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Legal and Pedagogical Issues with Online Exam Proctoring

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Abstract

The COVID-19 pandemic forced institutions around the world to conduct their operations remotely; this was also true for higher education. While online learning and teaching were known about generally, the meaningful assessment of students (while also assuring integrity of the assessment process) represented a new set of challenges, as exams had previously been in-person events. Online proctoring technologies, offered commercially with different levels of service, were presented as the solution to the problem of integrity. Universities globally embraced them as a panacea.

This article first analyses the legal issues arising from the use of such technologies, with a focus on data protection, human rights, and equality from an English law perspective, but with reference to other jurisdictions where relevant. It then considers the pedagogical implications of online proctoring. The article concludes that the use of online proctoring technologies in their current form breaches different aspects of student rights and breaks the bond of trust needed to foster learning. The article identifies the basis of the problem of over-reliance on exams as a form of assessment when the same online tools allow for the use of more innovative, inclusive, and rights-compliant forms of evaluation.

Keywords: Online proctoring, data protection, human rights, equality law, innovative assessment.

1. Introduction

On 11 March 2020, the World Health Organisation (WHO) declared the outbreak of COVID-19 a global pandemic. Since then, governments, companies, and society in general have been adapting to the impact of the ongoing planetary health emergency, which has been substantial when measured in human, economic, social, and institutional costs. This can be explained by the fact that, although the pandemic constitutes a public health crisis, the

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mitigation measures employed to contain it produced unintended effects in all the aforementioned fields.[2]

From the health point of view, according to the WHO, as of 18 March 2022, there have been 464,809,377 confirmed cases, including 6,062,536 deaths.[3] The impact on other fields can be observed in the fact that the United Nations reported the number of undernourished people around the world rose to around 768 million people in 2020 – an increase of 118 million from 2019 – after five years of being virtually unchanged.[4] The crisis has exacerbated some existing situations; despite the expansion of government interventions experienced during the pandemic, more than four billion people are still without any form of social protection.[5]

There is a strong argument that higher education has a fundamental role to play in this situation, a position that will become ever more crucial in a post-pandemic world. From being the place where research leading to the invention of vaccines that may end the pandemic occurs[6] to the provision of the research and data that governments and international organisations use to support their COVID-19-related policies, universities play a relevant part in the global crisis,[7] and they are key in the creation and dissemination of knowledge needed for the post-pandemic recovery. It is widely accepted that a skilled workforce with university education can be pivotal in boosting prosperity and reducing poverty,[8] post-pandemic.

The pandemic has, however, severely impacted on higher education institutions around the globe, in most aspects of their functioning, including financial, operational, academic, and pedagogic. Universities have seen their financial health and even their viability affected by reduced revenues due to student postponement of studies, a reduced number of international students, cancellation of housing contracts and events, increased expenditures for space segmentation and specialised cleaning techniques, modification of operational methods, continuous risk assessment, and the provision of personal protective

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[2] Nisa, C.F, Belanger, J.J., Faller, D.G. et al. 'Lives versus Livelihoods? Perceived economic risk has a stronger association with support for COVID-19 preventive measures than perceived health risk' (2021) 11 Sci Rep 9669.

[3] WHO, Coronavirus (COVID-19) Dashboard <https://covid19.who.int/. accessed 2 September 2021.

[4] FAO, IFAD, UNICEF, WFP and WHO, '*The State of Food Security and Nutrition in the World 2021: Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All*', (FAO).

[5] International Labour Office, '*World Social Protection Report 2020–22: Social Protection at the Crossroads – in Pursuit of a Better Future*' (ILO 2021).

[6] Thomas, T., and Colin-Jones, R., 'Universities Were Key to Fast COVID Vaccine Development' (*University World News*, 16 January 2021) <https://www.universityworldnews.com/post.php?story=20210115084622247> accessed 20 September 2021.

[7] 'COVID Has Shown the Power of Science–Industry Collaboration' (2021) 594 Nature 302.

[8] International Labour Office, '*A Skilled Workforce for Strong, Sustainable and Balanced Growth: A G20 Training Strategy*' (ILO 2010).

equipment (PPE).[9, 10] The effect on academic matters relates to the financially related impact on research, the impossibility of carrying out field research, restrictions on staff and student mobility, and cancellation of academic meetings, all of which add pressure on the system to deliver some of the solutions that society requires for the pandemic and the post-pandemic recovery.

COVID-19 has also had a serious impact on pedagogy in universities, an aspect that affects all the previously mentioned ones, for it can be argued that the dissemination of knowledge and formation of future professionals in all areas through teaching are activities that underpin the creation of knowledge via research and the engagement with wider society via consulting, advice, and topical interventions. Whereas most activities had to be either cancelled or fundamentally redesigned to comply with the requirements for distancing and avoiding gatherings, higher education institutions around the globe faced sudden and urgent challenges in performing one of their key functions – teaching – as students were not allowed to physically attend classes at the universities. Almost ninety nine percent of university students around the planet were affected by the shutdown of education facilities.[11]

These conditions resulted in deep transformations that accelerated the deployment of information and communication technologies for teaching and practice, a situation that is unlikely to be overturned in a post-pandemic world. The emergency nature of such deployment implied that some of the technologies (and some of the uses made of them) did not have appropriate scrutiny from both a pedagogic and legal point of view, which could be problematic once their use became widespread and naturalised. This state of affairs affected all areas of teaching from lecturing to advising. This article analyses one critically important aspect of teaching, namely assessment.

