Pandemic Pedagogy Article Series

Liew Wai Yee has been a Biology lecturer in the Cambridge A-Level programme since 2008. She is keen on action research, aims to become a reflective practitioner, to enhance her teaching pedagogy and to enrich student's learning experience.

This case study explores students' perceptions of online examinations. It investigates the potential for using student feedback in the enhancement of the assessment.

Findings determine that students' online learning experiences and familiarity with online tools are key factors in influencing their perception of online examinations and that some students do not prefer a fully online examination system.

As a reflection, more integration of computer aided or web-based learning in daily lesson plans is suggested to better equip our students for this new norm. Enhancement of the online examination systems is also necessary to prepare for possible future pandemics.
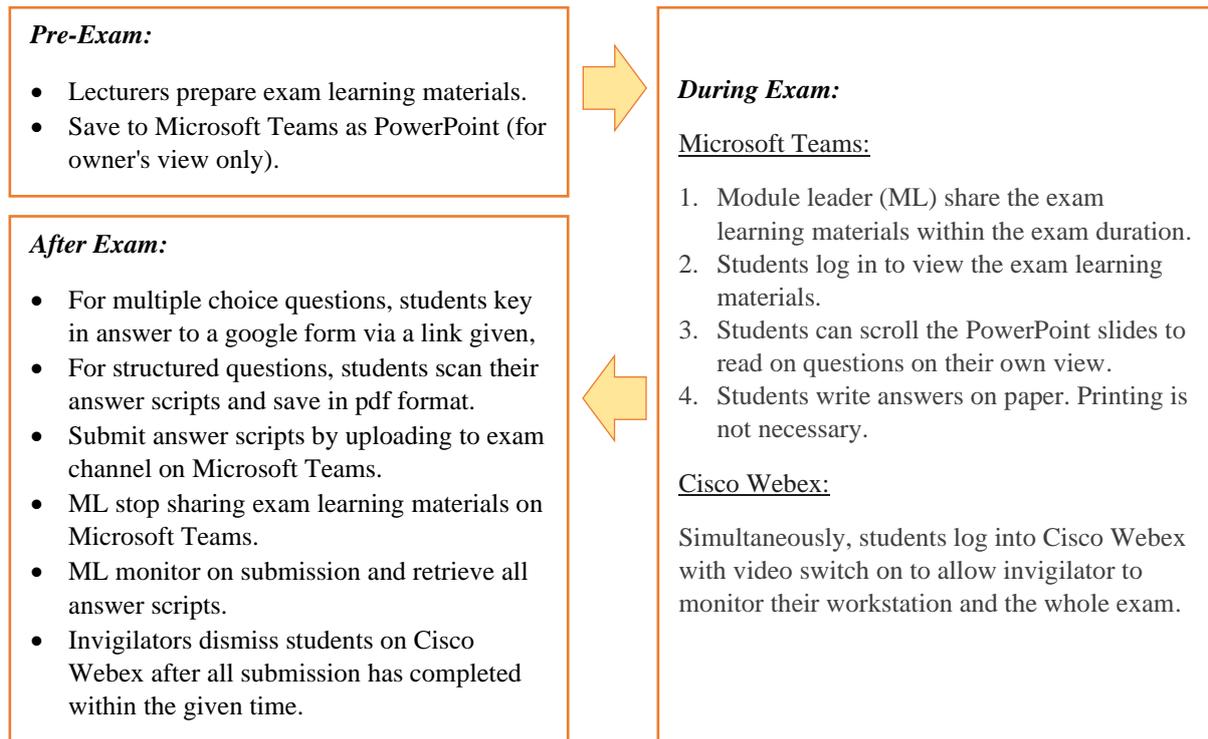
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A Case Study on Student Perception of Online Examinations during the COVID-19 Pandemic and Lockdown

Liew Wai Yee

Introduction

Due to the COVID-19 pandemic, on 1 April 2020, schools and higher education institutions were closed in 185 countries, affecting 1 542 412 000 learners or 89.4% of total enrolled learners (UNESCO, 2020). In Malaysia, schools and higher educational institutions closed in the middle of March, shifting face to face lessons online following the implementation of the MCO (Movement Control Order). Although online learning is not new to our education system, this is our first experience of going fully online. In Taylor's College, lessons were supported by various online platforms such as Microsoft Teams, Zoom Cloud Meeting, Facebook Live and Google Meet. Other integrated online learning tools like Moodle, Edmodo and Google Classroom were also utilized. Both lecturers and students had to learn fast to adapt to this new learning norm to meet their learning outcomes. There were obvious concerns about student perception, computer competency, network steadiness, online examination security and reliability of the results. In the Cambridge A-Level program that I teach, online examinations were a combination of online and hand-written assessments. The two main platforms used were Microsoft Teams and Cisco Webex. Figure 1 shows the workflow of the online examination. This study has two objectives: (1) to understand student perception of online examinations based on their feedback; (2) to investigate the potential for using student feedback in the enhancement of the assessment.

