privacy, students' well-being, and fairness, software specifically devoted to remote proctoring is simply not necessary to assess students' knowledge or skills remotely.⁴⁵¹ This is not a discussion of "trade-offs," but a slew of unacceptable harms in exchange for a service that does not accomplish what it claims to, all while being unnecessary to accomplish the objectives it claims to satisfy.⁴⁵² We've discussed the harms at length and the lack of evidence that

446. See generally *infra* Section IV.A.

447. See generally *infra* Part IV.

448. See *infra* Section IV.A.

449. See *supra* Sections II & III.

450. See *infra* Section IV.B.

451. See *supra* Subsection III.A.1.

452. See *supra* Part II.

remote proctoring software prevents or stops cheating in some detail, but should briefly return to its redundancy.⁴⁵³

When remote assessments are necessary, schools can encourage teachers who typically rely on timed, closed-book tests to use different methods of evaluating students.⁴⁵⁴ Available alternatives include shorter, more numerous quizzes; long papers, graded at multiple stages such as outline, first draft, and final draft; a series of short response papers; presentations with a peer critique component; an annotated research bibliography; student-proposed projects; and other creative approaches.⁴⁵⁵ These types of assessments give teachers the opportunity to observe how their students have absorbed the material without resorting to a punitive assessment regime that assumes students can't be trusted.⁴⁵⁶ Instructors can place a higher emphasis on trust where timed, remote exams still feel necessary, such as by having students sign honor pledges.⁴⁵⁷ They can also change the parameters of the exam to make it harder to game, such as by allowing use of notes and the internet, randomizing questions, emphasizing question formats that require synthesis of the material rather than regurgitated facts, and intentionally encouraging collaboration among students instead of forbidding it.⁴⁵⁸ For certain disciplines, timed assessments may be harder to avoid, but not impossible.⁴⁵⁹ Even traditionally exam-heavy STEM classes are

453. See *supra* notes 109–113 and accompanying text.

454. See, e.g., Feathers, *supra* note 90.

455. See, e.g., *Alternatives to Traditional Testing*, UC BERKELEY, <https://teaching.berkeley.edu/resources/course-design-guide/design-effective-assessments/alternatives-traditional-testing> [<https://perma.cc/KR9K-J96U>] (last visited Oct. 3, 2022) (listing different forms of alternative testing).

456. Cf. David Ryan Polgar, *How to Balance Student Trust and Online Exam Monitoring*, TODAY'S LEARNER, <https://todayslearner.cengage.com/how-to-balance-trust-and-monitoring-with-students-online/> [<https://perma.cc/SM8G-FKWB>] (last visited Oct. 3, 2022).

457. Cf. *id.*

458. See Feathers, *supra* note 89 (describing the success of PrairieLearn at the University of Illinois for teachers and students, who overwhelmingly prefer it to Proctorio); *Developing Online Assessments of Student Learning*, DARTMOUTH, <https://sites.dartmouth.edu/teachremote/developing-online-assessments-of-student-learning/> [<https://perma.cc/BX3S-62TY>] (last visited Oct. 3, 2022); Cynthia Brame, *Giving Exams Online: Strategies and Tools*, VANDERBILT UNIV. CTR. FOR TEACHING, <https://cft.vanderbilt.edu/online-exams/> [<https://perma.cc/3QJ4-7MAY>] (last visited Oct. 3, 2022).

459. See generally Sarah Silverman et al., *What Happens When You Close the Door on Remote Proctoring? Moving Toward Authentic Assessments with a People-Centered Approach*, 39 TO IMPROVE THE ACADEMY 115, 121 (2021)

adaptable, as professors in disciplines such as mechanical engineering and biology demonstrated during the pandemic.⁴⁶⁰

Schools should also provide teachers with the resources to think creatively about alternative modes of assessment, including by providing teaching assistants for assessment formats that require more grading or supervision. For schools that currently use remote proctoring software, the expense of the licensing fees can be devoted to instructor training and support, like the University of Michigan, Dearborn chose to do after ceasing its use of remote proctoring software.⁴⁶¹ Proctorio, for example, reportedly charged some schools \$500,000 for one year of service.⁴⁶² That money could be put to infinitely better uses in support of more thoughtful and equity-focused pedagogy.

In a promising development, a number of schools have prohibited remote proctoring software or stopped using it. A non-exhaustive list includes University of Michigan, Dearborn,⁴⁶³ Yale,⁴⁶⁴ Stanford,⁴⁶⁵ Cabrillo College,⁴⁶⁶ City University of New York,⁴⁶⁷ Princeton University,⁴⁶⁸ San Jose University,⁴⁶⁹ and University of Massachusetts, Lowell.⁴⁷⁰ Harvard College discourages the use of online proctoring of any kind, but does allow exams proctored via web conference, as does the University of Hawaii, Manoa.⁴⁷¹ Others

(describing the University of Michigan, Dearborn's Department of Natural Sciences' objections to the majority faculty view that remote proctoring should not be used).

460. See generally *id.*

461. See Elizabeth Redden, *Rejecting Remote Proctoring*, INSIDE HIGHER EDUC. (Apr. 14, 2021), <https://www.insidehighered.com/news/2021/04/14/um-dearborn-closed-door-remote-proctoring> [<https://perma.cc/AX2Y-AW7>].

462. See Harwell, *supra* note 8.

463. See generally Redden, *supra* note 461.

464. See generally *Assessments*, YALE UNIV. POORVU CTR., <https://academiccontinuity.yale.edu/assessments> [<https://perma.cc/MZG6-AKUM>] (last visited Oct. 3, 2022).

