

ONLINE REMOTE EXAMS IN HIGHER EDUCATION: DISTANCE LEARNING STUDENTS' VIEWS

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Abstract

As a result of the Covid-19 pandemic, universities had to re-structure their assessment design, policies and processes. Challenges involved consideration of subject-specific issues, the need to secure access to technology and evaluate staff skills, ensure that assessment standards are met, and finally, gauge student expectations and personal circumstances. The assessment conversation addressed urgent needs but also created success stories and opportunities for radical changes to become possible. This study aimed to explore the views of students at a major distance learning university in the UK about participating in online exams as a replacement to the common pre-covid practice of taking face-to-face exams at local centres appointed by the university. The study drew from survey responses of 631 undergraduate students. The majority of the survey respondents showed a clear preference towards online remote exams over the face-to-face alternative. Female students, students who reported mental health concerns or travel stress were more likely to support the idea of online exams, as opposed to students who reported technical difficulties or issues with access to the internet. The present findings identify positive areas of perception and benefits that could help develop and frame an online assessment strategy for temporary and permanent university distance learning programmes.

Keywords: Online exams, remote exams, assessment, higher education, distance learning.

1 INTRODUCTION

The onset of the Covid-19 pandemic during March/April 2020 required all higher education institutions (HEIs) to address the format of their examinations. Most countries, including the UK, imposed a lockdown of their population ensuring that all HEIs were required to move away from the traditional face-to-face examination that most had deployed previously [1]. A significantly greater reliance on offering examination via various on-line routes became the norm [2, 3]. How HEIs were able to adapt to this change varied considerably. Some HEIs already possessed systems and processes that could be utilised or adapted [4] others developed internal systems or processes themselves and others utilised external systems to offer on-line exam capability [5].

Over the last two years HEIs have made significant progress in assessing how well on-line exams have worked and identifying the issues that having on-line exams present. Particularly in 2020 most institutions offered a “no-detriment” policy ensuring that students could not be seen to be disadvantaged in having their mode of examination changed to an on-line one [6]. HEIs analysed student’s performance and results and where possible compared to that of previous cohorts of students to ensure that the marks that students received were comparable. Such information was fed back to organisations such as the Quality Assurance Agency (QAA) in England to ensure that students were not disadvantaged. Some particular advantages of online exams are that they have been shown to be more equitable and have served to reduce attainment gaps [2].

Since 2021 HEIs have been identifying how, they, as institutions, and more importantly their students, perceive the exam landscape moving into the future. It is clear that the experiment of having exams delivered in an online format have allowed institutions to question what is the most appropriate format for the future [7] There remains a number of issues that institutions as a whole are grappling with including how best to ensuring that plagiarism and the use of “essay-mills” is prevented [8], concerns over the deployment of digital invigilation/proctoring tools [4, 9], how to ensure that students without the necessary access to the best technology are not disadvantaged and how to make sure that students have a similar exam experience regardless of the environment in which they are working [10].

In particular, current studies report on tutors’ considerations when implementing online exams and recommendations on how to improve their approach. For example, St-Onge et al. [7] explored tutors’ perceptions on the implementation of online exams in a Canadian HEI. They identified that the interviewees when questioning the most appropriate online exam format were concerned about the potential consequences on students, potential cheating, the importance of pedagogical alignment, and

available affordances for the transaction. Tuah and Naing [10] in their secondary research study drew recommendations on how educators can better prepare for online exams, for example, by considering student diversity and readiness, as well as cheating practices when employing online assessment.

Further research focused on the experiences of students who already had online exams, and more specifically on their stress levels and their attitudes towards e-proctoring. For instance, Elsalem et al. [8] evaluated medical science students' experience of online exams in Jordan. Their findings report increased stress with this type of exam, associating stress with the field of study and gender. Further, they identified factors that related to stress such as the exam duration, mode of question, navigation, technical problems, the exams' environment, and students' dishonesty. Adding to knowledge on students' experience, Kharbat and Abu Daabes [9] explored the attitudes of students, in two Abu Dhabi HEIs, towards using an e-proctoring tool, and the impact of that approach on their performance. The study's focus groups and surveys with students highlighted their concerns over privacy, and other environmental and psychological factors, but did not indicate lower academic performance. Student feedback has overall been supportive of the online format that was required as a result of the pandemic, however little work has occurred assessing what students' views of the future exam delivery mode might be, and especially in HEIs that deliver distance learning programmes.