Exams are one of the most common forms of assessments, and conducting them online poses several issues, integrity being one that received much attention in the early days of the pandemic. To deal with potential instances of lack of integrity in the assessment process, higher education institutions (and other organisations that rely on exams to assess their members) turned to non-presential proctoring technologies that, in order to prevent exam-takers from using resources not allowed during the exam, could take control of students' devices and monitor their physical activity.

This article will analyse the different legal issues that the use of proctoring technologies encompasses, from data protection issues to the potential infringement of fundamental

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[9] Bolton, P., Hubble, S., '*Coronavirus: Financial Impact on Higher Education'* (Briefing Paper Number 8954, 8 February 2021, House of Commons, UK).

[10] Universities UK, *Achieving Stability in the Higher Education Sector Following COVID-19* <https://universitiesuk.ac.uk/news/Documents/uuk_achieving-stability-higher-education-april-2020.pdf> accessed 15 September 2021.

[11] Basset, R., Arnhold, N., '*COVID-19's Immense Impact on Equity in Tertiary Education'* (World Bank Blogs) <https://blogs.worldbank.org/education/covid-19s-immense-impact-equity-tertiary-education> accessed 5 September 2021.

rights, in the light of English law, followed by pedagogical considerations related to the use of such invasive technologies.

2. Proctoring and exam integrity

Higher education has a prominent role to play in society; in times of crisis, that role becomes even more relevant, as explained before. It is expected, therefore, that those who obtain the recognition and rewards a higher education diploma attracts are those who have actually shown (via assessment) that they have acquired the required knowledge and skills – that is to say, that they have demonstrated attainment of the intended learning outcomes. Assessment plays a central role in higher education; evidence suggests that, on the one hand, what and how students learn can be affected by the type of assessment method,[12] and, on the other, the assessment itself can and should be part of the learning process.[13]

One of the main forms of assessment, probably the most traditional and most widely used in higher education, is the exam.[14] It is generally accepted that exams represent a reliable, valid, and cost-effective form of evaluating students' fulfilment of learning objectives. Leaving aside that this understanding can be challenged and assuming that exams fulfil the necessary requirements, the delivery of teaching and assessment using information technologies brought to light the need to guarantee that those taking the tests were who should be taking them, that they did so without unauthorised external help, and that the content of the exam remained secure, all in the understanding that high levels of dishonesty in exams are prone to diminish the reliability of university degrees, impacting the higher education institutions and society at large.[15] Those challenges are supposed to be met via online proctoring.

Proctoring can be defined as the activity of overseeing exams by an authorised, neutral invigilator who acts as a proxy for the instructor, verifying the identity of the person sitting in the exam and ensuring the reliability of the circumstances in which the exam is taken. Accordingly, exams can be proctored or unproctored; this applies to both in-person and distance learning exams. Traditionally, in-person exams have been proctored by invigilators, and distance learning, internet-based exams have been unproctored. The development of new surveillance technologies outside the realm of educational

[12] Biggs, J, 'Assessing Learning Quality: Reconciling Institutional, Staff and Educational Demands' (1996) 21:1 Assessment & Evaluation in Higher Education 5.
[13] Sambell, K., McDowell, L., Montgomery, C, *Assessment for Learning in Higher Education* (Routledge 2013).
[14] Carless, D., *Excellence in University Assessment* (Routledge 2015).
[15] OECD, 'Remote Online Exams in Higher Education During the COVID-19 Crisis' (*OECD Education Policy Perspectives*, No. 6, 2020) https://doi.org/10.1787/f53e2177-en.

institutions[16] and their wide availability at relatively low costs have resulted in the creation of online proctoring technologies, which allow online proctored exams.

There are different types and versions of online proctoring systems, and they go from those that solely verify the identity of the person taking the exam to those that completely monitor the exam-taker's system in order to observe and control its behaviour. Regardless of the level of surveillance employed, the system can include live monitoring, artificial intelligence (AI)-based proctoring, or a combination of both.[17] In turn, these technologies offer low and high security. There have been different attempts to assess and compare them, such as Hussein et al.'s analysis of the eight main providers in four selective phases,[18] although it can be argued that many of the analyses include what Logan calls the 'edtech imaginary', implying a bias towards the use of the technology.[19]

Low-security systems make a video of the student and download it for observation by the institutions' instructors or assessment officials. In the case of high-security proctoring, the combination of technology and applicable rules implies that the student needs to show the whole room – hundred percent of it – on camera before the exam. The system takes over the camera and audio of the exam-taker's computer, both monitoring and recording them. The system monitors and records keyboard strokes and mouse movements and tracks web browsing data, which usually includes the possibility of accessing only selected sites, as the browser is blocked, sometimes days before the exam is taken. The system shares the screen with the proctor and, in AI-based systems, also monitors eye movement and general exam-taker behaviour. When surveillance is conducted in real time with a live proctor, there might be authority to stop the exam; with AI-based proctoring, the options are to flag it to a human proctor or to allow the system to take action directly and automatically.[20]

Another important feature of online proctoring systems is that not all of them are proprietary to higher education institutions. There is not currently a method to properly assess it, but my presumption is that most universities do not have their own proctoring systems. Furthermore, there are institutions that do not have the capacity to conduct exams online with the level of security required; in those cases, the whole process is conducted by a third-party vendor system. For institutions that have their own virtual learning platform, and under the assumption that they do not have a proprietary proctoring system, proctoring is added as a service that is integrated into their system, with the option of the institution or the third party carrying out the monitoring, analysis of the data, and reporting, depending on the level of integration of the systems. In the cases of