465. See generally Feathers, *supra* note 89.

466. See generally Feathers, *supra* note 122.

467. See *id.*

468. See *id.*

469. See *id.*

470. See *id.*

471. See generally Harvard University Faculty of Arts and Sciences, *Proctoring a Closed-Book Exam in Zoom*, HARVARD UNIV., <https://gov.harvard.edu/proctoring-closed-book-exam-zoom> [<https://perma.cc/GEN7-BPJD>] (last visited Oct. 3, 2022); Juliet E. Isselbacher & Amanda Y. Su, *Harvard Courses Turn to Monitored Exams, Open-Book Assessments, and Faith in Students As Classes Move Online*, THE CRIMSON (Mar. 27, 2020), <https://www.thecrimson.com/article/2020/3/27/harvard-coronavirus-online-exams->

allow the use of remote proctoring software, but appear to discourage it, such as Indiana University, Bloomington,⁴⁷² McGill,⁴⁷³ San Francisco State University,⁴⁷⁴ University of California, Berkeley,⁴⁷⁵ University of California, Davis,⁴⁷⁶ University of Chicago,⁴⁷⁷ Vanderbilt,⁴⁷⁸ Northern Michigan College,⁴⁷⁹ Rutgers,⁴⁸⁰ Colgate,⁴⁸¹ Tufts,⁴⁸² and University of Colorado (Boulder).⁴⁸³

academic-integrity/ [https://perma.cc/WF9J-MWMG]; *Instructors' Guide to Remote Proctoring*, UNIV. OF HAW. AT MANOA, <https://manoa.hawaii.edu/undergrad/testing-center/selfadministeredonlineproctoring/> [https://perma.cc/C4SZ-YY75] (last visited Oct. 3, 2022); Letter from Michael Bruno, Provost, University of Hawaii, Manoa, to Academic Deans and Directors, Associate Deans, Department Chairs (Sept. 11, 2020), https://manoa.hawaii.edu/undergrad/testing-center/wp-content/uploads/2020/09/Provost-Fall-2020-Exam-Policy-Update_9.11.20.pdf [https://perma.cc/RK57-LT59].

472. See generally *Alternatives to Traditional Exams and Papers*, CTR. FOR INNOVATIVE TEACHING & LEARNING, <https://citl.indiana.edu/teaching-resources/assessing-student-learning/alternatives-traditional-exams-papers/index.html> [https://perma.cc/5FVE-2FPN] (last visited Oct. 3, 2022); IND. UNIV. BLOOMINGTON, IUB FALL 2020 RECOMMENDATIONS FOR ADMINISTERING AND PROCTORING ONLINE EXAMS ("Where possible, instructors should use forms of assessment that do not require proctoring.") (last visited Oct. 3, 2022).

473. See *Online Proctoring*, MCGILL TEACHING AND LEARNING KNOWLEDGE BASE (accessed Jan. 21, 2023), <https://deptkb.mcgill.ca/display/TLK/Online+Proctoring>.

474. See *id.*

475. *Berkeley Center for Teaching & Learning* (accessed Jan. 21, 2023), <https://teaching.berkeley.edu/remote-proctoring-faq>.

476. See generally *Keep Teaching: Strategies and Resources for Instructional Resilience*, U.C. DAVIS, <https://keepteaching.ucdavis.edu/test/online-proctoring> [https://perma.cc/26HR-D59V] (last visited Sept. 18, 2022).

477. See generally, *Teaching Tools*, THE UNIV. OF CHI. ACAD. TECH. SOLS. <https://academictech.uchicago.edu/teaching-tools/> [https://perma.cc/RF3E-FLRG] ("Before choosing Proctorio, you may wish to consider alternative methods of combating academic dishonesty.") (last visited Oct. 3, 2022).

478. See generally Brame, *supra* note 458.

479. See generally *Testing and Exams*, NW. MICH. COLL. CTR. FOR TEACHING & LEARNING, <https://teaching.nmc.edu/testing-and-exams/> [https://perma.cc/Q4D6-UBUP] (last visited Oct. 3, 2022).

480. See generally *Remote Exams and Assessments: Tips for Exams and Alternative Assessments*, RUTGERS SCH. OF ARTS & SCI'S. OFF. OF UNDERGRADUATE EDUC. TEACHING & LEARNING, <https://sasoue.rutgers.edu/teaching-learning-guides/remote-exams-assessment> [https://perma.cc/7CFP-G7LM] (last visited Oct. 3, 2022).

481. See generally *Assessing Student Work*, COLGATE UNIV., <https://teachwhereyouare.colgate.edu/assessing-student-work/> [https://perma.cc/CP8Q-7SVJ] (last visited Oct. 3, 2022).

482. See Carolin Cardamone, *Adapting Exams to Teaching Remotely*, TEACHING@TUFTS (Mar. 17, 2020), <https://sites.tufts.edu/teaching/>

The responses to students' and instructors' dissatisfaction with the software have not been uniform. Some schools, like the University of Illinois (Urbana-Champaign) have stopped using it, but haven't ruled out returning to it in the future.⁴⁸⁴ Duke officials have stated that the university has not and will not use it.⁴⁸⁵ Baylor University announced that it would no longer be using Proctorio—because it would be using Respondus Monitor instead.⁴⁸⁶ Under pressure from students to prohibit the use of ProctorU in all courses, the University of California Santa Cruz acknowledged the merits of the students' concerns and suggested that the services would not be appropriate for all testing circumstances, but declined to withdraw from the school's contract or ban the use of the software.⁴⁸⁷ And as noted above, the Fight for the Future survey in 2021 found that forty-six of sixty-seven colleges and universities interviewed were using the software.⁴⁸⁸ Alternative modes of assessment are available and

2020/03/18/alternative-to-exams-for-remote-teaching/ [https://perma.cc/FD6B-QGBH].

483. See *Exam Proctoring*, UNIV. COLO. BOULDER, <https://www.colorado.edu/learningdesign/remote-2020/resources/exam-proctoring> [https://perma.cc/4Y9E-BQFS] (last visited Oct. 3, 2022).

484. See Colleen Flaherty, *No More Proctorio*, INSIDE HIGHER ED (Feb. 1, 2021), <https://www.insidehighered.com/news/2021/02/01/u-illinois-says-goodbye-proctorio> [https://perma.cc/2YPX-4VLE] (describing the University of Illinois at Urbana-Champaign's decision not to renew its contract with Proctorio in light of "significant accessibility concerns").

485. See *How Can I Encourage Academic Integrity*, DUKE FLEX TEACHING, <https://flexteaching.li.duke.edu/a-guide-to-course-delivery/how-can-i-encourage-academic-integrity/> [https://perma.cc/7KZ3-SXFY] (last visited Oct. 3, 2022).

