



January 7, 2021

By Email

The Honorable Richard Blumenthal
706 Hart Senate Office Bldg.
Washington, DC 20510

The Honorable Ron Wyden
221 Dirksen Senate Office Bldg.
Washington, D.C. 20510

The Honorable Chris Van Hollen
110 Hart Senate Office Building
Washington, DC 20510

The Honorable Tina Smith
720 Hart Senate Office Building
Washington, DC 20510

The Honorable Elizabeth Warren
309 Hart Senate Office Building
Washington, DC 20510

The Honorable Cory Booker
717 Hart Senate Office Building
Washington, DC 20510

Dear Senators Blumenthal, Booker, Smith, Van Hollen, Warren, and Wyden:

Thank you for the opportunity to provide information about Proctorio, explain the Proctorio platform, and share our commitment to increasing access to quality, fair, and inclusive educational opportunities and proctoring throughout the world. Integrity, along with trustworthy, secure, and equitable technology, are at the core of what we do.

As stated in your letter, usage of Proctorio and other proctoring technologies has risen during the pandemic in order to support the real need for distance learning. While the growth in virtual learning has greatly increased the number of people who can access educational opportunities, it also creates questions of integrity and trust. How can educational institutions validate who is completing online coursework? How can businesses validate the authenticity and credibility of the credentials awarded to their employees, job applicants, and service providers? And how can we provide high-integrity, high-quality, and inclusive experiences to the aspiring learners who now have access to educational and professional achievement opportunities like never before?

These issues are of considerable interest to educational institutions. As higher education undergoes mass transformation prompted in part by the pandemic, students of all ages, as well as many parents

and guardians, are reassessing what cost they find acceptable for a college degree.¹ Experts predict that this will centralize interest in higher education institutions with known and trusted brands,² while lesser-known and lesser-trusted brands will face reduced admissions and risk of closure. As issues of trust and credibility have grown due to the expedited reliance on online learning,³ university leaders are taking every step possible to safeguard the credibility of their institutions and defend their ability to survive.

Educational institutions rely on the Proctorio platform to help preserve the integrity of coveted degrees and certifications earned online. Proctorio also helps expand educational access for learners who would otherwise find it difficult to accommodate a more traditional academic system—whether they are busy managing work and a family, located in a remote environment, or facing accessibility barriers.

How Proctorio Works

At Proctorio, our mission is to ensure exam integrity for online test takers as they pursue their goals of attaining a better education. Proctorio was founded in 2013 to disrupt and improve the existing proctoring industry that relied on intrusive proctors, handwritten exams, and inaccessible testing centers. The vision was to offer a proctoring solution that was limitlessly scalable and cost-efficient, prioritized student digital privacy and safety, and offered best-in-class support for learners needing alternative inclusive accommodations. With that, Proctorio was born, paving the way for a solution that meets learners where they are, protects individual privacy, and secures personal information more vigorously than competing solutions.

Today, Proctorio is a comprehensive learning integrity platform that offers a variety of features and technologies to over 500 partner institutions of varying sizes within higher education, K-12, corporate, and governmental entities. Our software was created to expand learning opportunities, preserve the

¹ *The Coronavirus Pandemic Is Making College Students Question the Price of Their Education*, Pohle, Allison. The Wall Street Journal. August 28, 2020.
<https://www.wsj.com/articles/the-coronavirus-pandemic-is-making-college-students-question-the-price-of-their-education-11598619781>

² *Post Corona: Higher Ed*, Galloway, Scott. No Mercy/No Malice. April 3, 2020.
<https://www.profgalloway.com/post-corona-higher-ed>

³ *Online cheating surges during the pandemic; universities struggle to find a solution*, Asimov, Nanette, The San Francisco Chronicle, November 3, 2020.
<https://www.sfchronicle.com/education/article/Online-cheating-surges-during-the-pandemic-15696066.php>

value of degrees and certifications earned online, and protect exam integrity. While Proctorio specializes in online proctoring, we also offer identity verification, content protection, and plagiarism detection.

Proctorio's robust suite of tools enable our **customers' instructors and administrators (not Proctorio)** to make exam integrity decisions, and to do so on the basis of objective, human-reviewable evidence — not on the basis of opaque algorithms. To ensure academic integrity, administrators employed by our customers can enable settings to flag (for their own review) data that may indicate events like a test taker leaving the exam environment, viewing non-exam digital materials, or interacting with other individuals during the course of an exam. The software documents when these behaviors may have transpired and provides a report that aids our customers in reviewing the raw, underlying data collected by Proctorio to determine for themselves whether the exam was completed consistent with the customer's exam policies.

We share the concerns you raise in your letter; we have worked hard from our formation to address them in the products we offer and will continue to do so in the years ahead. Below, please find more information about our platform, how we are constantly prioritizing learners' privacy, and how we are developing technology that is even more capable of adapting to the diversity of learners across the global education system.

1. What features and technologies does your product offer to schools and test administrations to detect students' attention, identify possible cheating, and otherwise monitor the test environment?