The aim of this study is to extend and shed new light on current knowledge about online remote exams in higher education. For this purpose, we explored university students' views on online remote exams at The Open University, an institution with a long tradition of distance learning in the UK. The Open University supports a learning model that involves delivery of courses via virtual learning environments, online tutorials, and small tutor groups. Pre-pandemic, modules predominantly comprised two elements: continuous assessment during the module managed via the VLE and an end of module assessment that was either a face-to-face exam or some form of assignment or project work, essay or report submitted via the VLE. Approximately 24% of the courses ended with a face-to-face exam. This face-to-face component was removed during the pandemic, and is currently being replaced with remote open book style exams, with future plans to move onto an online exams model.

To understand students' experiences and views on the current and prospective model of online remote exams we explored the following research questions (RQs):

- 1 Why are students attracted to or dissuaded from online exams as a replacement to their face-to-face exams?
- 2 Which students' personal circumstances influence their preferences on exam types?
- 3 What demographics, study information and personal circumstance relate to students' views on replacing their face-to-face with online exams?

2 METHODOLOGY

For the current study, we recruited students of any year and faculty at The Open University to take part in an online survey. Prior to completing the survey, the respondents were provided with an online information sheet. The survey ran between 5-23 April 2021 and received 631 responses. The dataset was anonymised on the 1st of July 2021, prior to initiating the process of data analysis.

2.1 Data Collection

An open-ended exploratory question invited students to report what would attract them to or dissuaded them from online exams as a replacement to their face-to-face exams (RQ1). Moreover, collected data included student responses in a 4-item Likert scale, ranging from 1 (no impact) to 4 (high impact), with an extra 'not applicable' (N/A) option, exploring personal circumstances that might have affected their preferences on exam types. The selection of statements drew from recent research conducted during the Covid-19 pandemic with students from the same university, that show which personal circumstances affected their study [11]. The survey respondents self-responded their background (gender, age group and discipline). In order to identify any differences in students' choice on the preferred type of exams among student groups (RQ2, RQ3), students' self-reported background information and personal circumstances were used. Table 1 presents the demographics and study information for all the 631 survey respondents.

Table 1. Demographics and study discipline of survey respondents (n = 631).

<i>Demographics</i>	<i>Frequency</i>	<i>Discipline/Faculty</i>	<i>Frequency</i>
Gender		STEM	189 (30%)
Female	385 (61%)	WELS	63 (10%)
Male	240 (38%)	FASS	259 (41%)
Other	6 (1%)	FBL	51 (8%)
		Open degree	38 (6%)
Age group		Unknown	13 (2%)
Under 25	70 (11%)		
26-35	139 (22%)		
36-45	132 (21%)		
46-55	138 (22%)		
56 or over	152 (24%)		

The requested demographic information included gender, age group and faculty. Faculty included Arts and Social Sciences (FASS); Science, Technology, Engineering and Maths (STEM); Wellbeing, Education, Languages, and Sport Studies (WELS); Business and Law (FBL).

2.2 Data Analysis

In the first phase of the analysis, content analysis was used for making valid inferences from the survey respondents' open-ended responses focusing on the meaning in context [12]. The authors went through students' comments and ascribed descriptive code to each comment. The codes presented reasons that attract or dissuade students from online exams as a replacement to their face-to-face exams (RQ1). Early frequencies and patterns were identified contributing to the construction of over-arching categories (themes). The codes and themes were reviewed and agreed upon by all the authors and then used to code all the data. The frequency of each code and theme were calculated, and the latter is displayed in this study's results.