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[16] Logan, C., 'Toward Abolishing Online Proctoring: Counter-Narratives, Deep Change, and Pedagogies of Educational Dignity' (2021) 20 The Journal of Interactive Technology and Pedagogy.
[17] Foster, D., Layman, H. 'Online Proctoring Systems Compared' (2013), <https://www.caveon.com/wp-content/uploads/2014/03/Online-Proctoring-Systems-Compared-Mar-13-2013.pdf> accessed 9 September 2021.
[18] Hussein, M. J., Yusuf, J., Deb, A.S., Fong, L., & Naidu, S., 'An Evaluation of Online Proctoring Tools' (2020) 12 4 *Open Praxis* 509.
[19] Logan (2021), ut supra.
[20] Lieberman, M., (2018) 'Exam Proctoring for Online Students Hasn't Yet Transformed' (*Inside Higher Ed*, 10 October 2018) <https://www.insidehighered.com/digital-learning/article/2018/10/10/online-students-experience-wide-range-proctoring-situations-tech> accessed 28 August 2021.

universities without their own virtual learning platforms, the institutions obtain an end-to-end digital examination system that, following the teachers' instructions, carries out the setting up of the assessments, establishes and manages the appropriate calendar, conducts the proctored exams, and delivers the results and analyses. The data is harboured by the third-party vendor, and it can be accessed by the institution using the dedicated administrator's rights. The service provider stores in its servers the recordings of the logs and videos taken from the students and the analyses of them.

The concepts and features of the online proctoring systems, in all their versions, but with special emphasis on those identified as having a high level of security, will be analysed according to English law, with necessary references to other jurisdictions where the practice has already been tested in the courts. We shall, in particular, analyse laws related to data protection, human rights, and anti-discrimination.

3. Legal issues with online proctoring

3.1 Online proctoring and data protection

The proctoring systems described above need to be analysed in light of the data protection legislation. In the United Kingdom (UK), this implies the application of the UK General Data Protection Regulation (GDPR), as defined in section 3(10) of the UK Data Protection Act 2018 (DPA 2018); the Data Protection, Privacy, and Electronic Communications (Amendments etc) (EU Exit) Regulations 2019; and regulations made under section 2(2) of the European Communities Act 1972 that relate to the European Union (EU) GDPR[21] or the Law Enforcement Directive,[22] a bundle that creates a specific data protection regime for the UK. Each of the features of the different proctoring options may have different relationships with the UK GDPR, and, by virtue of the DPA 2018 s. 3(9), the EU legislation must also be taken into account. Following s. 2(1) of the DPA 2018, students are protected with regard to the processing of their personal data, especially making sure that the data is processed lawfully and fairly on the basis of the students' consent, notwithstanding the interests of the universities and service providers, as per s. 2(2).

From the relatively simple action of recording a video of a student taking an exam to more complex examples that involve locking the computer and recording video, sound, keystrokes, and web browsing activity (including history), the systems described above all share screens with a proctor. The proctor, whether live or AI, requires that a video be taken

[21] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation).
[22] Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of the prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA.

of the whole room. Such proctors monitor eye movement and deal with personal data, as the original objective of the system is to ensure proper identification. The information collected relates to an identified student, making it all personal data as defined in s. 3(2). Furthermore, some of the information collected by the proctoring systems, such as the environment where the exam is being taken and the background sounds that the system records, could lead directly or indirectly to identifying persons beyond the student taking the exam, via 'one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of the individual', as prescribed by s. 3(3)(b) of the same DPA 2018. Following the broad interpretation of the concept of personal data made by the EU Court of Justice in *Patrick Breyer v. Bundesrepublik Deutschland*,[23] there seems to be no doubt that most, if not all, information collected by the proctoring systems is personal data, making the students – and sometimes other people in the place where the exam is being taken – data subjects.

The data protection regime also describes the categories of those collecting, using, and/or manipulating the data processing in terms of s. 3(4) of DPA 2018 and identifies them as data controllers or data processors. The DPA 2018 defines controller in s. 6; leaving aside those controllers who are required by law to process data, caught by s. 6(2), it refers back to the UK GDPR, where the controller is the person who determines the purposes and means of processing the data, and the processor is the one who processes the data on behalf of the controller, following s. 4(7) and (8) of the UK GDPR. The proctoring systems described above result in the blurring of the categories of data controller and data processor with regards to the processing of the exam-takers' – and potentially others' – personal data.

In principle, universities are the data controllers, the legal persons who determine the purposes and means of processing the personal data, and the proctoring service providers are the processors of such data. However, the characteristics of the system may result in having more than one controller. For instance, it is important to point out that, in many cases, it is the individual teacher who selects exams as the form of assessment to be used in a particular class or module, and that selection triggers the use of the proctoring system. It could be argued that, in certain circumstances, the individual teacher might be the data controller. However, it is the position of the proctoring system providers where the boundaries of data controller and data processor become more unclear.

In *Fashion ID GmbH & Co. KG v Verbraucherzentrale NRW eV*, the Second Chamber of the Court of Justice of the EU decided that 'the operator of a website […] that embeds on that website a social plugin causing the browser of a visitor to that website to request content from the provider of that plugin and, to that end, to transmit to that provider the personal data of the visitor can be considered to be a controller, within the meaning of Article 2(d) of Directive 95/46'.[24] This effectively translates into the vendors of the more complex proctoring systems becoming both data controllers and processors, and necessitates

[23] 11 Case C-582/14, [2016] ECLI:EU:C:2016:779.
[24] [2019] Case C-40/17 at para 85.

adding them to the higher education institutions as controllers of the personal data, depending on the configuration and features of the system.