Proctorio's product features fall into two major categories: (i) features that temporarily facilitate our customers' collection and review of test-taking data, and (ii) features that temporarily block the test taker's access to functionality on their device that can be used for certain forms of exam integrity breaches. For any particular exam, our customer (usually via their exam administrator) selects from any combination of features in one or both categories.⁴ We begin by describing the first category:

- **Automated Proctoring:** Proctorio's most popular product offering, Automated Proctoring, allows the customer to select proctoring features described below and then records raw evidence of potentially-suspicious activity that may indicate breaches in exam integrity. When the exam is submitted, this raw evidence is immediately available for review by the customer's exam administrator (typically faculty for a course). The exam administrators can then review the

⁴ Customers can even choose to create variants of the same exam (such as to use different sets of Proctorio features for different test takers) which can enable them to provide accommodations to students.

raw evidence and decide whether it actually indicates a breach of exam integrity and, if so, what to do about it. Again, exam administrators, not Proctorio, use the information made available to make these determinations. These features are as follows:

- **Record Video:** This option turns on the test taker’s webcam and records the entire testing session. The entire video recording is available for the test administrator to review. To streamline their assessment, the product analyzes the video and annotates it for the exam administrator with references to sections in the video for the exam administrator to review to determine if the test taker breached exam integrity. Annotations are made for the following events:
 - Head movement that may indicate that the test taker is reviewing information outside the device;
 - The test taker’s potential departure from the room (flagged when the software cannot detect any face in the picture);
 - The potential presence of additional people in the room (flagged when the software detects two faces in the picture at the same time).
- **Record Audio:** This option turns on the test taker’s microphone and records the entire testing session. The entire audio recording is available for the test administrator to review. To streamline their review, the product analyzes the audio and annotates it for the exam administrator with recommendations for sections in the audio the exam administrator could review to determine if the test taker breached exam integrity, such as by potentially receiving spoken answers from somebody located off-camera.
- **Record Screen:** This option records video of the test taker’s computer desktop during the testing session. The recording shows the test taker’s screen exactly as the test taker saw it throughout the exam. The entire recording is available for the test administrator to review. This will show if the test taker is using an unauthorized program, website, or leaving the quiz for any reason.
- **Record Web Traffic:** This is similar to a limited version of Record Screen. This feature records video of the test taker’s browser during visits to any webpages during the exam, along with the URL of the webpage. The entire recording, with the list of URLs visited during the exam, is available for the test administrator to review. To streamline their

review, the product creates an annotated timeline of the webpage visits, along with the URLs.

- **Record Room:** This option intermittently asks the test taker to show a 360-degree view of their exam environment. This provides insight as to what is on the test taker's desk or if there are other individuals in the room. The recorded video is stitched into a panorama and reviewable by the test administrator immediately following exam submission.
- **Verify Video:** This option ensures that the test taker is clearly visible in the webcam feed. This assesses whether the webcam is collecting images, the lighting is suitable, and that the test taker is not pointing the camera at the ceiling.
- **Verify Audio:** This option makes sure that the audio levels in the room are appropriate and that the microphone levels are adequate. This helps ensure that Proctorio can distinguish the white noise of the room from a talking level and that the test taker is not taking the exam in an environment that could mask audio-based breaches of exam integrity (such as receiving verbal assistance from off camera).
- **Verify Desktop:** This option determines if test takers are using virtual machines during their exam. This helps prevent the test taker from having someone else take an exam for them from a different device.
- **Verify Identity:** This feature asks test takers to hold a photo identification card to the camera before they can take their exam. The image is made available for the exam administrator to later review and compare with the image of the test taker.
- **Verify Signature:** This option requires test takers to sign their name on an exam agreement page before they start the exam. Our customers may customize the content of the agreement. It often includes a representation that the test taker is the person they claim to be and includes a reference to the customer's code of conduct. Test takers are more likely to abide by the agreement if there is a signature required.
- **Live ID Verification:** A premium customer add-on feature, Live ID Verification acts as a gatekeeper and is completed prior to beginning an exam. It helps ensure the test taker taking

the exam is the person they claim to be and will prevent access to the exam material if they do not pass the ID verification. A Proctorio representative compares the test taker's name and visage in the customer's Learning Management System (i.e., the customer's test administration system) to the scanned photo ID of the test taker — in real time — for up-front verification of their identity. Please note, Proctorio does not use biometrics for this or any other aspect of our product.

