



Opening Up Assessment in the Age of COVID-19: Exploring the Utility of Online Open-Book Exams

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INTRODUCTION

COVID-19 has brought with it a tremendous sea-change in higher education globally. In our own department, it has brought us an opportunity to reconsider the way in which we approach assessment. The context for this work is a chemical engineering department in a research-intensive university located in central London. We have approximately 500 undergraduate students, 100 MSc students, 300 doctoral students, research fellows and research associates, and 100 members of professional and academic staff. Our undergraduate courses are comprised of between 15-20% female, and the majority male. We have a large number of students from East Asia (approximately 35-40% of our student population), with a slight majority from the European Union.

Open book exams are used minimally in our degree programmes with retention and knowledge being tested mostly through closed-book exams. Many arguments have been raised as to the viability of closed book exams over open-book exams for better preparing students for the world of work, (Green et al. 2016), but as a community of educators we have seemed comfortable with the status quo. The COVID-19 outbreak meant there was now a pressing need for us to reconsider how students could effectively be assessed under extraordinary circumstances.

In the UK, we were effectively nearing the end of the academic year when we were ordered into lockdown. Students departed for home, both nationally and overseas and we were left with only a few options to address assessment. We turned to an examination provision that comprised open-book examinations which were taken in a fixed, timed sessions. This raised several issues related to:

1. the use of open book exams which many students had not experienced as part of their university assessment;



2. the implication of staggered assessments, accommodating different time zones, given that a large proportion of our students are international;
3. using appropriate platforms to deliver and mark exams; and
4. providing pastoral care and support to students during their examination and study periods

This paper outlines our approach to these issues and the impact they have on our future assessment provision.

METHODS

A working group comprised of a small group of students and staff were tasked with trialling and finetuning a remote exam delivery and submission process to identify and resolve potential issues and difficulties. This resulted in a comprehensive guidance document that was communicated to all students and staff. The entire general cohort were then invited to test the process through a mock version of an exam, mostly to establish that they could access the internet, and download and upload exams successfully. Staff were invited to mark these mock exams to gain familiarity with online requirements and formats.

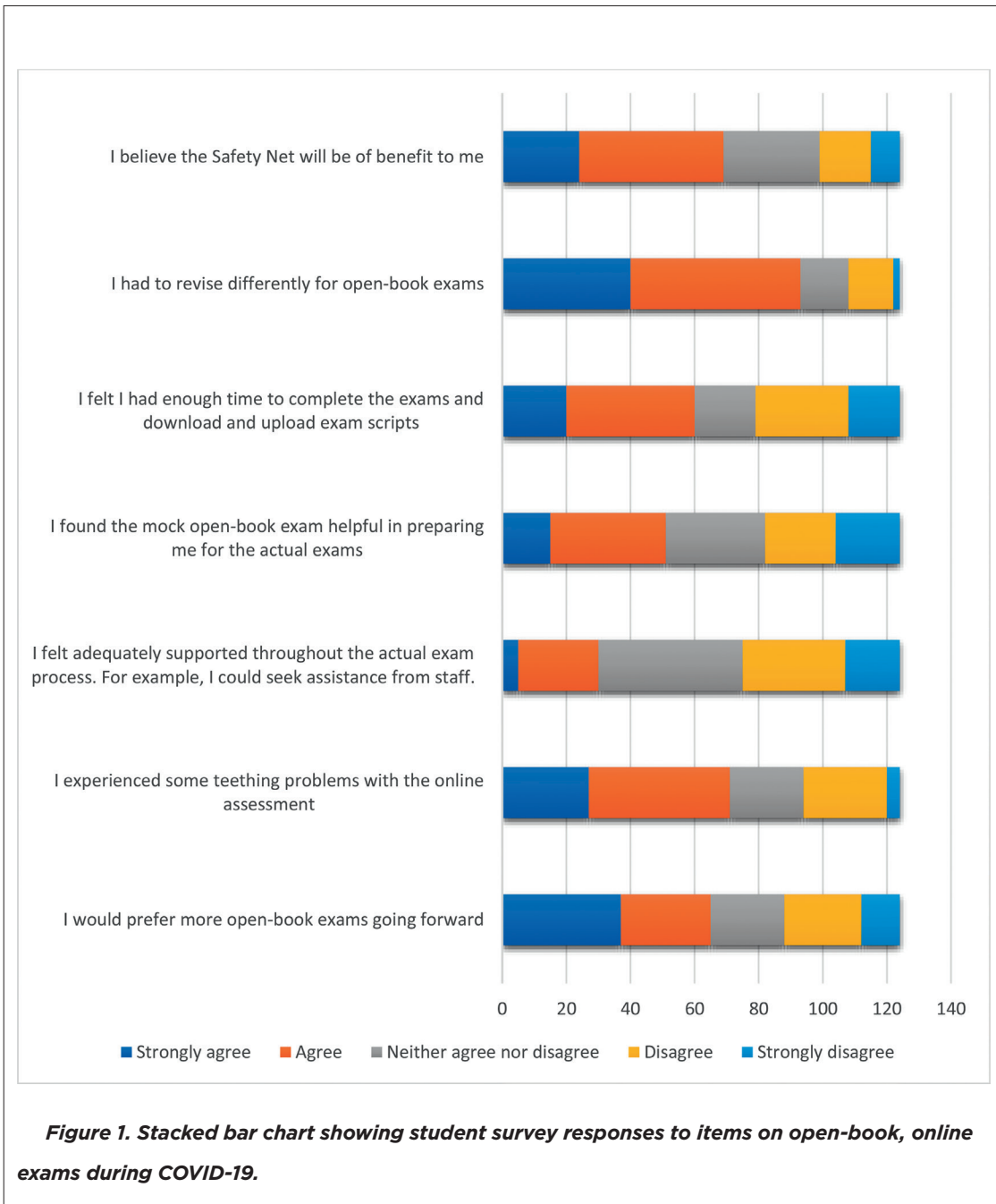
Lecturers were then asked to review their exams and modify these where necessary, to make them more enquiring and to ensure that students could still be challenged in line with our expectations of them. With the move to open-book exams, students were also advised to alter their patterns of study accordingly; we reinforced that the period of studying for forthcoming exams should not be undertaken at the last minute and students were asked to pay more attention to additional resources which could add depth and detail to their lecture notes as would be expected (Theophilides and Koutselini 2000).