In situations where the vendor offers to institutions a complete examination system and not just the proctoring technology, the category of controller directly applies to the system provider, always as joint controllers with the universities, taking into account that they have a preeminent role in deciding the purpose of the processing. In each of the contracts between higher universities and proctoring service providers, it remains to be seen whether the two parties determine their respective obligations, as established in Article 26.1 of the UK GDPR[25]. Furthermore, such an arrangement must be made known to the data subject, but this is not generally observed in practice. As service providers who are not located in the UK would need to designate a representative within the jurisdiction, there is the need to further explore whether vendors not doing so could imply that the universities using their services also become their representatives. The issue of being joint controllers is not a minor one, especially with regard to the liability for data breaches that occur overseas on the systems of the service providers. The ongoing American class action case *Thakkar, et al v. ProctorU Inc.*,[26] for violation of the Illinois Biometric Information Privacy Act, could also name the university using the system as a defendant if the case happened in the UK.

The universities, as data controllers, also need to fully comply with the requirements of Article 5 of the UK GDPR, following the principle of accountability, meaning that they need to make sure – and be able to demonstrate – that the students' personal data is processed following the principles established in that article: lawfulness, fairness, and transparency (a), purpose limitation (b), data minimisation (c), accuracy (d), storage limitation (e), and integrity and confidentiality (f). The issues of lawfulness, fairness, and transparency deserve a deeper analysis, but it is acknowledged that proctoring vendors use student data for other purposes – including to further train their algorithms – which cannot be controlled by the universities. The systems take and record far more data than is needed to guarantee the integrity of the exam, unless there is presumption of a student's guilt, which requires additional analysis. Moreover, the systems are not strictly accurate, as they might interpret as unauthorised behaviour one that is usual, common, and natural, such as looking to the side after many minutes of concentrating on a screen. Higher education institutions have no way to ensure, as required, that third party vendors comply with storage limitations principles; they also cannot ensure that the data is kept confidential, as

[25] 'Where two or more controllers jointly determine the purposes and means of processing, they shall be joint controllers. They shall in a transparent manner determine their respective responsibilities for compliance with the obligations under this Regulation, in particular as regards the exercising of the rights of the data subject and their respective duties to provide the information referred to in Articles 13 and 14, by means of an arrangement between them unless, and in so far as, the respective responsibilities of the controllers are determined by Union or Member State law to which the controllers are subject'.

[26] 2:21-cv-02051, No. 1 (C.D.Ill. Mar. 12, 2021) .

was seen in the example where a chief executive officer (CEO) of a major proctoring service provider posted student chat transcripts online.[27]

The higher education institutions, as controllers of the data, also have all the general obligations that DPA 2018 imposes onto them. The proprietary nature of some of the technologies used, coupled with the use of algorithms where the lack of clarity and transparency of their internal functioning has been well established,[28] may result in the impossibility of being able to demonstrate that the processing of personal data complies with the requirements of section 56 of the DPA2018or with the fairness and transparency obligations found in Article 5 of the UK GDPR. Furthermore, the use of the most advanced forms of proctoring, which are presented as those with the highest level of security and control, includes the use of AI that analyses eye motion, background sound, and other features, with the authority to stop an exam from taking place, implying a failure and/or sanctions for the exam-taker. This situation constitutes automated decision-making, and it might be in conflict with s. 96(1) of the DPA 2018. It is highly disputable if the type of consent given by the student, who has no other option than giving it, can be characterised as the data subject giving the consent required by s. 96(2) of the DPA2018. The contractual situation of students in relation to higher education institutions is debatable in any case, as to if a contract exists, for the terms cannot be freely negotiated by the students, and many of the provisions would not sustain a challenge under the Consumer Rights Act 2015.

An issue that has attracted some attention is the lawfulness of processing, as required by Article 5 of the EU/UK GDPR, which includes some judicial pronouncements in continental Europe under the egis of the EU GDPR. This legal instrument and the GDPR recitals include a variety of situations where it is lawful to process personal data of data subjects; at least one of these situations needs to be present for the lawfulness of processing. It is important to remember that section 3 of the EU (Withdrawal) Act 2018 includes recitals to the GDPR. In relation to the issue in question, Recital 39 establishes that any personal data processing must be lawful and fair, and it should be transparent to data subjects. Recital 40 of the GDPR states that, in order for processing to be lawful, personal data must be processed on the basis of the consent of the data subject affected, or on some other legitimate basis laid down by the law. However, consent is only one of six main legal bases for the lawfulness of personal data processing within the GDPR framework. In order for that processing to be lawful, at least one of the six situations must be present.

As previously indicated, consent is the first mentioned legal ground for processing personal data lawfully. Article 6 and Recital 40 of the GDPR establish that the data subject must give consent for the processing of his or her personal data in relation to one or more specific purposes. The European Court of Justice, in *Orange România SA v. Autoritatea Naţională*

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[27] Zhou, Naaman, 'CEO of Exam Monitoring Software Proctorio Apologises for Posting Student's Chat Logs on Reddit' (*The Guardian*, 1 July 2020) . <https://www.theguardian.com/australia-news/2020/jul/01/ceo-of-exam-monitoring-software-proctorio-apologises-for-posting-students-chat-logs-on-reddit> accessed on 31 August 2021.

[28] Edwards, L., Veale, M., 'Slave to the Algorithm? Why a "Right to and Explanation" Is Probably Not the Remedy You Are Looking For' (2017) 16 *Duke Law & Technology Review* 18.

de Supraveghere a Prelucrării Datelor cu Caracter Personal,[29] said that 'it is for the data controller to demonstrate that the data subject has, by active behaviour, given his or her consent to the processing of his or her personal data and that he or she has obtained, beforehand, information relating to all the circumstances surrounding that processing, in an intelligible and easily accessible form, using clear and plain language, allowing that person easily to understand the consequences of that consent, so that it is given with full knowledge of the facts'.[30]

Accordingly, in the realm of proctoring technologies, if students consent to the processing of their data without knowing all the different purposes in full, which they received in an easy-to-understand form, then that consent would not constitute legal grounds for processing as it was not given in a specific, informed, and unambiguous way. It is unlikely that students know all the purposes for which the data will be processed, as even the higher education institutions that are joint controllers might not know the further uses for which the service provider may use it.