- **Live Proctoring:** In Proctorio's Unscheduled Live Proctoring service, a live, human proctor employed by Proctorio will act as an extension of the customer's internal proctoring staff and will observe test-taker behavior during the course of an exam. This is a premium add-on feature used by a small percentage of customers. If suspicious behavior is detected, the live proctors will respond in accordance with the customer's instructions, which vary by customer. All Live Proctoring proctors are full-time Proctorio employees who undergo background checks and a five-week training process with our Training Specialists. During Live Proctoring, Automated Proctoring runs in the background, and the full suite of Lock Down (described below), Recording, and Verification settings are also available for use by our customer's exam administrator, who maintains ultimate authority for determining whether an integrity issue has occurred and, if so, what to do about it.
- **Live Pop-In:** While Live Proctoring above provides continuous live observation, Live Pop-In provides more limited observation. It is a premium add-on feature to Automated Proctoring that is used by a small percentage of customers. Automated Proctoring runs during an exam to notify proctors of suspicious behavior. Live proctors, who act as an extension of the customer's internal proctoring staff, can then "pop in" to the test to intervene during a test taker's exam session to uphold integrity and prevent academic dishonesty in real time. The live proctors are from the same trained and vetted Proctorio team described under Live Proctoring above. Our customer's exam administrator maintains ultimate authority for determining whether an integrity issue has occurred and, if so, what to do about it.
- **Professional Review:** A premium add-on feature used by a small percentage of customers, Professional Review employs Proctorio's expert proctors to act as an extension of the customer's internal proctoring staff and analyze exam recordings for breaches in exam integrity and provide detailed reporting to the customer after exam completion, according to the customer's needs. The goal is to further narrow the set of materials that the customer should prioritize for review to just those materials or sections that may indicate breaches of exam

integrity. This requires less review time by the customer. The customer still receives all of the same raw data that the Professional Review team reviews (including all data on test takers not flagged for high-priority review), and the customer still is responsible for reviewing the data and determining whether or how to take action on it. The reviewers are from the same trained and vetted Proctorio team described under Live Proctoring above.

- **Plagiarism Detection:** Proctorio's Plagiarism Detection feature compares written submissions with a corpus of other material to identify potential plagiarism. When the system identifies possible plagiarism, it provides the customer with a similarity score that compares how similar it is to external sources along with links to such sources. As with all data provided to the customer by Proctorio, the ultimate decision regarding whether plagiarism occurred and whether and how to take action on it remains with the customer.
- **WebSweep:** Created for exam content protection, WebSweep is an automated web monitoring tool that searches the Internet and alerts exam administrators when exam questions have been posted on external websites. If matching exam questions are found online, exam administrators can use the "Report" feature to initiate content takedown.

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. All academic decisions related to the scoring or interpretation of data flagged for review by our services are made exclusively by the customer, who has access to all of the raw data that our service uses for flagging purposes. Proctorio has no access to exam grades.

Proctorio's mechanism for suggesting a ranking of test takers to prioritize for the customer's review is transparent and controlled by the customer. In each exam, customers can adjust how much weight Proctorio will assign to particular factors when proposing a prioritized list of test takers for review. For example, the customer can decide, for a particular exam, that Proctorio should assign significant weight to a large volume of website usage and little weight to frequently looking away from the screen. The customer can use an alternate configuration for a different exam.

The second set of features Proctorio offers are those that temporarily block the test taker's access to functionality on their device that can be used for certain forms of exam integrity breaches.

- **Lock Down Settings:** These are a suite of customizable settings that prevent test takers from accessing external materials or distributing exam results after the submission of an exam. These features can be used instead of or in conjunction with the monitoring features described above. Proctorio currently offers these Lock Down settings for free to institutions transitioning to online education amidst the COVID-19 crisis and intends to do so going forward. Lock Down settings include the following, and exam administrators can choose to implement some, all, or none of these during the exam:
 - **Force Full Screen:** This option opens the exam in full-screen mode and is a standard Lock Down setting. Force Full Screen prevents the test taker from leaving the exam to use other websites or programs.
 - **Only One Screen:** This option requires test takers to unplug any other monitors prior to starting their exam. This helps prevent the test taker from reviewing notes or websites on another monitor during the exam.
 - **Disable New Tabs:** This option prevents test takers from going to other websites, where they could potentially get answers to exam questions or collaborate with other test takers.
 - **Close Open Tabs:** This option ensures there are no tabs open prior to starting the exam. This option requires test takers to close any other webpages they may have open.
 - **Disable Printing:** This option prevents test takers from printing the exam or taking screenshots of the exam. This reduces the likelihood that the exam questions are distributed to unauthorized parties.
 - **Disable Clipboard:** This option prevents test takers from copying and pasting, to help prevent exam content from being lifted from or inserted into the exam page.
 - **Clear Cache:** This option automatically removes all traces of the exam from the test taker's computer after the exam has been completed. This helps prevent certain high-tech means of exam distribution.

- **Disable Right Click:** This option prevents the test taker from using right-click functionalities.
- **Prevent Re-Entry:** A premium Lock Down setting, this option ensures that test takers complete the exam in a single sitting and can be used for high-stakes exams.

2. What steps have you taken to ensure that any features related to test monitoring is accurate for all students regardless of any religious dress, like headscarves, they may be wearing, skin tone, gender, hairstyle, and other physical characteristics? How do you measure and review this accuracy?

