COMMENTARY

Conducting Online Assessment for Undergraduate Medical Program during COVID-19 Pandemic: The First Experience at Universiti Putra Malaysia

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INTRODUCTION

Higher education sectors, among others, have been badly affected by the global COVID-19 pandemic. It does not only interrupt all teaching and learning activities but student assessment is also affected. Medical schools worldwide have decided to either postpone the examination, or replace their formally invigilated examination into remote online examination and modified forms of assessment such as open-book examinations (1,2).

The first wave of COVID-19 infection in Malaysia began in January 2020 (3). The unprecedented situation caused the government to impose four phases of Movement Control Order (MCO) from 18th March until 12th May 2020 (4). Consequently, the scheduled academic calendar in all Malaysian higher education institutions was highly affected. Unfortunately, for the Doctor of Medicine (MD) program in Universiti Putra Malaysia, the MCO period coincided with the Year 2 Semester 1 remedial examination. The examination involved 19 students who did not pass the end of semester examination and were allocated two weeks of study period prior to the remedial examination. Due to the MCO, the examination was postponed and the faculty had to come up with an immediate solution within a short period.

The decision of running an online examination for the remedial students was made when the government has relaxed the lockdown restrictions and implemented conditional MCO (CMCO) which allowed resumption of several essential service sectors in the country. Following the decision, a committee was set up consisting of the Deputy Dean of Academic, course coordinators and members of the medical education unit to establish an appropriate online assessment strategy. The discussion on its implementation was initiated by the Deputy Dean who was the leading role to ensure the implementation of online assessment was valid and feasible.

The massive and abrupt changes to online examination can be stressful to both students and the faculty. Therefore, conducting a mock examination is recommended to reduce the stress and anxiety (5), and to familiarise us with the design and the format of the assessment. Besides, the assessment environment must be conducive so that any interference during the examination would not be influencing the test score. Therefore, proper planning and measures were diligently taken to ensure that the validity of the assessment was not compromised. The usual practices during test development process which include preparation of test blueprint, vetting of questions, student familiarity on the test format and post-examination item analysis were maintained similar to face-to-face examination, so that the assessment was fair and valid.

THE EXAMINATION PROCESS

The examination consisted of written and practical examinations. For written examination, the formats include multiple-choice questions (MCQ) and short answer questions (SAQ). While the practical examination includes objective structured practical examination (OSPE) and objective structured clinical examination (OSCE). There were no changes made with regards to the assessment format and the number of questions as compared to the usual face-to-face examination. Despite having our learning management system (LMS) which can be used for assessment, it does not support some question formats such as multiple true-false and OSCE. Consequently, a decision was made to use a commercially available online platform for the examination. Plenty of trial and error with different online assessment platforms were conducted which include preparing several test items for each assessment method and requesting the lecturers to act as students to answer them. We found that some platforms were costly, less secure and not user-friendly. For each platform, we also gathered feedback from those who had the opportunity to experience it to identify the best

and secure platform to be employed.

We then decided to use Testmoz (www.testmoz.com) for MCQs and Exam.net (www.exam.net) for SAQ and OSPE. Whereas, Microsoft Teams was used for OSCE and remote invigilation of the students. These platforms were found to be suitable to fulfil our assessment requirements with their enhanced security features and user-friendliness. A mock online examination with the students was conducted for two days to provide hands-on experience for both faculty members and the students. The schedule for this mock examination was set similar to the usual face-to-face examination conducted in the examination hall. No changes were made on the duration and sequence for each paper. Before that, we have identified the students' readiness and availability of suitable facilities for an online examination. Some advice and suggestions were given to ensure the smooth running of the examination. A briefing was made to the students to introduce the guidelines of online examination, the format of the assessment and a step-by-step protocol on using the examination platforms. A written guideline was prepared for them as a reference. Some practice questions were also provided for the students to familiarise themselves with the platforms before the examination.