486. See Caplan-Bricker, *supra* note 95; *Proctorio Service to be Discontinued*, BAYLOR UNIV. (Aug. 6, 2020), <https://www.baylor.edu/library/news.php?action=story&story=219803> [https://perma.cc/AQT7-QLUY].

487. See Letter from Onuttom Narayan and Herbert Lee, Off. Acad. Senate U.C. Santa Cruz, to Anonymous U.C. Santa Cruz Students (June 3, 2020); see also *Assessing Student Learning*, U.C. SANTA CRUZ, <https://keepteaching.ucsc.edu/assessment> [https://perma.cc/V8HP-4CNJ] (last visited Oct. 3, 2022).

488. See FIGHT FOR THE FUTURE *supra* note 87. In addition to schools described as using remote proctoring software elsewhere in this article, the universities that responded "yes" to the survey are Auburn University, Boston College, California Poly Pomona, California State University, Chico, California State University Fullerton, College of William and Mary, Creighton University, Dallas College, Florida International University, Florida State University, Georgetown University, Georgia State University, Georgia Tech, Louisiana State University, Miami University, New Jersey Institute of Technology, Ohio State University, Ohio University, Pennsylvania State University, Purdue University, Rose State College, Sam Houston State University, Shasta College, Tarrant County

feasible, and better align teaching methods with the objectives and values of education, as at least some universities have begun to recognize.⁴⁸⁹

B. Lessons for Educational Technologies

Broader lessons for ed tech can be drawn from the example of remote proctoring software.⁴⁹⁰ The first, and perhaps the most fundamental, is to reject tech solutionism.⁴⁹¹ A new method of teaching or assessing students is not inherently an improvement to the status quo, even when the status quo leaves plenty to be desired.⁴⁹² Technological replacements for analog methods can insert new vectors for potential privacy violations, safety risks, emotional harms, and discrimination against marginalized groups.⁴⁹³ Universities may not be well-equipped to gauge the privacy implications of a new analytics program, which will be disproportionately true for more-poorly funded schools, thus making it more likely for students with fewer resources who attend them to be subjected to harmful practices.⁴⁹⁴ In the case of predictive or automated assessments, the technology may be assumed to be more accurate than it is based on the misguided belief that a computer's judgment is inherently superior to a human's.⁴⁹⁵ The normalizing effects of introducing surveillance into people's lives at younger ages without providing them with the ability to avoid it is another

College, Texas A& M, University of Alabama, University of Arizona, University of California (Santa Barbara), University of Central Florida, University of Colorado (Denver), University of Iowa, University of Maryland, University of Minnesota, University of South Florida, University of Tennessee, Chattanooga, University of Texas (Dallas), Utah State University, Washington State University, West Chester University, Western Governors University. *See id.*

489. *See, e.g.,* Cardamone, *supra* note 482.

490. *See* Elijah Mayfield et al., Ass'n for Computational Logistics, *Equity Beyond Bias in Language Technologies For Education* 452 (2019).

491. *See id.*

492. *See id.*

493. *See* Caplan-Bricker, *supra* note 95.

494. *See Some Colleges Have More Students From the Top 1 Percent Than The Bottom 60. Find Yours*, N.Y. TIMES: THE UPSHOT (Jan. 18, 2017), <https://www.nytimes.com/interactive/2017/01/18/upshot/some-colleges-have-more-students-from-the-top-1-percent-than-the-bottom-60.html> [<https://perma.cc/T9NM-GFJH>].

495. *See* Skitka et al., *supra* note 285, at 85–86.

important reason to eschew surveillance technologies in higher education.⁴⁹⁶

Schools should carefully interrogate the underlying objectives and values embedded in any pedagogical function they wish to replace with a digital service and scrupulously assess how well that service aligns with those objectives and values. They should reject new technologies that exacerbate or entrench existing forms of inequity or create new ones. While the role and value of testing in education is fraught, one can identify the ostensible objectives of remote proctoring software as encouraging fairness by discouraging cheating and making it easier to identify.⁴⁹⁷ Remote proctoring software's disproportionate harms for students of color, students with disabilities, and other marginalized groups undermines the objective of increasing fairness rather than serving it.⁴⁹⁸

Scrupulous analysis of whether a new educational technology will improve on the analog it would replace will necessarily involve a more careful examination of how well the technology actually accomplishes what it claims to accomplish. Remote proctoring software is causing students tremendous anxiety and violating their privacy while maintaining a questionable track record of helping schools actually identify academic dishonesty.⁴⁹⁹ The idea that error-prone surveillance is necessary to prepare students for the workplace, for example, is motivated reasoning unburdened by facts.⁵⁰⁰ Universities need to prioritize efficacy supported by rigorous evidence as a procurement evaluation criterion, which currently seems like a factor with limited influence on decision-making.⁵⁰¹

496. See Priscilla M. Regan & Valerie Steeves, *Education, Privacy, and Big Data Algorithms: Taking the Persons Out of Personalized Learning*, First Monday (Nov. 1, 2019), <https://journals.uic.edu/ojs/index.php/fm/article/view/10094/8152> [<https://perma.cc/SMS2-MX7P>].

497. See, e.g., Anton Skshidlevsky, *How Do Online Proctored Exams Work?*, ProctorEdu (Jan. 9, 2022, 2:52 PM), <https://proctored.com/blog/tpost/8dagtym3n1-how-do-online-proctored-exams-work> [<https://perma.cc/EW85-ECPA>].