As a preliminary matter regarding accuracy, please keep in mind that Proctorio provides raw data (such as a video feed) to exam administrators, and while Proctorio software also provides some analysis of the raw data for exam administrators, such as flagging certain data points to consider, exam administrators have the ability and obligation to independently analyze the data and determine whether an exam integrity violation has occurred and whether or how to respond to it. 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.

Some video-based features of the software, if activated by the customer, may not function if the webcam's view of the test taker's face is significantly obstructed. These features are (i) detection of whether a face (not the specific test taker's face)⁵ is present and (ii) detection of whether the test taker is looking away from the exam. Also, if the customer requests that a Proctorio employee compare the test taker's ID with a live video image of the test taker, this too requires that the Proctorio employee be able to see the test taker's face. For these features to operate, any physical characteristic that significantly blocks a view of the face may interfere with the ability of the feature to operate or for Proctorio to check the test taker's ID.

However, test takers have access to 24/7/365 support through the Proctorio shield icon in the internet browser they are using to take a Proctorio-powered exam. Test takers can initiate a live chat with Proctorio and receive human assistance with face detection issues or any other concern, ensuring easy entry and completion of their exam. The average wait time for this human assistance in 2020 was approximately 12.4 seconds, and the Support Agents who respond are able to override the software if needed. Also, if a test taker is unable to pass the face detection process on their own within three

⁵ Please see Question 8 for discussion of facial detection versus facial recognition.

attempts, the live chat will be automatically initiated so that the Proctorio support team can provide guidance or override in real time.

Even with this direct access to test takers, we have not verified a single instance in which test monitoring was less accurate for a student based on any religious dress, like headscarves they may be wearing, skin tone, gender, hairstyle, or other physical characteristics. Our technology has protected exams taken by millions of test takers in countries with populations that are predominantly non-white, including India, Nigeria, the Philippines, Ethiopia, Kenya, South Korea, Ghana, China, Indonesia, Mexico, and Colombia. We do not believe we would have attained our level of success in these markets if our product had race-based or culture-based defects.

However, we are not content to simply rely on the absence of evidence of an issue. On September 29, 2020, Proctorio began working with BABL AI, an independent AI and ethics consulting company, to support the development of Version 2 of Proctorio's face detection algorithms. These are algorithms that determine whether a face is present and, if so, which direction it is looking.⁶

This engagement will seek to identify and address possible sources of other inaccuracy in our software, including the types addressed by this question #2 and question #3 below. BABL AI will advise Proctorio regarding the algorithm's development, audit the final version, and provide an impact assessment.

BABL AI's proposed methodology⁷ follows the framework set forth in Senator Wyden's Algorithmic Accountability Act of 2019.⁸ In particular, BABL AI's ethical analysis and bias testing for the next version of our algorithm follow the Act's definition of an Automated Decision System Impact Assessment (ADSIA), focusing on the "risks that the automated decision system may result in or contribute to inaccurate, unfair, biased, or discriminatory decisions impacting consumers." BABL AI will provide recommendations for mitigating risks associated with the use of Proctorio's product, which is part of the Act's proposed impact assessment.

⁶ Proctorio does not use algorithms or anything else to uniquely identify faces. We do not use biometrics.

⁷ *The Algorithm Audit: Scoring the Algorithms that Score Us*, Jovana Davidovic, Shea Brown & Ali Hasan.

<https://philpapers.org/rec/DAVTAA-21>

⁸ Algorithmic Accountability Act of 2019, Sen. Wyden, Ron.

<https://www.congress.gov/bill/116th-congress/senate-bill/1108/text>

3. What steps have you taken to ensure that any features related to test monitoring are accurate for individuals with disabilities, muscle conditions, or other traits? How do you measure and review this accuracy?

This is a great question, and one that we keep top of mind to ensure equitable and accessible testing experiences for users of all abilities. As discussed above, Proctorio gives flexibility to exam administrators to select features and settings appropriate for the test takers, including creating a separate test instance for individual test takers who may require accommodations due to disabilities or other issues. We have not identified a single instance in which accuracy was impacted due to disabilities, muscle conditions, or other traits. If such inaccuracy existed, (i) it could be overridden during the pre-check process by Proctorio support personnel, and (ii) the inaccuracy would not cause the student to fail the exam, as the exam administrator would have access to the raw data recorded by the product and would need to review that data before taking action against the student.

In addition, to ensure that Proctorio continues to be held to the highest of accessibility standards, we commissioned My Blind Spot (MBS), a New York City-based, internationally-certified nonprofit consultancy, to conduct an independent accessibility audit of our technology. MBS will provide software and design recommendations, accessibility-related user testing, accessibility audits, and Voluntary Product Accessibility Templates (VPATs) every six months.

MBS, whose mission is to “inspire Accessibility for people of All abilities,” delivers ADA, 508, ISO 40500, and WCAG inclusive Digital IT Solutions to government agencies, other private sector corporations, educational institutions, and community-based organizations.

MBS has provided Proctorio its initial audit of our technology and concluded that, “when compared to industry competition, Proctorio was leaps and bounds ahead of others when it [comes] to digital equity, authentic inclusion, and overall accessibility and usability compliance.”