The need of personal data processing for the negotiation, formation, and performance of a contract also constitutes lawful processing, although this has been interpreted in an expansive manner. While it is clear that, in order to enter into a contract, identity and other personal data needs to be exchanged, the idea that some ancillary activities (where processing of data becomes the main purpose of them) are necessary for the performance of the contract stretches these legal grounds too far. In the case of the proctoring technologies, the fundamental error resides in assuming that an exam, per se, is needed for the performance of the alleged contract between students and higher education institutions, an issue that permeates all the (therefore) flawed legal analysis. As previously stated, if we assume that there is a contract between exam-takers and the exam-giving institution, as it is based on purely standard clauses with the exam-takers considered consumers of a service, the whole contract would be subject to the Consumer Rights Act 2015 and its requirement of the terms being fair.

The third legal basis for lawful processing, as established by Article 6 of the GDPR, is the situation where the data controller has a legal obligation for which specific personal data must be processed. Here the issue of section 3 of the EU (Withdrawal) Act 2018, including the recitals (but not having modified them), becomes relevant. Recital 45 states that 'where processing is carried out in accordance with a legal obligation to which the controller is subject or where processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority, the processing should have a basis in Union or Member State law'. This being the case, application to the UK is disputable.

Although it is clear that the fourth ground for lawful processing – the protection of the vital interests of a natural person – seems not to be related to the use of proctoring systems, it is worth mentioning that the natural person can be some entity different from the data subject. One could stretch the interpretation by saying that integrity of assessment is

[29] C-61/19.
[30] Ibid. at para 53.

needed to protect, for example, the vital interests of the future patients of a medical student. However, note that assessment does not equate to an exam, and that vital interest is usually understood as someone's life being in danger – for example, an ambulance crew accessing the personal data of a person who suffered an accident. The situation of the medical student assessment could actually be linked to the legal ground found in Article 6 (1)(e): a task carried out in the public interest.

Article 6 (1)(e) says that processing personal data would be lawful if 'necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller'. While the implication of the section is that, as in the Data Protection Directive,[31] public interest is still a reason for lawfully processing personal data. However, Recital 45 of the GDPR establishes that the EU or member states need to further define if the activity has to be performed by public authorities or by another natural or legal person governed by public law (or even by private law, as in the cases of professional associations). The use of proctoring technologies for online exams has been understood to fit into this category, as universities are public institutions in several countries. They have been found to be public institutions even in countries where they are technically non-profit organisations, as established in the UK in *R (on the application of Ben-Dor & ors) v. University of Southampton*.[32] Note that professional associations are expressly included in Recital 45. Furthermore, the first case testing the lawfulness of the use of proctoring technology for online exams during the pandemic was decided on these legal grounds.

In the case *C/13/684665/KG ZA 20-481*, the Amsterdam Court of First Instance decided that the processing of data carried out by the University of Amsterdam was lawful, using Article 6 (1)(e). The argument was that that measures against COVID-19 did not allow for suitable alternative forms of conducting the exams, and the university argued that 'proctoring [was] used if no other assessment methods [were] possible, as [it was] the case with bachelor exams for large groups (more than 150 students) that [were] aimed at knowledge reproduction, and for resits (due to susceptibility to fraud)'.[33] It could be argued that the case was wrongly decided, not due to the strict application of Article 6 (1)(e), which seems correct as presented, but in taking the University of Amsterdam's statement at face value, when it is highly disputable that no other assessment methods were possible, particularly for large groups. The case represents a worrying development in which fundamental rights, as they are recognised in the GDPR, can be set aside in the face of an emergency, privileging a far lower-level administrative decision, which is the status of the issue of methods of assessment. This logic seems to directly contradict the dictum of the European Court of Justice in *Schecke*,[34] where the Grand Chamber clearly stated that, when there were

[31] Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data.
[32] [2016] EWHC 953 (Admin).
[33] Machine translation of the decision at para 4.8, <https://gdprhub.eu/index.php?title=Rb._Amsterdam_-_C/13/684665_/_KG_ZA_20-481>.
[34] Joined Cases C-92/09 and C-93/09 Volker und Markus Schecke GbR and Hartmut Eifert v Land Hessen. Judgment of the Court (Grand Chamber) of 9 November 2010.

available options that did not infringe rights, it would be unlawful to pursue those that did. It could be argued that it is not the place of the judge to make academic decisions, which the methods of assessment are; nevertheless, by accepting the University's argument that no other assessment methods were possible, that academic decision was made by the judge. Therefore, the ruling wrongly established that the University of Amsterdam's decision to use proctoring technologies, recognising that it affected privacy and data protection rights, was 'necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller', as per Article 6 (1)(e). In fact, it was not necessary, considering that there were better and more efficient assessment methods that did not infringe students' rights; if an emergency requires the change of a rule, it should be the rule that infringes less on people's rights the one changed.

Finally, Article 6 refers to legitimate interest as a lawful basis for processing personal data; GDPR Recitals 47 and 48 give some examples of legitimate interest. The whole legitimate interest issue seems to be devoted to explaining which rights override legitimate interests. However, the reference to the prevention of fraud as constituting a legitimate interest could be the one aspect relevant to online proctoring systems, although it would be valid under the disputable assumption that all exam-takers need to be treated as if they were prone to cheating.