Figure 1: Workflow of the online examinations

Pre-Exam:

- Lecturers prepare exam learning materials.
- Save to Microsoft Teams as PowerPoint (for owner's view only).

After Exam:

- For multiple choice questions, students key in answer to a google form via a link given,
- For structured questions, students scan their answer scripts and save in pdf format.
- Submit answer scripts by uploading to exam channel on Microsoft Teams.
- ML stop sharing exam learning materials on Microsoft Teams.
- ML monitor on submission and retrieve all answer scripts.
- Invigilators dismiss students on Cisco Webex after all submission has completed within the given time.

During Exam:

Microsoft Teams:

1. Module leader (ML) share the exam learning materials within the exam duration.
2. Students log in to view the exam learning materials.
3. Students can scroll the PowerPoint slides to read on questions on their own view.
4. Students write answers on paper. Printing is not necessary.

Cisco Webex:

Simultaneously, students log into Cisco Webex with video switch on to allow invigilator to monitor their workstation and the whole exam.

Literature Review

There are many educational institutions, both K-12 and higher, that have transitioned to remote learning with varied success through a range of online platforms due to the impact of the COVID-19 pandemic (Durden, 2020; Lederman, 2020). Online examinations are inevitable to evaluate student learning outcomes and to meet programme needs. Online examinations or electronic examinations (e-exams), previously known as computer-based assessment, can be defined as "a system that involves the conduct of examinations through the web or the intranet" (Ayo et al., 2007). Functionally, online examinations can be delivered using a dedicated system or included as a module within a learning management system (LMS) such as Blackboard, Moodle or Sakai (Sorensen, 2013). These online assessment systems enable the simplification of the traditional paper-based examinations process, especially when class sizes are large, from the designing and delivering of the examination to marking, reporting, storing the results and conducting statistical analysis (Osuji, 2012; Farzin, 2016).

However, are students ready for online examinations? What is the impact of online examinations, especially during this pandemic, to students' learning strategies? Students' learning strategies can be influenced in a relatively short period of time by simply announcing various types of online assessments. Online examinations can also create deep learning

strategies which have positive impact on both formal and perceived levels of success in achieving the desired learning goals (Zlatović et al., 2017). The level of student preparedness for the mode of test they take and the quality of tests ultimately influence their grades (Gewertz, 2013).

Methodology

An online survey was conducted from 3 January 2021 to 15 January 2021 on 36 Semester 1 Cambridge A- Level Biology students. The survey questions were modified and developed based on studies by Dermo (2009), Hillier (2015), Özden et al. (2004) and Shraim (2019). The questionnaires covered three main parts:

Part 1: students' competency with computers
The purpose of these questions was to investigate the students' competency in using computer application programs such as Web browsers and e-mail programmes. Familiarization with these programmes is a prerequisite when using web-assisted assessments.

Part 2: students' prior experience with online examinations
The purpose of these questions was to identify the students' prior experience with online examinations to determine their readiness and perception of it.

Part 3: students' evaluation of online examination.
The purpose of these questions was to assess student feedback on both the technical and non-technical aspects of their online examination experience which may help improve online examination systems in the future.

Results and Discussion

Participants' Profiles

75% of the 36 respondents are female and 25% male, ranging from 16-19 years old. 55.5% are 18-19 years old. 55.5% had completed their IGCSE/O level with 8.3% of them completing it overseas while the rest are SPM, which is the Malaysian equivalent of the O Level Examinations, graduates. Their education background and age might vary their maturity and readiness to sit for online examinations. However, Dermo (2009), in his research on student perception of e-assessment, reported that age and gender did not significantly affect student responses in any of the areas studied. Instead, he concluded that the most positive aspect of e-assessment in the eyes of students concerned the benefits that it can bring to teaching and learning.

Findings: Impact and feedback from the questionnaires

Generally, all respondents reported that they have their own electronic devise (computer/ laptop/tablet) for study and online examinations. 88.9% reported that they have access to a good and stable internet connection. 91.7% were reported to have frequently used their devices for study purposes and 80.5% described themselves as confident in using it for study. Overall, all responses in the matter of computer familiarity show a positive mean (Table 1). These ratings are based on a five-point adapted Likert scale, where the mid-point mean value of 3 is a neutral position. A mean value above this can be seen to be positive and a mean rating below 3 is considered negative (Dermo, 2009). Furthermore, most of the respondents' feedback on prior online learning experience was positive (Figure 2). Their experiences with online courses, online assessments and quizzes on the web are believed to be practically helpful in equipping them with some online examination skills and preparation.