A Safety Net policy was devised and operationalised by our institution to ensure student wellbeing, maintain quality and to mitigate the impact of Covid-19 as much as possible. The Safety Net constitutes a set of principles to mitigate the impact of COVID-19 on student exam preparation and performance. The Safety Net augments practices already approved for special situations in the institutional regulations and the terms of which were agreed by the Student Union and senior institutional managers. A couple of examples from the Safety Net Policy are provided:

- Students' 2019/20 academic year marks will be initially calculated on the basis of marks awarded for all assessments (pre- and post- COVID-19, defined as 13th Mar 2020).
- For year 1: in your graduating year, we will calculate the weighted average of your results as per Programme Specifications, thus taking all assessments and weightings into account.

PRELIMINARY RESULTS

The following responses were recorded from 124 student surveys (23% of the student population) as represented by Figure 1. Of these 124 students, the demographics can be broken down as



follows: 42 respondents from year 1 (28%), 41 respondents from year 2 (33%), 22 respondents from year 3 (20%), and 19 respondents from year 4 (18%).

Students were invited to submit open-text comments, some of which have been included in Table 1.



Table 1. Exemplar open-text comments from student survey on open-book, online exams during COVID-19.

Item	Exemplar open-text comment from students
I believe the Safety Net will be of benefit to me	<i>'Late submission rules were far too strict and cause undue stress when relying on external factors e.g. internet speed, when there was guidelines/ support given on how to quantify these problems as evidence in extenuating circumstances forms, which seemed very unreliable, over complicated and biased.'</i>
I had to revise differently for open-book exams	<i>'I did much less rote-learning for these exams than I did for previous years. Not having to worry about getting tripped up on small details gave me more time to focus more on problem solving and the bigger picture.'</i>
I felt I had enough time to complete the exams and download and upload exam scripts	<i>'Sufficient time should be given for answering the exams; open-book exams still require plenty of thought despite easy access to formulae and examples.'</i>
I found the mock open-book exam helpful in preparing me for the actual exams	<i>'If you have a mock exam let it represent the real exam.'</i>
I felt adequately supported throughout the actual exam process. For example, I could seek assistance from staff.	<i>'The fact that the exams were online should have allowed for a more dynamic response to any issues in the papers ... problems with papers we're not addressed until after the exam.'</i>
I experienced some teething problems with the online assessment	<i>'Need to find a better way of submitting our work online especially if there's a tiny mistake, we'd have to rescan everything again and this takes a lot of time.'</i>
I would prefer more open-book exams going forward	<i>'Open book exams work very well for some modules but not so great for other. It would be good if some open book exams were put in place when normal in college exams are in place again.'</i>

NEXT STEPS

Social distancing requirements in the new academic year means that our teaching will be delivered as a combination of on-campus (in-person) and remote learning (online) in the Autumn term and possibly beyond. This signifies that open-book exams may become a more regular feature of our assessment strategy. Student responses suggest they would benefit from better preparation and more information going forward if this became a regular occurrence, although they did respond favourably to the idea of conceptual learning that open-book formats support.

These responses and our own experiences over the past few months will allow us to reflect and enhance our assessment strategy accordingly. Furthermore, we need to consider other mechanisms of formative assessment and we may need to accelerate our adoption of associated technologies which have been slowly incorporating into our practice during the last few years. One of these is a mobile gaming application, which may come to the fore as a useful tool by providing immediate assurances of understanding among students through multiple choice quizzes (MCQs) (Wilson et al. 2011). We can also further legitimise coursework and projects, as a means of reducing the number of examinations and reinforcing the need for slow learning within our student cohort (Harland et al. 2015).



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