3.2 Human rights implications of the presumption of guilt

Beyond the data protection concerns that the use of online proctoring encompasses, there is the deeper issue of the presumption of guilt included in the use of the technology. The European Convention of Human Rights (ECHR), incorporated into the UK by the Human Rights Act 1998 (HRA 1998), establishes in its Article 6 the presumption of innocence; universities are bound to comply with the ECHR under s. 6 of the HRA 1998, following the already mentioned case of *R (on the application of Ben-Dor & ors) v. University of Southampton*. However, to force an exam-taker to undergo a thorough check of his or her living environment, to keep that exam-taker under observation during the whole duration of the exam with a level of scrutiny not observed in more impactful and relevant activities, and to do all this using scarce university financial resources surely implies that the exam-giver sees the students intrinsically as cheaters.

In that respect, the University of Amsterdam's submission to the Amsterdam Court of First Instance, in the case already mentioned, makes clear the assumption of guilt when it justifies the use of proctoring by saying that other forms of assessment are not possible in 'resits (due to susceptibility to fraud)'. The statement as such has no entity, since resits are, and indeed must be, different from the original assessment and, affirming that there is susceptibility to fraud, implies that resitters are more prone to it.

The same violation of the principle of innocence is pervasive in the marketing of the proctoring vendor, with its overemphasis on exam-takers cheating if unsupervised, and the widely quoted study about a Meta-Analysis of Test Scores in Proctored and Unproctored

Ability Assessments.[35] The study is a rigorous analysis of thousands of cases to make inferences that are presumed but not proven from the data, as a high standard deviation in unproctored assessments on tasks that are easy to find on the internet does not, per se, demonstrate that the exam-takers actually cheated. They may have cheated, or there may be several other reasons why exam-takers who do not have the pressure of being constantly observed perform substantially better than in other circumstances. But the key point is assuming a conclusion about the guilt of an exam-taker where no evidence in that respect exists, clearly contravening Article 6 (2) of the ECHR as explained by the European Court of Human Rights *in Minelly v Switzerland*[36] or *Allenet de Ribemont v France*.[37] The AI-based proctoring technologies take the presumption of guilt a step further, as the system may have the authority to stop the exam if it 'observes' behaviour that does not conform to the expected pattern. Here again, while exam-takers can look away from the screen and camera to read unauthorised materials, they can also do so for other reasons; the need to do so due to some form of disability is an important one.

Due to the intrinsic characteristics of the technologies grouped into what is called AI, regardless of the amount of training sets that an algorithm is fed, the given pattern in machine learning or the found pattern in deep learning technologies are likely to lead to the conclusion that an exam-taker looks to the sides in order to cheat. One of the fundamental issues faced by AI in general, which is the failure to acknowledge situations that are motivated by reasons outside the given or found framings, leads to an unsolvable situation where its use violates fundamental rights, such as the principle of innocence and the right to individuality. As stated by the Council of Europe's Commissioner for Human Rights, 'human rights should be strengthened by AI, not undermined'.[38]

3.3 Anti-discrimination law and proctoring

The use of online proctoring technologies, particularly those where the system automatically decides in relation to the alleged behaviour of the exam-taker, can, in certain cases, be contrary to the Equality Act 2010, which, in its s. 92(2), makes it unlawful to discriminate in the services one provides or offers to provide. Its s. 92(6) creates a duty to make reasonable adjustments – the test of reasonableness being an objective one in this situation – following *Smith v Churchill's Stairlifts plc*.[39] It is necessary to point out that a higher education institution will need to make certain adjustments even if it does not completely remove the disadvantage of the student, as established in *Noor v Foreign and Commonwealth Office*.[40]

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[35] Steger, D., Schroeders, U., Gnams, T., 'A Meta-Analysis of Test Scores in Proctored and Unproctored Ability Assessments' (2020) 36 1 European Journal of Psychological Assessment 174.
[36] (1983) EHRR 554.
[37] (1995) 20 EHRR 557.
[38] Council of Europe Commissioner for Human Rights, *Unboxing Artificial Intelligence: 10 Steps to Protect Human Rights* (Council of Europe, 2019).
[39] [2006] ICR 524.
[40] [2001] ICR 695.

A system that decides to stop an exam from taking place due to the exam-taker persistently looking in a different direction, and even more so if the exam-taker leaves the area that is visible to the camera, could be found to be discriminatory against a parent who attends to a young child, a person who cares for an elder, and anyone who cannot look straight at a screen for long periods of time due to a medical condition. It can probably be argued that the conflict between online proctoring technologies and characteristics protected by the Equalities Act 2010 becomes more evident in relation to race.

There have been multiple reports of students with dark skin where systems failed to properly identify them – one of the main reasons for using the technology – and forced them to take extra measures to ensure that they complied with the requirements of the technology. In addition to having to go through the identification process more than once to allow the system to recognise their face, exam-takers with dark skin have reported having to keep a bright light on their face for the system to work properly, which put them at a disadvantage vis-à-vis other students and forced them to look aside often, triggering the system to believe that they were cheating.[41]

Woldeab and Brothen[42] reported that students with high test anxiety traits had increased levels of discomfort with online proctoring, and that the situation resulted in those students receiving lower scores. 'This interaction resulted in some students being disadvantaged by a common feature of online test monitoring services'.[43] Under certain circumstances, anxiety can be considered a disability based on the terms of the Equality Act 2010 s. 6(1)(a), as explained in *Mitchell v London Borough of Islington*.[44] The Woldeab and Brothen findings imply that using online proctoring technologies when a student has high anxiety traits would constitute direct discrimination, as prescribed in s. 13(1) of the same Act of Parliament.