Table 1: Percentage Distribution of Students' Computer Competence (*n = 36*)

Student Competence with	Advanced %	Good %	Moderate %	Introductory %	Poor %	Mean score
1. Web browser	39	42	8	11	0	4.08
2. Chat	39	44	6	8	3	4.08
3. Email	25	61	3	8	3	3.97
4. Blogs/forum/conference/ meetings	8	56	22	6	8	3.50
5. You Tube	50	36	3	8	3	4.50
6. Social media (Facebook/Instagram etc.)	36	33	17	3	11	3.81
7. Microsoft Office (words/PowerPoint/excel etc.)	17	50	19	8	6	3.64
8. Online quizzes and assignments	25	47	14	11	3	3.81

Score: 5 = Advanced   4 = Good   3 = Moderate   2 = Introductory   1 = Poor

Figure 2: Students' prior online learning experience
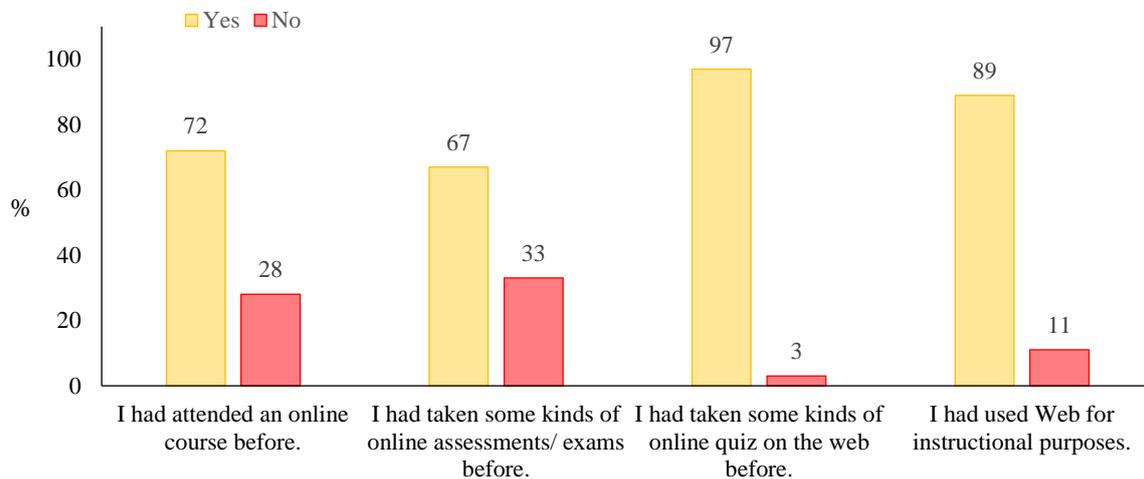
Based on the students' evaluation and feedback of online examinations, respondents reported mixed experiences (Table 2). The strongest concerns for learners, reflected in negative responses, were their adaptation and acceptance of using computers for examinations in the future instead of paper-based examinations (mean score = 2.9). Students also show moderate confidence in the appropriateness of using online examinations for any subject area (mean score = 3.2) as well as in the security and reliability of online examinations (mean score = 3.3).

For students, the most advantageous aspect of online examinations is its efficiency in saving time, effort and money (mean score = 4.0). The pre-examination briefing and trial runs were also found to be effective and helpful (mean score = 4.0). The overall experience of online examinations as a fair and necessary process to meet the students' learning goals was motivating (mean score = 4.0).

Table 2: Students' evaluation towards online examinations (*n=36*)

Student's evaluation	SA %	A %	NS %	DA %	SDA %	Mean score
Generally,						
1. I felt the e-examination system was easy to use.	3	19	9	4	1	3.5
2. The instructions and technical steps of the e-examination system were easy to follow.	4	23	4	5	0	3.7
3. The pre-examination briefing and trial runs made me felt confident to sit for the real e-exam.	8	21	5	3	0	4.0
4. I felt the e-examination system was secure and reliable against cheating.	4	18	5	3	6	3.3
5. I felt online examinations are more efficient in terms of time, effort and money spent.	4	12	9	8	3	4.0
6. Overall, I felt this e-examinations are fair and needed to achieve my learning goals.	8	17	7	5	0	4.0
7. My overall experience of online examinations was positive.	9	14	8	4	1	3.7
8. I would like to use a computer for examinations in the future.	4	7	12	7	6	2.9
9. I feel that e-examinations are appropriate for any subject area.	5	9	14	3	5	3.2
10. I feel that e-examinations are appropriate to test learners' level of knowledge.	4	20	3	7	2	3.5
11. Online examinations facilitate a more adaptive learning approach than paper-based ones.	2	9	13	8	4	2.9

Score: 5- Strongly agree(SA)   4: Agree(A)   3: Not sure(NS)   2: Disagree(DA)   1: Strongly disagree(SDA)

The survey also listed several considerations that might improve the implementation of online examinations. Respondents were assessed on the non-technical (Table 3) and technical (Table 4) problems encountered during online examinations.