In the second phase of the analysis, visualisations and descriptive statistics were used to depict the responses to the personal circumstances Likert scale. To determine how gender, age group and discipline relate to participants' responses in the Likert scale, independent-samples t-test and Analysis of Variances (ANOVA) were performed. Scheffe post hoc tests confirmed flagged differences between groups detected by ANOVA. In the cases that Levene's F test revealed that homogeneity of variance assumption was not met, Games-Howell test was used (Q2). Then, to determine how gender, age group and discipline relate to their choice of exam type, chi-square tests were performed (Q3). An alpha level of .05 was used for all the analysis.

3 RESULTS

3.1 Online remote exams as a replacement to face-to-face exams (RQ1)

Nearly three in four students (74%) reported that they would like remote exams to replace their face-to-face exams at The Open University and 17% reject the idea. The rest (9%) consider that this decision does not apply to them and their exams.

Findings from examining student decision of supporting the idea of remote exams among students in different groups indicated that reasons that attract students to replacing their face-to-face exams include travel stress and avoiding the exam centres and reasons that dissuade them from online exams include the inappropriate home environment, invigilation and marking concerns. The following tables summarise the main reasons that attract (Table 2) students to and dissuade (Table 3) them from online exams in overarching themes and sub-themes:

Table 2. Main areas that attract The Open University students to online exams, categorised in main themes and in descending order of importance (n = 449).

Themes	Sub-themes	Quotes
Travel (41%)	Money consuming, time consuming (arrangements and traveling), stressful, lack of availability (e.g., no car, no flights), difficulties with parking, living outside the UK.	"I feel this will help people with low income, it will save them the expenses incurred in travelling to and attending face to face exams"
Exam centre (19%)	Noise, smell, lack of space (e.g., narrow desks or chairs), uncomfortable (no drink/toilet during the exam), unfamiliar location	"Students at college, school and university take their exams on campus. Therefore, are familiar with their surroundings and undertake the exams in their place of learning"
Mental health (18%)	Exams stressful and overwhelming	"I suffer from severe mental health issues and the pressure of face-to-face exams or exams in large halls causes significant anxiety"
Personal circumstances (13%)	Employment concerns, childcare concerns, disability	"You can take the day off work, but it is difficult to take the day off your children to travel to a nearby town or even stay the night out"
Covid-19 (8%)	Distress about socialising, concerns about conducting the virus	"After so many months of solitary lockdown I would find the presence of others around me and the inevitable coughing and shuffling distracting"
Flexibility (1%)	Distance learning university choice because of flexibility	"Students choose The Open University as it gives flexibility"

Table 3. Main areas that deter The Open University students from online exams, categorised in main themes and in descending order of importance (n = 112)

Themes	Sub-themes	Quotes
Inappropriate environment at home (41%)	Kids at home, distractions (Facebook, fridge), noisy neighbours, concerns about technical aspects	"Some people have kids at home and won't be able to concentrate"
(De)value of degree (22%)	Degree will not be credible, not good for my field, only if all universities do it	"Having online exams would devalue the degree to the point where other universities would not consider it to be at the same level (and same value) as the same degree from a brick university that has traditional exams"
Exam centre as an inspiring environment (12%)	Student experience, adrenaline, energy, special event, sense of accomplishment	"Doing them from home would reduce the adrenalin which is helpful in an exam situation"
Invigilation and rigorousness (11%)	Level of invigilation, others cheating	"Even if you restrict online access there are still books and anyone could be doing the exam"
Marking (10%)	Stricter, more rigorous	"There is a concerning question of whether my work will be assessed more rigorously in comparison to previous years, due to the fact that the exam is taking place at home"
Exams circumstances and equality (2%)	Each student has different settings	"In 'face to face' exam conditions - everyone has the same settings. We rely on our knowledge, revision the clock, quiet space, have exactly the same materials and exactly the same desk space."
Revision (2%)	Revision discouraged	"The notion of a face-to-face exam encourages you to revise thoroughly, hence revising all material. Alternatively, if an exam was in a home setting all of the course materials are to hand, and hence you are not getting the full benefit of revision"