This article could be devoted to examples where the use of online proctoring technologies *de facto* treated less favourably people who had one of the protected characteristics found in s. 4 of the Equality Act 2010. All these are exacerbated by the fact that reasonable adjustments can be made in a way that fulfils the purpose of evaluation in higher education institutions, which is to assess students' attainment of expected learning outcomes. Such adjustments can be carried out, probably better and with more integrity, by simply changing the assessment method and relegating exams to the history of universities.

4. Pedagogical issues with online proctoring

There is a clear and accepted understanding that students' knowledge and skills need to be assessed, and also that there has to be an assurance of the integrity of the process. The

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[41] Caplan-Bricker, 'Is Online Test-Monitoring Here to Stay?' (*The New Yorker*, May 272021) <https://www.newyorker.com/tech/annals-of-technology/is-online-test-monitoring-here-to-stay> accessed 1 October 2021.
[42] Woldeab, D., and Brothen, T., '21st Century Assessment: Online Proctoring, Test Anxiety, and Student Performance' (2019), 31(1) International Journal of E-Learning and Distance Education.
[43] Ibid at 8.
[44] ET Case No: 2206891/2018.

field of student assessment in higher education is one populated with studies and debates, particularly in relation to whether the methods used to assess students is related to student learning or with institutional and teacher preferences.[45] Assessment for learning has been a common thread in recent years, and it rests on the understanding that assessment plays a fundamental role in the learning process of students in and beyond the classroom.[46]

Assessment is traditionally divided into formative assessment and summative assessment; the former is one where students learn from tasks via feedback and feedforward, and the latter refers to the evaluation of students' achievements, many times at the end of a class or module. Formative assessment deals with assessment *for* learning, and summative assessment is referred to as assessment *of* learning. The usual methods employed for summative assessment include tests, essays, final presentations, projects, and exams. From this group, it can be argued that exams represent the method that is more focused on the assessment *of* learning; leaving aside the potential learning motivated by the expectation of the assessment and the feedback that students may receive, it has the lowest impact on the learning of the exam-takers.

It could be said that exams exhibit a behaviourist model that is centred on the teacher and not on the learner, where the learner is required to perform a reactive role as he or she responds to the environmental conditions offered. Therefore, exams deter the development of information presentation in a comprehensive and reflected manner when dealing with issues that, in real situations, would require drafting and re-drafting.[47] Nevertheless, academics throughout the world use exams as the main form of assessment;[48] the reasons stated go from feeling that exams treat all students in the same manner, particularly when the questions are the same or similar every year, to the belief that they have a positive influence on learning while incorporating appropriate feedback and feedforward.[49]

Behaviourist paradigms focus on education as transmission of knowledge, but in the last half century there has been a shift towards constructivist theories that see education as a transaction where knowledge and skills are built in the interaction of the learner with the teacher, the materials, the institution, and the learner's peers.[50] From Dewey's belief that education takes place when someone's personal life interacts with external conditions,[51] teaching evolved into a system where the transmission of theories in lectures became the

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[45] Webber, K.. 'The Use of Learner-Centered Assessment in US Colleges and Universities' (2012) 53(2) Research in Higher Education 201.
[46] McGinnis, P., 'Engaging Students in Learning Through Assessment' (2018) 41(5) Science Scope 1.
[47] Carless, D., *Excellence in University Assessment* (Routledge 2015).
[48] Ibid.
[49] Einig, S., 'Supporting Students' Learning: The Use of Formative Online Assessments' (2013) 22(5) Accounting Education 425.
[50] Maharg, P., *Transforming Legal Education. Learning and Teaching the Law in the Early Twenty-first Century* (Routledge 2007).
[51] Dewey, J., *The Later Works of John Dewey, Volume 13, 1925–1953: 1938–1939, Experience and Education, Freedom and Culture, Theory of Valuation, and Essays*, edited by Jo Ann Boydston (Southern Illinois University Press 2008).

starting point to a process in which students received a conceptual framework for further reading and encouragement for learning, following Gower's criticism of lecture teaching in legal subjects,[52] adding the presentation of examples to create vicarious experience.[53] Of course, when many current teachers were students behaviourism was the implicit mainstream pedagogic paradigm. The problem with constructivist models is that they require academics of different disciplines to go through the difficult task of unlearning the process that is embedded in their professional development.[54]

The design of an assessment strategy that is integrated with the learning process needs to take into account the characteristics of the students,[55] to which it is necessary to add that it becomes imperative in order to achieve truly transactional education with aspects of transformation, which is the aim of current higher education practice. The realisation that traditional assessment methods – especially exams – do not meet the needs of a diverse group of learners is not new. That recognition indicated the necessity to search for alternative assessment methods that were part of truly transactional and transformational education, but the means to achieve it were not readily available. Nowadays, technology can provide the instruments to carry out alternative forms of assessment that fulfil the requirements of being reliable, valid, cost-effective, accepted, and with appropriate educational effect while evaluating students' fulfilment of learning objectives, all the while respecting learners' diversity and personal circumstances. It also facilitates the design of assessment methods with co-creational aspects in them, including the learner's interests, background, career plans, access to data, previous knowledge, and expectations. In this way, the constructivist approach can enhance both content and value.[56]