Students' responses to non-technical challenges they had during online examinations were remarkable, with all mean scores merely meeting neutral or below. These results reflect that

students might not be comfortable or used to this system (mean score = 2.58). Certain challenges existed like difficulties concentrating during online examinations, and insufficient time to complete the questions and check their answers before submitting. Students' responses about using a camera during online examinations, and their stress and anxiety of online examinations were also noteworthy. Other contributing factors like the suitability of taking online examinations at home, mental disruption caused by the lock down, family issues and health problem need further study.

The students' responses to the technical challenges they encountered during online examinations were more positive. All technical steps such as logging into online examination platforms, downloading examination papers and submitting answer scripts were well managed. This might be because of the respondents' prior online learning experiences and the pre-online examination briefing with trial runs which enabled them to handle online examination procedures effectively. 47% responded that they prefer a fully online examination system. This matches the respondents' negative responses to using computers for examinations in the future and in their recognition of online examinations as a more adaptive approach than paper-based examinations. Alchamdani et al. (2020) reported in a similar study that online learning is a new experience that provides convenience and flexibility in studying without having to go to campus, but it also highlighted that both technical and non-technical constraints are important considerations.

Table 3: Problems encountered during e-examinations (non-technical aspects)

Student's response	SA %	A %	NS %	DA %	SDA %	Mean score
1. I had enough time in this e-exam.	6	19	31	33	11	2.75
2. I managed to go back and read over my responses before submitting.	3	19	33	33	14	2.72
3. I felt comfortable in front of the camera during e-exam.	6	53	14	22	8	3.33
4. I felt e-exam reduces stress and exam anxiety compared to paper-based exams.	8	25	31	22	19	2.97
5. I could focus and concentrate more on the questions during e-exams.	3	22	36	22	19	2.75
6. I felt more comfortable doing an online exam than a paper-based one.	6	11	33	31	25	2.58

Score: 5: Strongly agree (SA) 4: Agree (A) 3: Not sure (NS) 2: Disagree (DA) 1: Strongly Disagree (SDA)

Table 4: Problems encountered during e-examinations (technical aspects)

Student's response	Yes (%)	No (%)
1. My internet connection was stable during e-exam.	83	17
2. My camera/mic was working well during e-exam.	97	3
3. I could join Microsoft Teams or Webex meeting room smoothly.	94	6
4. I could notice the notes/announcement in chat during e-exam.	86	14
5. My invigilator's instruction was clear.	94	6
6. The questions and diagrams were easy to read on screen.	81	19
7. I could read on computer while writing answers on paper.	86	14
8. I felt it was easy to scan my answer scripts.	89	11
9. I felt it was easy to submit my answer scripts.	89	11
10. I prefer fully online exam system: type answers online and turn in.	47	53
Mean	84.6	15.4

Conclusion

Based on this study and results analysis, it can be determined that students' online learning experiences and familiarity with online tools are key factors in influencing their perception of online examinations. Students with a stable internet connection and their own devices do not find online examinations a great challenge. However, the respondents' feedback on non-technical challenges need attention. It reflects that online examination might still be a new practice for them. They might need more support to adopt and adapt to this approach. In view of this, I think that the integration of computer aided or web-based learning in daily lesson plans could enhance learners' computer familiarity and prepare them better for online examinations practically and mentally. Arnove (2020) reported that the COVID-19 crisis offers a unique chance to imagine more equitable societies and education systems. Students now have high ownership of laptops and more familiarity with computer-based input methods (Hillier & Fluck, 2013). Hence, this generation of learners should be able to use technology widely and be guided systematically to more online learning, ultimately enabling them to adapt to online examinations by mastering the skills and gaining confidence from it.

Furthermore, the survey shows that some students do not prefer a fully online examination system. This is probably because they did not get the full experience of a fully automated examination system. The online examination system studied was a combination of computer-aided and paper-based procedures due to the paper-based format of the Cambridge A-Level examination system. However, a fully automated examination system has been reported to have many benefits like immediate feedback, randomized question order and item analysis of the questions (Khan & Khan 2018). To make online examinations more scalable, sustainable and valid across different contexts, I suggest modifying the system by simplifying procedures to using only one web platform in the future. This might reduce its complexity, save time and increase student focus. Complicated examination processes will add to stress and examination anxiety. Student mental health in higher education is an increasing concern because of the pandemic (Son et al., 2020). The enhancement of online examination systems is also necessary to prepare for possible future pandemics.

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