Through our partnership with My Blind Spot, we will be designing advanced accommodation functionality where the exam administrator or Disability Resource Center representative will be able to change exam settings on a per-student basis within the same assessment, an efficiency improvement over the current functionality which allows the customer to create a separate version of the same exam with different exam settings. My Blind Spot will work to further enhance Proctorio’s accessibility by providing software design consultation, staff training, bi-annual VPATs, accessibility testing, and other services to ensure industry compliance and equitable access among all end users.

Finally, BABL AI (discussed above) will be working with My Blind Spot to help identify which settings could present risk for falsely flagging students for possible violations in exam integrity in order to inform recommended settings. This work will help exam administrators make informed decisions on behalf of students needing accommodations.

4. What processes, policies, or information are in place or provided to administrators to accommodate test takers whose physical characteristics could create problems with the testing software?

As set forth above, Proctorio is not aware of any incidents in which physical characteristics create problems with the testing software. Nonetheless, please refer to questions #2 and #3 for more information about our partnerships with BABL AI and My Blind Spot to identify areas for potential improvement.

Proctorio also is working with BABL AI to develop an Acceptable Use Policy (AUP). Through a series of working groups and interviews with Proctorio employees, BABL AI will help us to create guidelines for the ethical usage of Proctorio, particularly in respect to test takers who identify with the categories listed above. We will use this assessment to develop a clearly-articulated document that communicates our standards and internal processes with partner institutions.

Test Takers of Varying Physical Abilities

Exam administrators can deploy different configurations of Proctorio to different test takers, including when they believe that doing so is necessary for an accommodation.

Proctorio's software has been web-accessible since the beginning and has been validated by third parties for several years. As Proctorio has evolved, so too has awareness for accommodating test takers of all abilities, a standard we meet through compliance with standards including WCAG 2.1 AA of the World Wide Web Consortium (W3C), Sections 504 and 508 of the Rehabilitation Act, Titles I, II, and III of the ADA, and EN 301 549 Accessibility requirements for public procurement of ICT products and services in Europe.

We first engaged with outside experts in 2015 to ensure Proctorio was held to the highest standard on accessibility and digital equity for students of all abilities. In July 2015, Proctorio first engaged Deque Systems, a leading digital accessibility company, as our accessibility consulting firm to assess Proctorio for accessibility compliance and to oversee the generation of all Voluntary Product Accessibility

Templates (VPAT) created since the engagement began. Through this partnership, Proctorio's VPAT 301, 508, and WCAG 2.1 AA compliance has been externally created and validated by industry-leading accessibility experts.

Proctorio's software offers braille reader support, and is compatible with many commonly-used screen readers, such as JAWS, NVDA, and speech to text technologies like ChromeVox, Dragon Naturally Speaking, and VoiceOver.

As discussed above, to ensure that Proctorio continues to be held to the highest of accessibility standards, we commissioned My Blind Spot to conduct an independent accessibility audit of our technology and will provide software and design recommendations, accessibility-related user testing, accessibility audits, and VPATs every six months.

Test Takers of Color

Proctorio is aware of media reports containing allegations of remote proctoring providers having greater difficulty detecting the faces of test takers of color. Proctorio is committed to building technology that not only recognizes, but deeply respects the diverse student populations at each of our international partner institutions. As mentioned above, our technology has protected exams taken by millions of test takers in countries with populations that are predominantly non-white, including India, Nigeria, the Philippines, Ethiopia, Kenya, South Korea, Ghana, China, Indonesia, Mexico, and Colombia.

Proctorio understands that this commitment requires ongoing review and action. Building more inclusive technology requires a promise of constant evolution and improvement to meet the needs of our users. We take this commitment seriously and are backing it up with a series of actions:

First, we have initiated an independent research study with a higher education leader to identify sources of possible bias within our platform's models and algorithms. We expect the initial results of this study in Spring 2021 and look forward to receiving the findings.

Second, as described above, we have partnered with BABL AI to develop Version 2 of our facial detection algorithms. This consultancy is advising our development team on best practices around accounting for diverse identities in the V2 algorithm and will audit the resulting algorithm to verify its performance. Their ultimate goal is to identify potential harm to test takers and recommend ways in which Proctorio and partner institutions (customers) can work together to mitigate these potential harms. We expect actionable results from this audit by the end of the spring 2021 semester.

Third, we are constantly hiring new employees, initiating new partnerships, and recruiting the help of third parties to make Proctorio a more equitable and user-friendly software.

Finally, if a test taker is experiencing difficulty passing the facial detection process to enter their exam, Proctorio Support initiates a live chat after three attempts to troubleshoot. The Support Agent can request access to the webcam images from the system, provide instructions to ensure clearly-captured images, or override the system if needed, ensuring that all test takers easily access their exams.

At any point during an exam, test takers can reach out to Proctorio support by clicking the browser extension's shield icon and initiating a live chat. Our team is on standby 24/7/365 via live chat and email to ensure exam access and completion with no additional stress.