498. See Caplan-Bricker, *supra* note 95.

499. See Geiger, *supra* note 89.

500. See *supra* notes 66–70.

501. See FIONA M. HOLLANDS & MAYA ESCUETA, *EDTECH DECISION-MAKING IN HIGHER EDUCATION* 23 (2017) (“Relatively few interviewees identified improving student outcomes as an explicit goal for EdTech.”); *id.* at 97 (“[I]nterviewees did not seek out or demand rigorous scientific evidence that any of the EdTech options they were considering improved students outcomes”); Reidenberg & Schaub, *supra* note 157, at 5 (“Products are not field tested before adoption in schools and offer limited to no research on the efficacy of personalized

Unscrupulous vendors will always make expansive claims about their wares, and university decisionmakers must scrutinize them with the skepticism they deserve.⁵⁰²

Applying these same principles—eschewing surveillance technologies as a go-to solution, carefully evaluating the efficacy of educational technologies, and ensuring that privacy and equity are not undermined by its use—schools should reexamine their uses of automated student assessments, many of which should be abandoned.⁵⁰³ The flashiest solutions to long-existing, structural problems will rarely be the ones that foster institutional commitment to equity or promote student well-being, while many automated assessments of students’ academic work, skills, attributes, and potential aptitude will entrench structural bias against marginalized students.⁵⁰⁴ Schools should abandon automated assessments of potential aptitude and most assessments of student work; nor should predictive assessments of a student’s likelihood to matriculate or pay for tuition be used to inform potential offers of admission or financial aid.⁵⁰⁵ The reliance on black-box machine learning systems to evaluate students can replicate or transfer new forms of gender, socioeconomic, and racial inequity into universities, and have profound effects on students’ lives and post-graduate opportunities, while corporate opacity and automation bias helps to shield the

learning systems beyond testimonials and anecdotes.”); Regan & Steeves, *supra* note 496 (noting the failure of tech foundations evangelizing personalized learning to “offer[] actual evidence for the effectiveness of the innovations they are advancing although all discuss the importance of evidence”); see also Monica Chin, *These Students Figured Out Their Tests Were Graded by AI—and the Easy Way to Cheat*, THE VERGE (Sept. 2, 2020, 10:05 PM), <https://www.theverge.com/2020/9/2/21419012/edgenuity-online-class-ai-grading-keyword-mashing-students-school-cheating-algorithm-glitchst> [<https://perma.cc/MG49-44GZ>]; Todd Feathers, *Facial Recognition Company Lied to School District About Its Racist Tech*, MOTHERBOARD (Dec. 1, 2020, 9:00 AM), <https://www.vice.com/en/article/qjpkmx/fac-recognition-company-lied-to-school-district-about-its-racist-tech> [<https://perma.cc/A6DU-CL29>].

502. See Todd Feathers, *Schools Spy on Kids to Prevent Shootings, But There’s No Evidence it Works*, MOTHERBOARD (Dec. 4, 2019, 9:00 AM), <https://www.vice.com/en/article/8xwze4/schools-are-using-spyware-to-prevent-shootingsbut-theres-no-evidence-it-works> [<https://perma.cc/VY9B-UY89>]; Alfred Ng, *Facial Recognition in Schools: Even Supporters Say it Won’t Stop Shootings*, CNET (Jan. 24, 2020, 5:00 AM), <https://www.cnet.com/features/facial-recognition-in-schools-even-supporters-say-it-wont-stop-shootings/> [<https://perma.cc/PP8V-PYSB>].

503. See MacMillan & Anderson, *supra* note 167.

504. See Fedders, *supra* note 23, at 1678–79.

505. See MacMillan & Anderson, *supra* note 167.

discriminatory effects of these services from criticism.⁵⁰⁶ Granular, meaningful transparency around all forms of data collection from students is necessary, but nowhere near sufficient to protect students from harmful uses of their information.⁵⁰⁷ Schools must also set more exacting requirements from their vendors, make those contracts publicly available, and require their vendors to do the same.⁵⁰⁸

These recommendations for how schools should approach the efficacy, privacy, and fairness risks of new technologies could also be formalized in privacy and equity impact assessments, provided the criteria are sufficiently substantive.⁵⁰⁹ Many federal and state agencies rely on privacy impact assessments to evaluate the potential risks of technologies they propose to procure, while the General Data Protection Regulation (GDPR) recommends various auditing procedures for automated decision-making systems that companies may rely on to fulfill obligations stemming from the individual right to explanation.⁵¹⁰ Scholars have written about the potential benefits and constraints of privacy and automated decision-making impact assessments as accountability mechanisms, including Joel Reidenberg and Florian Schaub's proposal that schools should rely on "educational impact assessments" and privacy impact assessment to assess the pedagogical efficacy and privacy concerns of new technologies.⁵¹¹ Laura Moy also adapts her taxonomy into an "equity

506. See *supra* notes 15–25; Feathers, *supra* note 248.

507. See Feathers, *supra* note 248.

508. See *id.*

509. See Reidenberg & Schaub, *supra* note 157, at 273; *A Taxonomy of Police Technology's Racial Inequity Problems*, *supra* note 18, at 178.

510. See 2016 J.O. (L 119) 46; Margot E. Kaminski & Gianclaudio Malgieri, *Algorithmic Impact Assessments Under the GDPR: Producing Multi-Layered Explanations*, 11 INT'L DATA PRIV. L. 125, 126–27 (2021); see also, e.g., Privacy, OHIO DEP'T OF ADMIN. SERVS., <https://das.ohio.gov/technology-and-strategy/information-security-privacy/privacy> [https://perma.cc/95UV-Z455]; Privacy Impact Assessments (PIA), U.S. GEN. SERVS. ADMIN., <https://www.gsa.gov/reference/gsa-privacy-program/privacy-impact-assessments-pia> [https://perma.cc/3T32-JRL9].