3.2 Personal circumstances (RQ2)

Irrespective of whether they had taken an online exam or not, all respondents were asked their preference for online or face-to-face. The type of personal circumstance that influenced students' preferences on remote exams ($n = 622$) was employment constraints ($M = 2.31$, $SD = 1.14$), followed by mental health ($M = 2.21$, $SD = 1.17$). Other important factors include circumstances related to the technology and physical space that students use for their study, such as access to internet connection ($M = 2.13$, $SD = 1.05$), technical difficulties ($M = 2.11$, $SD = 1.03$), no access to a quiet space ($M = 2.11$, $SD = 1.09$) and confidence in using video conferencing software ($M = 2.01$, $SD = 1.06$). The least important factor was household competition to devices ($M = 1.49$, $SD = 0.86$). These data show there may be a number of issues the university would need to plan for when considering widespread implementation of online exam assessments.

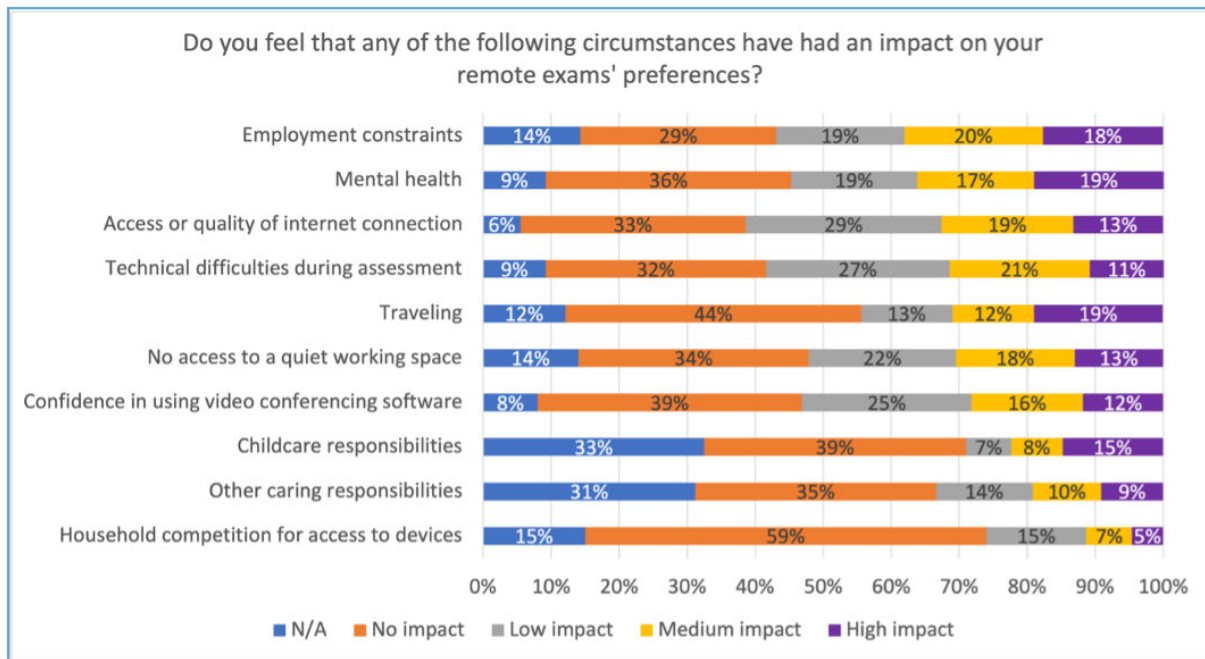


Figure 1. Personal circumstances that had an impact on survey respondents' choice on exams type ($n = 622$)

Findings from examining the impact of students' personal circumstances on their choices among different groups indicated that:

- Female students were more likely than male to report higher impact on their preferences because of childcare responsibilities ($t [366.24] = -2.53$, $p = 0.012$), not finding access to a quiet working space ($t [245.16] = -2.10$, $p = 0.04$) or good quality internet connection ($t [566] = -2.20$, $p = 0.03$), their mental health ($t [543] = -4.72$, $p < 0.001$), their confidence in using video conferencing software ($t [475.48] = -2.39$, $p = 0.02$), and issue of traveling ($t [456,18] = -2.14$, $p = 0.03$).
- Students aged 36-45 were more likely than those of other age groups to select childcare responsibilities, while those ages 56 or over less ($F [4.41] = 14.52$, $p < 0.001$). The latter were less likely than those of younger ages to report no access to a quiet working space ($F [4.55] = 10.27$, $p < 0.001$), employment ($F [4.52] = 8.43$, $p < 0.001$) or mental health concerns ($F [4.55] = 10.55$, $p < 0.001$), and less likely than those aged 36-45 to report household competition for access to devices ($F [4.51] = 3.63$, $p = 0.006$).
- Social science (FASS) students were more likely than those in engineering and maths (STEM) to select mental health concerns ($F [5.52] = 3.59$, $p < 0.001$).

3.3 Demographics and personal circumstances (RQ3)

Exploring which demographics relate to students' views on replacing their face-to-face exams with online, we found that:

- Female students were more likely than male to support the idea of remote exams ($\chi^2 = 4.64$, $df = 1$, $p = 0.03$).
- There were no significant differences between students of different age groups ($\chi^2 = 3.62$, $df = 4$, ns).
- There were no significant differences between students in different disciplines ($\chi^2 = 15.37$, $df = 8$, ns).

Findings from examining student decision of supporting the idea of remote exams among different personal circumstances indicated that:

- Students who reported technical difficulties ($\chi^2 = 7.29$, $df = 1$, $p = 0.01$), or issues with access or quality of internet connection ($\chi^2 = 8.48$, $df = 1$, $p = 0.004$) to have a high impact on their decision were less likely to support the idea of remote exams.
- Students who reported mental health ($\chi^2 = 3.26$, $df = 1$, $p = 0.04$) or traveling ($\chi^2 = 8.17$, $df = 1$, $p = 0.004$) to have a high impact on their decision were more likely to support the idea of remote exams.
- There were no significant differences between students with higher and lower levels of impact focusing on childcare ($\chi^2 = 0.40$, $df = 1$, ns), other caring responsibilities ($\chi^2 = 0.3$, $df = 1$, ns), access to a quiet space ($\chi^2 = 0.52$, $df = 1$, ns), competition for access to devices ($\chi^2 = 1.89$, $df = 1$, ns), employment constraints ($\chi^2 = 0.60$, $df = 1$, ns), and confidence in using technology ($\chi^2 = 0.001$, $df = 1$, ns).

4 DISCUSSION

Positive experience around exam duration and time can be viewed as a matter of flexibility and student choice that alleviate the stress examinations can induce in students. When taken at home, this flexibility includes working without distractions from noise and other students, taking short breaks and the freedom from arranging and travelling to exam centres. The same flexibility can however potentially lead to poorer student choices when candidates spend double the time on their task, and even favour privilege for those who have that additional time to spend over those who don't. As discussed in Elsalem et al. [8] it can also favour those without unavoidable distractions from the home context.

Allowing for a limited time frame with some flexibility of completion but stronger focus on word limits could arguably be considered as more authentic and of greater employability value. Completing an assignment at a tightly defined day, time and time period is far closer related to traditional examination culture rather than to what might be expected in professional real life. The focus on word limits could be considered more akin to everyday work assignments such as in professional communication and management publications, reports or briefing notes. The option to use productivity tools that you might use in various professional contexts, and the ability to submit a well-presented paper as a result led some students to conclude that online exams taken at home are potentially better measures of student's 'ability in "real life"'.

Trust emerges as a multi-layered category in the results, as much as it emerges in assessment redesign work across HEI in the UK and Europe [3, 13]: from a student perspective, and as explained in other studies (e.g., [9]) it can become the trust of the institution in their students' academic integrity without invigilators breathing down their necks. A lack of trust from the same perspective can be expressed in terms of fairness, between students where those who cheat and get away with it also get better results, or as reputational within a course context, from inflated exam marks because of cheating, more difficult exam papers or different marking, or lack of invigilation. Trust in the institution is another key principle underlying many of the findings in this and other studies (e.g., [7, 9]); for the institution to provide stable technology and training, but also to safeguard the standards and value of the results and qualifications conferred to the students.