The internet, virtual learning environments, smartphones, and social networks allow the design of alternative assessment methods that can foster a transformational effect on higher education. But these forms of assessment have traditionally met resistance from teachers and quality assurance units for a variety of reasons. One key issue is that of over-assessment. The institutionalisation of the concept of over-assessment has resulted in methods of assessment being evaluated by the number of evaluations instead of by the weighting on the overall course load and the educational effect that they represent. In that way, a single exam at the end of the term was preferred over three or four different smaller methods conducted during the term that, in addition to testing different skills, permitted timely feedback and feedforward. The eruption of the COVID-19 pandemic, with the alleged issues of integrity that affected exams conducted online, created conditions for the rapid and almost forced transition to alternative forms of assessment, tearing down the resistance of academics and quality assurance units. Online proctoring appeared to offer the opportunity to keep the status quo, adding the infringement of rights mentioned

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[52] Gower, L 'English Legal Training' (1950) 13 Modern Law Review.
[53] Ramsden, P., *Learning to Teach in Higher Education* (2nd edn, Routledge 2003).
[54] Morris, R. 'Not Thinking Like a Nonlawyer: Implications of 'Recognisation' for Legal Education' (2004), 53(2) Journal of Legal Education.
[55] Johnstone, R. (Ed.). *Printed Teaching Materials: A New Approach for Law Teachers* (1st edn, Routledge-Cavendish 1996).
[56] Dollinger, M., Lodge, J., Coates, H., 'Co-creation in Higher Education: Towards a Conceptual Model' (2018), 28 (2) Journal of Marketing for Higher Education 210.

before to the persistence of an assessment method designed for students from the same homogeneous elite background that represented the majority of students when most of the academics were students themselves.

Due to the reasons previously outlined, online proctoring shows that institutions ask students and those who pay for their education to trust them with their future, but they do not trust the learners whom they are forming. This undermines the integrity of the teacher–learner relationship, paradoxically, in the name of integrity. Students are encouraged to use various technologies to seek knowledge, but the use of those technologies to find information and knowledge is considered cheating in most assessments, implying that what is being tested is the capacity to memorise and remember information and not the ability to use it in a meaningful way.

In order to preserve the exam as the main form of assessment by using online proctoring technologies, higher education institutions risk sending the message to their students that universities are willing to compromise diversity, equality, and inclusion in the name of an alleged and unmeasurable integrity. As already explained, some proctoring platforms have been reported to fail to properly identify students with darker skin,[57] and others require identification via government-issued IDs, creating problems for undocumented students and for those whose chosen gender is different from the one with which they were born,[58] while all versions of proctoring tend to elevate the level of anxiety for students sitting exams.[59] This may explain the deviation found by Steger et al.[60] more than the presumed (and unproven) tendency to cheat in unproctored exams.

5. Conclusion

The COVID-19 pandemic represented a systemic shock at the planetary level that affected most aspects of social life and caused an increase in the cost of many activities. At the same time, it exacerbated some existing trends, forcing hundreds of millions into poverty and even more into precarious employment.

Higher education was no exception to the situation, absorbing a severe impact on their financial and operational fronts, with effect also on the academic and pedagogic aspects of

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[57] Harris, M., 'A student says test proctoring AI flagged her as cheating when she read a question out loud. Others say the software could have more dire consequences' (*The Insider*, 2 October 2020) <https://www.insider.com/viral-tiktok-student-fails-exam-after-ai-software-flags-cheating-2020-10> accessed 29 September 2021.

[58] Swauger, S., 'Remote Testing Monitored by AI Is Failing the Students Forced to Undergo It', (*NBC Think* 7 November 2020) <https://www.nbcnews.com/think/opinion/remote-testing-monitored-ai-failing-students-forced-undergo-it-ncna1246769> accessed 29 September 2021.

[59] Chin, M., 'Exam Anxiety: How Remote Test-Proctoring Is Creeping Students Out' (*The Verge* 29 April 2020) <https://www.theverge.com/2020/4/29/21232777/examity-remote-test-proctoring-online-class-education> accessed 29 September 2021.

[60] Steger, D., Schroeders, U., Gnams, T., 'A Meta-Analysis of Test Scores in Proctored and Unproctored Ability Assessments' (2020), 36(1) European Journal of Psychological Assessment 174.

their work. To that needs to be added the necessity to rapidly adapt delivery of their teaching under lockdown rules, implying a massive shift towards online teaching and learning.

To the many challenges of teaching online, the difficulty of using traditional methods of assessment, such as exams, in virtual environments became apparent, with many institutions resorting to online proctoring technologies.

Online proctoring technologies include a vast array of systems with different features, but those that claim to guarantee the integrity of the exams have the capacity to record the exam-taker's environment (including images and sound) to monitor keyboard strokes, mouse movements, web browsing data, and background applications, and to analyse breath and eye movement. They may even have the authority to decide if a student is cheating and stop the exam.

The use of the described technologies has legal consequences, with potential violations of data protection legislation, particularly UK GDPR and DPA 2018. The data captured by the proctoring technologies constitutes personal data. Both the higher education institution and the proctoring service providers can be joint data controllers, while the system vendor is in most cases the data processor. The lawfulness of the processing is highly disputable, taking into account the existence of methods of assessment that, in addition to having a better education value, do not infringe students' rights. This use also seems to contradict basic principles of law and human rights legislation by presuming that the exam-takers are bound to cheat, reversing the burden of proof. The aforementioned proctoring technologies also have the potential to infringe anti-discrimination law, as their normal functioning results in treating less favourably people with protected characteristics.

Finally, the use of online proctoring technologies seems to favour the continuation of assessment methods – like the exam – that are not conducive to assessment of learning nor support transactional and transformational education, precluding the development of alternative methods of assessment that are truly inclusive and that foster the advancement of a diverse student population.