511. See Kenneth A. Bamberger & Deirdre K. Mulligan, *Privacy Decisionmaking in Administrative Agencies*, 75 U. CHI. L. REV. 75, 76 (2008) (exploring the privacy impact assessment's "uneven success in making agencies incorporate privacy concerns into technology decisions."); DILLON REISMAN ET AL., ALGORITHMIC IMPACT ASSESSMENTS: A PRACTICAL FRAMEWORK FOR PUBLIC AGENCY ACCOUNTABILITY 3 (2018); KRAFFT ET AL., AN ACTION-ORIENTED AI POLICY TOOLKIT FOR TECHNOLOGY AUDITS BY COMMUNITY ADVOCATES AND ACTIVISTS, 772–74, 780 (2021); Ari Ezra Waldman, *Power, Process, And Automated Decision-Making*, 88 FORDHAM L. REV. 613, 622–23 (2019) (providing a

impact assessment,” which, with modifications to align the policing-based questions with the educational context, would also be highly instructive.⁵¹²

At the same time, for privacy, equity, and automated decision-making impact assessments to succeed in providing a meaningful safeguard rather than an empty box-checking exercise, they must include normative criteria—as Moy’s does—and not merely require certain procedural hurdles, as Ari Waldman has argued.⁵¹³ His critique that a primarily proceduralist approach to algorithmic accountability merely launders the fundamental illegitimacy of systems designed to prioritize efficiency over all other values is clear-eyed and apt.⁵¹⁴ Any audits and impact assessments must rely on substantive, not merely procedural, benchmarks in order to perform any function beyond legitimizing harmful technology.⁵¹⁵ Crucially, they must also involve the possibility of “no action,” as Andrew Selbst has previously argued for in the context of impact assessments for predictive policing systems.⁵¹⁶

In addition to the potential utility of substantive impact assessments, institutions of higher education should devote greater resources to more holistic and standardized decision-making models for technology procurement that prioritize equity, including privacy, accessibility, and anti-racism. The research exploring procurement decision-making for educational technologies in American higher education is limited, but what work there is suggests fractured processes that insufficiently consider privacy, accessibility, equity, or rigorous evidence supporting the claimed benefits of a new service.⁵¹⁷ University organizational decision-making has been

helpful overview of scholarly contributions on automated decision-making system impact assessments); Reidenberg & Schaub, *supra* note 157, at 11–12, 14.

512. See *A Taxonomy of Police Technology’s Racial Inequity Problems*, *supra* note 18, at 176–85.

513. See Waldman, *supra* note 511, at 615–16.

514. See *id.* at 613–16.

515. See *id.* at 624 (“Transparency, impact assessments, paper trails, and the traditional accountability mechanisms they support do not address the gaps in the underlying social and political system that not only lays the groundwork for algorithmic decision-making but sees its proliferation, despite its biases, errors, and harms, as a good thing.”).

516. See Andrew D. Selbst, *Disparate Impact in Big Data Policing*, 52 GA. L. REV. 109, 176 (2017).

517. See HOLLANDS & ESCUETA, *supra* note 501, at 11, 16 (noting the dearth of research and that “[a] disciplined approach to matching EdTech to pedagogical needs is not always followed”); REBECCA NATOW, VIKASH REDDY & MARKEISHA GRANT, HOW AND WHY HIGHER EDUCATION INSTITUTIONS USE TECHNOLOGY IN

described as operating under the “garbage can model,” a chaotic mode of decision-making driven by solutions in search of problems.⁵¹⁸ This aligns with how Chief Innovation Officer for the University of Texas at Austin describes the culture of his institution and many others, as allowing instructors to “install whatever tool they want on their own with no permission whatsoever and use it as they wish.”⁵¹⁹ Allowing a free-for-all puts students at risk of privacy violations and algorithmic bias from unvetted technologies.⁵²⁰

The role of universities in rooting out surveillance technologies from higher education is crucial, but few universities will have the resources or expertise to address the vast majority of their technological needs in-house: the legal and ethical incentives of the vendors they rely on must be fundamentally reshaped.⁵²¹ Even before new regulations or laws can be passed, vigorous enforcement of those that exist could help reshape a predatory paradigm in which the exploitation of student data is generally a profitable enterprise and legal violations aren’t a substantial business risk.⁵²² The COVID-19 pandemic only worsened those incentives by bolstering the ed tech market’s growth, primarily in higher education.⁵²³ The FTC should scrutinize ed tech vendors and take a more muscular approach to enforcement in response to violations,⁵²⁴ and Congress must provide

DEVELOPMENTAL EDUCATION PROGRAMMING 16–17 (2017) (study finding that while some respondents cited the availability of evidence as a decision-making factor, financial cost was the most prevalent concern); Lazar, *supra* note 438, at 749, 754; SHAANAN COHNEY ET AL., VIRTUAL CLASSROOMS AND REAL HARMS: REMOTE LEARNING AT U.S. Universities 656 (2021) (noting that, of fourteen academic administrators surveyed, “[e]ight administrators reported that their institutions did not have a formal process for selecting new platforms, while one reported a price threshold for invoking a more formal process”).

518. See Michael D. Cohen, James G. March & Johan P. Olsen, *A Garbage Can Model of Organizational Choice*, 17 ADMIN. SCI. QUARTERLY 1, 1 (1972).

519. See HOLLANDS & ESCUETA, *supra* note 501, at 77–78.

520. See *id.*

521. See *id.* at 75–78.

522. See *id.* at 77–78.

523. See Tony Wan, *A Record Year Amid a Pandemic: US Edtech Raises \$2.2 Billion in 2020*, EDSURGE (Jan. 13, 2021), <https://www.edsurge.com/news/2021-01-13-a-record-year-amid-a-pandemic-us-edtech-raises-2-2-billion-in-2020> [<https://perma.cc/MM3U-PBKX>].

524. See Nicholas Confessore & Cecilia Kang, *Facebook Data Scandals Stoke Criticism That a Privacy Watchdog Too Rarely Bites*, N.Y. TIMES (Dec. 30, 2018), <https://www.nytimes.com/2018/12/30/technology/facebook-data-privacy-ftc.html> [<https://perma.cc/P7AN-ZP7U>] (“In more than 40 interviews, former and current F.T.C. officials, lawmakers, Capitol Hill staff members, and consumer advocates said that as evidence of abuses has piled up against tech companies, the

it with more resources, more technologists, and more nimble rulemaking and fining authorities, particularly given the Supreme Court's recent decision to limit the agency's use of the fining authority on which it primarily relies for unfair and deceptive trade practice cases.⁵²⁵ More rigorous FERPA regulations to narrow the school official exception; severely limit the circumstances under which "de-identified" data can be accessed by third parties without consent, requiring students to opt in, rather than opt out, of having their directory information shared; and better articulate the practices that constitute an "educational purpose" would also help.⁵²⁶

This Article focuses on the use of remote proctoring software in American universities in an attempt to hone in on the normative and legal implications for a specific context where its use has been particularly widespread during the pandemic.⁵²⁷ But the use of remote proctoring software in other contexts, such as in licensing exams, professional certifications, and K-12 schools raise similar and acute concerns for privacy and equity.⁵²⁸ The use of remote proctoring software for the bar exam has correctly drawn substantial criticism, while further strengthening longstanding critiques of the structural inequities reinforced by the exam and its severely limited utility for

F.T.C. has been too cautious."); Lindsey Barrett et al., *Illusory Conflicts: Post-Employment Clearance Procedures And The FTC's Technological Expertise*, 35 BERKELEY TECH. L.J. 793, 820 nn.130–131 (2021) (describing critiques of FTC enforcement and listing critiques of the FTC's 2019 settlement with Facebook).