Test Takers with Partially Obscured Faces

Test taker faces may be partially obscured for a number of reasons. They may be wearing a mask to protect themselves from COVID-19, wearing glasses to improve their vision, or wearing attire in observance of their cultural or religious belief systems.

Our collaboration with BABL AI on Version 2 of our face detection machine learning algorithms will train the algorithms to recognize protective masks and religious or cultural attire. From there, a setting will be added to the code to allow masks or religious or cultural attire while noting that the wearing of protective masks or religious or cultural attire may lessen the sensitivity of gaze detection. Proctorio does not and will not stand for the usage of our software in any manner that polices religious or cultural values, as we explained in a blog post published last year.⁹ Test takers should not be forced to alter their appearance or remove any attire that is worn to observe their religious or cultural belief systems.

Proctorio's support team is on call 24/7/365 via live chat to assist test takers with exam entry and completion. The support team's average response time for 2020 was approximately 12.4 seconds. For special requests or additional resources, we highly recommend that partner institutions (customers) get in contact with their assigned Partner Success Managers so that the request can be escalated to the appropriate Proctorio department.

⁹ Ethical Usage of Our Technology, Olsen, Mike. September 11, 2020.
<https://blog.proctorio.com/ethical-usage-of-our-technology/>.

Ultimately, Proctorio's aim is to provide a suite of product offerings, customizable settings, and support that exam administrators can choose from to curate the most supportive and comfortable exam environment possible for their test takers.

5. What steps do you take to ensure your virtual proctors are adequately trained and informed of students' needs?

As a preliminary note, in the vast majority of tests we handle we do not provide any virtual proctors. We encourage our customers, existing and prospective, to utilize our Automated Proctoring services, which keep the test-taking experience between the customer's exam administrator and the test taker. The vast majority of our customers have opted for Automated Proctoring as a way of simultaneously upholding exam integrity and maintaining test-taker privacy in a scalable and cost-effective way.

With this in mind, we offer faculty training from our Partner Success Managers. Each customer is assigned two Proctorio managers who can offer training on best practices in using the product and reviewing data and product set-up. We also offer Proctorio Academy, an interactive online course currently hosting 40,000+ faculty members who use Proctorio. Proctorio Academy also functions as a platform where exam administrators can collaborate with one another on best practices.

While we encourage our customers to use Automated Proctoring, we understand that some customers prefer live, human proctoring. For this reason, we offer Live Proctoring on a per-exam basis using full-time Proctorio employees who have undergone background checks and weeks of proctoring, data security, and privacy training. These trainings include intensive FERPA, COPPA, SPC, CSPP, and GDPR training, as well as accessibility training. All of our live proctors have also successfully finished their training and certification from the iKeepSafe Coalition, an organization focused on compliance with student/child-related privacy laws.

Our live proctors are also trained on use of the product so that they may provide technical support and troubleshooting tips to the test taker throughout the pre-check process and the duration of the exam.

Proctorio's live proctors can be notified by a customer representative if a test taker is in need of accommodations. The most common use case is students needing breaks during the course of a Live Proctored assessment. All other accommodations are provided by the institution in advance of the

exams. Those accommodations may include extending exam duration, disabling certain Proctorio settings for a single test taker as described above, or disabling Proctorio entirely.

6. What steps have you taken to ensure adherence and compliance with federal and state laws governing student privacy and accessibility for individuals with disabilities, such as FERPA, the ADA, and HEA, which the institutions you may have contracts with are required to abide by?

Proctorio has implemented policies, practices, and procedures to help ensure compliance with applicable federal and state laws governing student privacy and accessibility. Additionally, Proctorio works closely with its partner institutions to comply with federal and state laws governing student privacy and accessibility. We have implemented policies, procedures, and internal controls to comply with FERPA, the European Union’s General Data Protection Regulation (GDPR) and other applicable data privacy regimes from jurisdictions where we do business.¹⁰

Proctorio Policies, Practices, and Internal Controls Generally

Proctorio develops its products and services to keep test-taker data private and secure in compliance with applicable laws using privacy-by-design practices and internal controls. Our practices include limiting the collection, use, disclosure, and storage of test-taker personally-identifiable information (PII) and implementing measures to secure such data. Proctorio’s automated systems are designed to be less intrusive than human proctors.

Data Minimization & Retention

Proctorio does not by default require PII for test takers to use our software. The test taker can log in to our customer’s testing platform or Learning Management of choice with their institutional or corporate credentials and access a Proctorio-protected assessment without identifying themselves to us. For third-party platforms, a unique passcode is generated and managed by Proctorio, so test takers can access the exam even outside of their institution’s testing platform or Learning Management System.

¹⁰ In June of 2020, a District Court in Amsterdam ruled in favor of the University of Amsterdam (UvA) continuing to use Proctorio, setting a precedent for universities throughout the European Union and around the world that have already implemented or are planning to implement remote proctoring software in response to the COVID-19 pandemic. The Court found that Proctorio was GDPR compliant.