Similarly to Elsalem et al's [8] findings, this study also identified equipment and technical issues as dominant stress factors around exams. More specifically, these can relate to equipment, connection and support issues, but ultimately, by extension, also the design of assessment and what technical tools and operations a particular exam requires from the students taking it. Given the design of this study, it was perhaps inevitable that students compared potential new ways of delivering examinations with that they knew from the past, effectively considering the question in a binary comparison. It was not for the students to consider new ways of assessment student performance that are neither the exams of old nor the pandemic induced experimental approaches seen over the last two years. Whichever formats are chosen, ensuring that students are well equipped and trained to use technology that is relevant to the context and can be trusted to perform as expected is therefore a key requirement for successful online exams.

This also includes the support students can expect from traditional invigilators when things don't go to plan, and how institutions mitigate the impact from this in online conditions. Online exams taken at home means that operational impact consideration of the individual personal circumstances of the students are much more the students' responsibility - they have to do all the planning for undisturbed spaces and testing the equipment and connection. In an exam hall context, once a student has arrived, technology, physical space, access to internet, technical difficulties, access to a quiet space and confidence in video conferencing software are no longer their own but the invigilator's and provider's responsibility. This shift of burden from the institution to the students is underlying many of the results from this study and needs attention. The pressures arising from personal circumstances are most markedly expressed by women and the 36-45 age and it is no surprise to find childcare responsibilities and access to quiet spaces amongst the top mentions by either group.

Looking at attractors and detractors from online exams, two top the list: complexity of travel to exam centres (attractor) and inappropriate environment at home (detractor). Most other results have already been discussed above though there are two factors that warrant inclusion here because, even if only raised by few students, they touch on important principles that need consideration for future online exams:

Firstly, exams in examination halls have been reported by participants to require different ways of revising for the assignment, with home exams not getting 'the full benefit of revision'. While on the surface, such views are actually referring to the difference between closed and open book exams (both are already recognised practice), there is a more fundamental question that academic leaders in institutions must consider for their courses and students: what exams are actually for, and what kind of preparation is most beneficial in terms of personal growth and employability.

Secondly, exams taken in an exam hall could be seen to be more equal in terms of circumstances, where every student ends up in the same setting, quiet space, exam materials and even 'the same desk space'. Institutions would do well to consider the principle of equality jointly with that of equity, paying particular attention to for example the circumstances of individual students and student groups with protected characteristics. The same setting and exam condition does not automatically equate to equal access to student achievement and success, for which exams are an important component after all. As stated above, childcare responsibilities for example are experienced in greater measure by women and particular age groups.

Working through the implications of the findings in this study is particularly pressing at a time of paradigmatic change in how online exams are being seen in Higher Education in the UK and European contexts. It was the pandemic that required HEIs to find exam fixes in a world of lockdowns from February/March 2020. The strong support for online exams from students in this study gives institutions the mandate to review existing exams and consider different ways of assessment, or different modes of exams. These are ideally pandemic proof so that institutions and students can say with confidence that they have replaced temporary fixes with foresight as suggested by JISC [14]. The students also provided the key areas that institutions will need to pay attention to, preferably jointly with their students. Much of what has been raised here will contribute to a vision of future exams that are relevant, adaptable and trustworthy [14].

5 CONCLUSIONS

This study explored the views of 631 university students in distance learning higher education on the replacement of their face-to-face exams with online remote exams. The evidence from this study suggests that while the majority of the survey respondents show a clear preference towards online remote exams, there is no clear 'winner' as different groups of students reveal barriers and challenges in assuming a different exam model.

Our findings add to a growing body of literature on assessment in higher education overall and online exams in particular. The feedback provided by the survey assists The Open University to strengthen communication opportunities that enhance student awareness of measures available for the required and achieved quality assurance. Also, it urges the university to work towards designing systems that can effectively host online exams and support students in feeling confident with the technical aspects.

This study provides an agenda for universities with temporary and permanent distance learning programmes to develop or improve ways that students or particular groups of students are assessed, by providing positive areas of perception and benefits that could help develop and frame an online assessment strategy.

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