525. See generally Terrell McSweeney, *Psychographics, Predictive Analytics, Artificial Intelligence, & Bots: Is the FTC Keeping Pace?*, 2 GEO. L. TECH. REV. 514 (2018); Memorandum from the Comm. on Energy & Com. Staff to the Subcomm. on Consumer Prot. & Com. Members and Staff (May 3, 2019) (available at <https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/FTC%20Oversight%20Memo%20050319.pdf> [<https://perma.cc/PG77-YFZQ>]) (noting that the FTC employed only 5 technologists as of May 2019); Harper Neidig, *FTC Says It Only Has 40 Employees Overseeing Privacy and Data Security*, THE HILL (Apr. 3, 2019, 11:01 AM), <https://thehill.com/policy/technology/437133-ftc-says-it-only-has-40-employees-overseeing-privacy-and-data-security> [<https://perma.cc/F5AT-4T9J>]; Rebecca Slaughter, Fed. Trade Comm'n, *The Urgent Need to Fix Section 13(b) of the FTC Act* (April 27, 2021), <https://www.ftc.gov/public-statements/2021/04/prepared-statement-federal-trade-commission-urgent-need-fix-section-13b> [<https://perma.cc/PY66-SJWJ>]; Barrett et al., *supra* note 524, at 794 (describing and critiquing how the FTC's overbroad interpretations of conflict of interest rules for former agency technologists limits the agency's access to such expertise).

526. See, e.g., Reidenberg & Schaub, *supra* note 157, at 8, 10, 12, 17; see also Becker, *supra* note 384.

527. See *supra* notes 78–88 and accompanying text.

528. See *infra* notes 530–531 and accompanying text.

assessing new lawyers or protecting the public from deceptive incompetence.⁵²⁹ Other uses have not received similar attention and should. Many remote proctoring vendors advertise services for professional certifications and employee evaluations, the use of which could enable discriminatory hiring or promotion practices.⁵³⁰ And while the use of remote proctoring software in high schools appears more limited than its use by universities, some services do appear to be in use, and Proctorio, ProctorU, ExamSoft, Proctortrack, and Respondus all advertise “K-12” services on their websites.⁵³¹

529. See Jason Kelley, *Bar Applicants Deserve Better than a Remotely Proctored “Barpocalypse,”* ELEC. FRONTIER FOUND. (Oct. 9, 2020), <https://www.eff.org/deeplinks/2020/10/bar-applicants-deserve-better-proctored-barpocalypse> [https://perma.cc/R4MJ-955Y]; Pilar Margarita Hernández Escontrías, *The Pandemic is Proving the Bar Exam is Unjust and Unnecessary*, SLATE (July 23, 2020, 5:45 PM), <https://slate.com/news-and-politics/2020/07/pandemic-bar-exam-inequality.html> [https://perma.cc/2AL8-26NG]; Lauren Hutton-Work & Rae Guyse, *Requiring a Bar Exam in 2020 Perpetuates Systemic Inequities in the Legal System*, THE APPEAL (Jul. 6, 2020), <https://theappeal.org/2020-bar-exam-coronavirus-inequities-legal-system/> [https://perma.cc/FY3G-5V5P]; Darleen Ortega, *Reassessing Value of Bar Exam is Long Overdue*, THE OREGONIAN (Jul. 5, 2020, 6:00 AM), <https://www.oregonlive.com/opinion/2020/07/opinion-reassessing-value-of-bar-exam-is-long-overdue.html> [https://perma.cc/R7TF-LE39].

530. *Securing Certification and Credentialing Exams Globally*, PROCTORU, <https://www.proctoru.com/certification-and-credentialing-solutions> [https://perma.cc/9GG2-RUWF] (last visited Oct. 3, 2022); *Corporate*, PROCTORTRACK, <https://www.proctortrack.com/corporate/> [https://perma.cc/UTC9-8XAB] (Oct. 3, 2022) (“Proctortrack’s ID verification, live monitoring with AI or automated monitoring solutions deliver high-value integrity to corporate certifications or HR pre-employment assessments.”); *PeopleCert Online Proctoring*, PEOPLECERT, <https://www.peoplecert.org/ways-to-get-certified/PeopleCert-Online-Proctoring> [https://perma.cc/JPL8-KT5Y] (Oct. 3, 2022); *Online Proctoring for Corporate Training & Professional Certifications*, HONORLOCK, <https://honorlock.com/certifications/> [https://perma.cc/64ZY-N3PT] (last visited Oct. 3, 2022); *Pre-Employment*, EXAMITY, <https://www.examity.com/who-serve/pre-employment/> [https://perma.cc/GX35-HLWR] (last visited Oct. 3, 2022) (“More and more, companies are turning to online assessment programs to validate prospective employees. But how can you ensure that the person taking the exam is, in fact, the person applying for the job? Enter Examity.”). In a regrettably ironic twist, International Association of Privacy Professionals also used a remote proctoring service, OnVue, to administer its certification exams during the COVID-19 pandemic. See Jennifer Bryant, *IAPP to Offer Remote Proctoring for At-Home Certification Testing*, IAPP (April 16, 2020), <https://iapp.org/news/a/iapp-certification-exams-to-be-available-from-home/> [https://perma.cc/G977-83YE]; *Online Proctoring Brings Certification Testing to Your Home or Private Workspace*, IAPP, <https://iapp.org/l/remote-proctoring/> [https://perma.cc/MGK5-N97V] (last visited Oct. 3, 2022).