As described in response to Question 1, Proctorio customers, not Proctorio, determine which information is to be collected from test takers. Some customers require collection of additional PII, and some do not. For example, the only time Proctorio records video is if and when an exam administrator chooses the video recording option for a particular exam. Proctorio does not create or otherwise handle biometric identifiers such as faceprints (unique mathematical representations of a particular face), as discussed in response to Question 7 below.

Each Proctorio customer determines how long Proctorio will retain its proctoring data. Please see our response to Question 8 below for more information.

Proctorio runs only as a Chrome browser extension. This means we have no native software with full access to a test taker's computer system. Our browser extension only runs during an exam. Although it is not necessary to do so, test takers can uninstall Proctorio immediately after taking an exam, and re-install it only when taking future Proctorio-protected exams. This practice will not negatively impact their experience.

Data Security

Test-taker data is secured and processed through multiple layers of encryption. Transmission from the test taker's device to Proctorio's data center happens over TLS 1.2 or 1.3 and, if the browser supports it, Perfect Forward Secrecy (PFS). Data at rest within Proctorio's data center is encrypted using AES-256 and is protected with FIPS 140-2 compliance. All data centers are ISO 27001 certified and SOC 2 attested. Our browser extension uses an encryption layer secured with AES-GCM. The Proctorio platform undergoes daily vulnerability and penetration tests. Proctorio engaged a leading information security consulting company to perform a month-long security assessment of our software and cloud environment in mid 2020. The audit result is posted publicly on our website.¹¹ Proctorio is also currently undergoing an SSAE 16 audit. The SOC 2 Type 1 Audit is expected to be completed by the end of February 2021, which will then lead to pursuing a SOC 2 Type 2 audit later in 2021.

Transparency

¹¹ White Oak Security Audit: <https://proctorio.docsend.com/view/mj83bzs62vqrtuky>.

Proctorio is committed to transparency and providing information to its users about the privacy and security of its products. Proctorio has privacy policies that inform institutions, test takers, and other stakeholders about the privacy practices that it follows. Additionally, Proctorio provides information on its website about its browser permissions,¹² data security,¹³ privacy policy,¹⁴ accessibility and usability,¹⁵ customer support,¹⁶ and frequently-asked questions.¹⁷ This is all to inform institutions and test takers about Proctorio's products and services and its privacy and security practices. And crucially, Proctorio regularly trains employees, customer support, and proctors on compliance with applicable laws and their responsibilities regarding student PII.

Test takers understand when Proctorio is running, both through the exam sign-in process and because the Proctorio shield icon turns green, indicating that the extension is running in the background of an exam.

Customers: Agreements & Partnership

In our written contracts with customers, Proctorio agrees to adhere to applicable laws, including FERPA and the ADA. Proctorio does not provide any financial aid products or services related to the HEA. We contractually agree to use PII only to provide our service to the customer. Further, we have dedicated Partner Success Managers on staff to regularly communicate and coordinate with customers about compliance. We also have customer support personnel that provide support to customers and students, and we promptly respond to customer, student, and other stakeholder inquiries.

Certifications and Pledges

Proctorio has been certified by the iKeepSafe Coalition to be in compliance with the following laws: FERPA, COPPA, and California student privacy laws, including SOPIPA, AB 1584, and other California state laws and district policies.

¹² Why Proctorio Requests Certain Browser Permissions, Olsen, Mike. October 6, 2020.

<https://blog.proctorio.com/why-proctorio-requests-certain-browser-permissions/>

¹³ Data Security, Proctorio Website: <https://proctorio.com/about/data-security>

¹⁴ Privacy and Cookies, Proctorio Website: <https://proctorio.com/privacy>

¹⁵ Accessibility, Proctorio Website: <https://proctorio.com/accessibility>

¹⁶ Customer Support, Proctorio Website: <https://proctorio.com/support>

¹⁷ Frequently-Asked Questions, Proctorio Website: <https://proctorio.com/frequently-asked-questions>

Proctorio is also a proud signatory of the Student Privacy Pledge set forth by the Future of Privacy Forum and The Software & Information Industry Association.¹⁸ This is a detailed commitment to specific practices for the responsible stewardship and appropriate use of student PII, and to compliance with all laws applicable to us as school service providers.

Accessibility

As described in greater detail in response to Question 3 above, Proctorio is committed to accessibility, including through compliance with WCAG 2.1 AA standards of the World Wide Web Consortium (W3C), Sections 504 and 508 of the Rehabilitation Act, Titles I, II, and III of the ADA, and EN 301 549 Accessibility requirements suitable for public procurement of ICT products and services in Europe.

Proctorio has also recently signed on to a multi-year partnership with My Blind Spot (also described above), a New York-based internationally certified nonprofit consultancy, to assess the overall accessibility of our product and enhance its usability for test takers of varying abilities.