531. *Proctorio Privacy Policy*, *supra* note 173 (“our specific services offered to K-12 Institutions”); *ProctorU Expands Online Proctoring of the G Suite*

These discrete areas are more connected than they are distinct: Normalization in one context will invite normalization in others, and vendors will have every reason to widen their potential customer base. The normative analysis in this article is broadly applicable to concerns in other areas, and the use of remote proctoring in those areas merits immediate and careful attention by academics, advocates, policymakers, and decisionmakers in legislatures, State Attorney General offices, state bars, K-12 schools, corporate HR departments, and other institutions.⁵³²

CONCLUSION

The discourse around the adoption of surveillance technologies is often shrouded by knowing proclamations of inevitability and fear-mongering reminders of the perils the technology purportedly prevents, against which harms like privacy violations and discriminatory errors are minimized.⁵³³ Assessments like this have been wrong for the “aggression detectors” one school installed,

Certification for K12 Classrooms, PROCTORU (June 19, 2019), <https://www.proctoru.com/industry-news-and-notes/proctoru-expands-online-proctoring-of-the-g-suite-certification-for-k12-classrooms> [<https://perma.cc/B75D-BWHW>]; *Solutions for K-12*, RESPONDUS, <https://web.respondus.com/k12/> [<https://perma.cc/2QF5-LP5N>] (last visited Oct. 3, 2022); *K-12*, PROCTORTRACK, <https://www.proctortrack.com/k-12/> [<https://perma.cc/T48H-QYU5>] (last visited Oct. 3, 2022); *Student Performance Insights for K-12*, EXAMSOFT, <https://examsoft.com/programs/k-12> [<https://perma.cc/F2VL-WGCN>] (last visited Oct. 3, 2022).

532. See *supra* notes 31–44 and accompany text.

533. See, e.g., Davey Alba, *Facial Recognition Moves Into a New Front: Schools*, N.Y. TIMES (Feb. 6, 2020, 10:38 AM), <https://www.nytimes.com/2020/02/06/business/facial-recognition-schools.html> [<https://perma.cc/V3E7-ZVG6>] (“Robert LiPuma, the Lockport City School District’s director of technology, said he believed that if [a facial recognition surveillance system] had been in place at Marjory Stoneman Douglas High School in Parkland, Fla., the deadly 2018 attack there may never have happened.”); Kashmir Hill, *The Secretive Company that Might End Privacy as We Know It*, N.Y. TIMES (Jan. 18, 2020, 1:46 PM), <https://www.nytimes.com/2020/01/18/technology/clearview-privacy-facial-recognition.html> [<https://perma.cc/X3E3-2Y3Q>] (“David Scalzo, dismissed concerns about Clearview making the internet searchable by face, saying it’s a valuable crime-solving tool. ‘I’ve come to the conclusion that because information constantly increases, there’s never going to be privacy,’ Mr. Scalzo said. ‘Laws have to determine what’s legal, but you can’t ban technology. Sure, that might lead to a dystopian future or something, but you can’t ban it.’”).

which were set off every time excited children happened to yell.⁵³⁴ They're wrong for the use of facial recognition technologies in schools, which violate students' rights to privacy and disproportionately err for students of color, without providing whatever additional degree of security they're intended to confer.⁵³⁵ And they're wrong for remote proctoring software, which traumatizes students, invades their privacy, discriminates against students of color and disabled students, and does not seem to prevent cheating, to the extent that a rash of cheating on remotely administered exams was ever the problem that universities, software companies, or anyone else should have focused on during a worldwide crisis.⁵³⁶

There is no "trade-off" of concomitant benefits to speak of when it comes to remote proctoring software: only reprehensibly avoidable harms, and universities should prevent those harms by spurning the technology that causes them.⁵³⁷ More broadly, higher education should reject the idea that the most punitive method of assessing its students is the most academically rigorous, as well as the idea that other expensive, privacy-violating, and discriminatory surveillance technologies are beneficial to education.⁵³⁸ And it should vigorously repudiate the notion that digital or automated alternatives to existing practices are inherently more effective, more creative, or otherwise preferable.⁵³⁹ Remote proctoring software should be thoroughly rejected, and the lesson of its initial appeal, resulting harms, and ultimate inefficacy is a crucial one for our educational institutions to internalize.⁵⁴⁰

534. See Jack Gillum & Jeff Kao, *Aggression Detectors: The Unproven, Invasive Surveillance Technology Schools Are Using to Monitor Students*, PROPUBLICA (June 25, 2019), <https://features.propublica.org/aggression-detector/the-unproven-invasive-surveillance-technology-schools-are-using-to-monitor-students/> [<https://perma.cc/D36N-T6BR>].

535. See Ng, *supra* note 502.

536. See *supra* Section II.C.

537. See *supra* Part IV.

538. See *supra* Section IV.B.

539. See *id.*

540. See *supra* Part IV.

- Excerpt from *Against Technoableism: Rethinking Who Needs Improvement* (2023) by Ashley Shaw of Virginia Tech ("Chapter 5: The Neurodivergent Resistance," p. 83):

"While North America and Europe value direct eye contact, viewing it as a sign of understanding, engagement, and truthfulness (and conversely, lack of eye contact as rude, unprofessional, and a sign of disinterest), other cultures view direct eye contact as rude or aggressive. The expectations get built into technological systems: if you can't do eye contact as expected, online proctoring systems or other systems that monitor eye movements to track things like attention, truthfulness, and so on may flag you for non-normative eye contact. There are a host of problems with things like ProctorU and other AI software meant to catch people cheating — not to mention the invasion such apps represent. Recently, there have been additional objections to ProctorU's poor security, because the company has a lot of footage of people taking tests, including some people who cry — another thing that has been flagged as cheating. All of this assumes that watching people's eyes is a good metric or indication of anything — but even if we were talking about only allistic people (that is, non-autistic) and assuming accommodations for blind people, eye tracking is pretty unreliable."

How Automated Test Proctoring Software Discriminates Against Disabled Students

November 16, 2020 / [Lydia X. Z. Brown](#)

Because of the COVID-19 pandemic, most students can no longer attend classes or take exams on campus. From K-12 classrooms to higher education, virtual learning has become the new norm – and so has virtual proctoring for [millions of tests](#). Virtual proctoring software [algorithmically profiles students for suspicious behavior](#), creating anxiety and fears about surveillance in the exam room. For disabled students, it can be much worse – as merely *being* disabled may be enough for the software to flag a student as suspicious, which can also exacerbate underlying anxiety and trauma.

Virtual proctoring can involve using webcams to [record audio and video footage of students](#), both to [monitor their body, head, or eye movements for potentially suspicious behavior](#) and to [use facial recognition to identify test-takers](#). It can involve use of [wearable biometric monitoring devices](#) to track movement and body temperature, as well as [real-time video surveillance by strangers or even keystroke logging and remote access](#).

Schools, colleges, and universities turn to virtual proctoring because they want to [prevent cheating](#) and increase the efficiency of exam proctoring. But disabled people have long confronted [accusations of cheating, lying, or faking](#) – especially about our own disabilities. We've also often faced significant barriers to [accessing digital technologies](#) and remain [disproportionately affected by the digital divide](#). It's no wonder that we are deeply concerned about [increasing surveillance](#), [invasions of privacy](#), and [discriminatory discipline](#) arising from expanded use of automated proctoring.

Because being disabled can affect how we move, what we look like, how we communicate, how we process information, and how we cope with anxiety, virtual proctoring software places us at higher risk for being flagged as suspicious – and for being outed as disabled.

Real-time remote proctoring or video recording software with AI analysis pose specific risks to students' privacy and mental health.

The presence of an invisible virtual proctor or a known remote proctor can trigger anxiety in nondisabled students, and exacerbate it for [students with chronic anxiety or post-traumatic stress disorders](#) (PTSD). Video recordings can reveal that a student has a personal care attendant or support person, whether a paid professional or family member, that a student is

low-income and shares a small living space with other people, or that a student has a service animal or emotional support animal present. AI software can flag an additional person's presence as evidence of cheating – and the student's disability status could be disclosed to anyone with access to the video recording.

Additionally, one automated proctoring company even had to [suspend services after a recent security breach](#), which raises further concerns about whether such companies [can adequately protect students' sensitive data](#), including actual video or audio recordings that show where a student lives, who lives with them, and whether they have a readily apparent disability.

Video recording software with AI analysis risks flagging disabled students as suspicious based on disability-specific movement, speech, and cognitive processing.

AI video analysis might flag students with attention deficit disorder (ADD) who get up and pace around the room. It could flag students with Tourette's who have motor tics, students with cerebral palsy who have involuntary spasms, or autistic students who flap or rock. It could flag students with dyslexia who read questions out loud, or blind students using screen-reader software that speaks aloud. It could flag students with Crohn's disease or irritable bowel syndrome who need to leave to use the bathroom frequently. It could flag blind or autistic students who have atypical eye movements. Because all of these movements and responses are naturally occurring characteristics of many types of disabilities, there is no way for algorithmic virtual proctoring software to accommodate disabled students. The point is to identify and flag atypical movement, behavior, or communication; disabled people are by definition going to move, behave, and communicate in atypical ways.

Keystroke logging and remote desktop access software with AI analysis also risks flagging disabled students as suspicious based on use of necessary assistive technology.

Keystroke logging and remote desktop access software may not understand how to interpret movements or input from students who use speech-to-text dictation software, touch typing mode, sip and puff input, or other assistive technologies. The software may then flag such usage as suspicious because it does not meet the normed standards for mouse and keyboard movement.

Facial recognition and similar technologies put privacy at risk when they do work, but they may fail to recognize some disabled people at all.

Facial recognition, facial detection, and similar automated technologies are unreliable for detecting and identifying [Black people](#), [East Asian people](#), [South Asian people](#), [Central American people](#), and [trans and nonbinary people](#). How might they fare in properly identifying students with ectodermal dysplasia, Down syndrome, Crouzon syndrome, or

other disabilities that create disfigurement or facial differences? If they fail to properly detect and identify students with particular disabilities, then those students could be prevented from even accessing tests that require facial recognition for identity confirmation. Further, even if facial recognition technologies are eventually able to accurately identify disabled students, its use in the school context can further fear about whether and to what extent schools could [increase surveillance of their students](#) in other ways.

One of my teaching colleagues shared that many of her students in other classes – especially science, technology, engineering, and math classes – have been subjected to use of Proctorio, one of the largest vendors of virtual proctoring software. One student was kicked out of her exam because her eyes moved atypically and had to beg to be allowed back in. Another student read questions out loud to herself and was terrified she'd be flagged for cheating. Another student, whose exam was meant to be open-note, had no idea what Proctorio would consider cheating since the software flags as suspicious the presence of any other material on a student's desk. Another student had to ask their roommate to avoid entering the room for three hours just to be able to take the test, and yet another student had no private room to take the test at all.

Some students are organizing to [ban facial recognition](#) and [automated proctoring](#) on college campuses, both because of the high likelihood of discrimination and because of fears about increased surveillance and mandatory data collection. But other students, especially much younger ones, may not be able to organize as effectively – and are learning that this kind of proctoring should be the norm.

As use of virtual proctoring technologies expands [during the pandemic](#), disabled students who belong to multiple marginalized communities will remain at heightened risk of harm from [technology-driven, punitive surveillance](#). Automated proctoring presumes that there is one normal kind of body and one normal kind of learning. It assumes that all students have the ability to demonstrate their knowledge through conventional assessments. It also assumes that all students have equal access to safe, private, clean, and quiet testing environments. Virtual proctoring could only be fair if it accounted for the many ways that students move, learn, process information, and demonstrate knowledge. It would be extraordinarily difficult to design and implement a virtual proctoring program that actually supports multiple ways of learning and knowing, and so, schools should not use them. Disabled students deserve access to learning and teaching environments that use multiple modes of instruction and assessment, and that focus not on surveilling and punishing, but on learning and teaching.