7. How many complaints have you received from students and test takers in regards to facial recognition tied to either their race or gender identification? How can a student lodge such a complaint and what is the process for addressing potential problems?

Technology Clarification

As an initial matter, we would like to clarify the face-related technology that Proctorio uses. Proctorio does not use what is conventionally known as “facial recognition” technology.

As we use the term, and as it is widely used by industry, “facial recognition” uniquely identifies specific people by assessing whether the face in one image matches the face in another image. It requires a database of either images of people’s faces, or biometric representations of them, and technology that compares new images or biometric representations with entries in that database. Proctorio has no need or interest to ever uniquely identify a test taker in this manner, so we do not use this type of technology.

¹⁸ Student Privacy Pledge 2020: <https://studentprivacypledge.org>

Instead, Proctorio uses “face detection” and “gaze detection” technology. The difference between these technologies and facial recognition can be illustrated by the questions they answer:

- *Facial recognition*: “Does the face in this picture match the face in this other picture?”
- *Face detection*: “Is there a face in this picture?”
- *Gaze detection*: “If there is a face in this picture, where is it looking?”

Face detection can identify that there is a human face present in an image or video, but *it cannot identify that person* – only that there is, indeed, a person in the picture. For example, face detection technology is used in the auto-focus feature on many cameras: it can tell you a face is there, but not whose face it is. *Gaze detection* can determine the direction that the individual is looking, but cannot identify who they are or what they are looking at.

If the exam administrator enables the use of video, Proctorio can use face detection to flag video evidence that may indicate the number of individuals present in the test taker’s room (zero, one, or more than one), but not which individuals are present. This helps exam administrators prioritize where to review the video to determine if the test taker has left the room or was joined by another individual who was helping them, or if some other individual simply walked through the room without compromising exam integrity.

Face detection also can be used to confirm that the test taker is present at the beginning of the exam. If a student is not able to pass the face detection process and enter an exam within three attempts, a Proctorio Support Agent initiates a live chat to troubleshoot the issue. The Support Agent can request access to webcam images from the system, provide instructions that ensure clearly-captured images, and override the system if needed to expedite exam entry.

If the exam administrator enables the use of video, Proctorio also can use gaze detection to flag video evidence that the individual was looking at something other than the device they were using to take the exam. This helps exam administrators prioritize where to review video to determine if the test taker was consulting unauthorized materials or was discussing the exam with someone else.

Information about Complaints

Proctorio can accept inquiries or complaints from students and test takers (i) through the Proctorio live chat button that is accessible to test takers in their browser during the entire exam, (ii) through our support email, support@proctorio.com, which we publish on our website, (iii) through our privacy email

address, privacy@proctorio.com, which is published in our privacy policy, (iv) through our official social media accounts, and (v) by raising a concern with our customer, who would then contact us.

Complaints submitted through the live chat would be handled within seconds by our live 24/7/365 support staff, who can coach a student with face detection issues (which typically are resolved through changes in lighting or camera angle) or override any face detection feature as needed.

Complaints submitted through the email addresses mentioned above, or complaints submitted via our social media accounts or our customers, would be routed to our 24/7/365 support staff, who can intervene to provide live support if the exam still is happening or follow up with the test taker or our customer as appropriate.

Through all of the channels mentioned above, we are aware of fewer than five complaints in which there was any suggestion from the complaining party that they experienced a face detection or gaze detection issue due to race, and none in which there was any suggestion that it had to do with gender identification. We believe all of these cases were due to issues relating to lighting, webcam position, or webcam quality, not race. For context, millions of the exam takers who have used our technology are located in predominantly non-white countries, as explained in more detail in response to Question 2.

For example, in 2020, a Proctorio customer informed us that the software was not recognizing a darker-skinned test taker as being present. The test taker was gracious enough to participate in a troubleshooting session in the same exam environment, using the same computer and webcam where the difficulty was first encountered while Proctorio support staff observed. On the first attempt of face detection, the test taker did not pass. On the second attempt, with guidance from our support lead asking the test taker to move back from the webcam, the student passed the face detection pre-check process and was allowed access into the exam.

8. How long do you keep students' personal information, including video recordings, which you collect during the exam? Are you using or sharing this data for any purpose beyond the authorization and proctoring of the test, including to train your machine learning algorithms?

We store test taker personal information, including video recordings, which we collect during the exam for the minimum amount of time required by either our customer or by applicable law. Our contracts require us to destroy exam recording data upon the customer's request.

We do not share test-taker personal information for purposes beyond the authorization and proctoring of the test or for compliance with law.

We do not use test-taker information for purposes beyond the authorization and proctoring of the test or compliance with law. We use de-identified information for billing purposes and to track usage in the aggregate.

In conclusion, we hope the above information has been helpful in answering your questions and demonstrating Proctorio's long-standing commitment to providing our service in a safe, ethical, transparent, and equitable manner. Thank you again for the opportunity to respond to your questions. Please let us know if you require additional information.

Respectfully,



Mike Olsen
Founder and CEO
Proctorio, Inc.