On the day of the mock examination, the coordinators conducted the examination in the faculty while the students were taking the examination remotely from their home. An online survey was performed after the examination among the course coordinators and the students on their feedback about the running of the examination, problems they faced and suggestions to overcome the problems. They were satisfied with all examination platforms and did not face major issues during the examination. However, it was noted that poor internet connection was observed mainly in the afternoon and the long hours of the examination were mentally challenging for both invigilators and students. Therefore, some alterations were made to the initial examination timetable. The committee decided to limit the total duration of the examination each day up to a maximum of 3 hours only, which consequently increased the number of examination days. Each day, the examination was broken down into multiple papers with frequent breaks in between to avoid any network interference or technical problems while answering the questions.

The remedial examination was finally conducted a month after the mock examination. All students were advised to log in to Microsoft Teams at least 45 minutes before the examination began. There were the chief of invigilators to provide instructions to the students, three invigilators to assist the invigilation process and representatives from the medical education unit and information technology unit to advise on the technical issues. A complete guideline to run the examination

was provided to all invigilators as a reference. All students were required to complete the integrity form before the commencement of the examination and display their student identification card to the webcam for verification. They were also required to show their working area and surrounding environment to ensure there were no references material available nearby.

Each examination paper was created with a unique password. To begin the examination, the invigilator posted the link and its password to the chat panel. The students might click the link which would navigate them to the examination platform to access the questions. During the examination, each invigilator proctored six to eight students. They were not allowed to switch off their camera. If they had any concerns, they might unmute themselves or use the chat panel to communicate with the invigilator. A reminder was given to the students five minutes before the examination ended to ensure they were prepared to submit their answers. When the time has ended, the invigilator would first confirm that all answer scripts were retrieved before the students were allowed to leave. The above process was repeated for five days of examination.

CHALLENGES FACED AND THE SOLUTIONS

There were several challenges that we faced with the implementation of the online assessment. For instance, it was impossible to use real specimens during OSPE. Our regular practice includes slides observed under a microscope, anatomical models of an organ and Petri dishes with microorganism growth. Thus, these real exhibits were replaced by images uploaded onto the examination platform. An additional one minute was granted for each question to accommodate students who might experience internet slowness while downloading the images.

Another challenge was during the assessment of physical examination technique during OSCE. Some of the tasks require certain medical equipment or tools which are only available at the faculty. Therefore, we decided to revise the test blueprint and the skills assessed were narrowed to only history taking, data interpretation and communication skills. During the OSCE session, all examiners and simulated patients (SPs) were gathered in the faculty to ease the coordination with strict adherence to the standard operating procedures. They were seated according to their respective station, while keeping appropriate physical distancing from each other. The students were able to communicate remotely with the SPs and were observed by the examiners via video conferencing. A briefing and training session were done to all invigilators, examiners and SPs before the examination to familiarise them with the conduct of online OSCE.

Maintaining examination security is essential to

upholding the integrity of the assessment. There is a higher risk of cheating and academic disintegrity in remote assessment compared to face-to-face (6), which compromise the validity of the assessment. We were aware that it cannot be resolved completely, however, some strategies were taken to deter cheating. For MCQs, the questions and answer options were shuffled so each student would have a different sequence of questions in their paper. This strategy made it difficult for the students to share information and discuss possible answers. Besides, the employed examination platforms offer enhanced security features that provide a secure test environment. An example is the "lock-down" browser feature in the Exam.net platform that prevents students to visit other browsers or accessing other applications while answering the examination. The students were also required to sign a form emphasising on university's academic integrity policy before the examination and were briefed on the consequences of violating the policy.

REFLECTION AND CONCLUSION

Conducting an online examination during the pandemic made us realise the need to change and adapt during unprecedented times. We have been comfortably conducting the conventional methods of assessment for many years before. It has taught us that the time has come for us to optimise the use of technology by adopting digital and paperless examinations.

We realised that effective communication and institutional support were particularly important in motivating us to adapt and keeping a positive attitude. All faculty members and students involved during the examination were ensured to understand the implementation process and were adequately trained. Equity and fairness were equally important. All enquiries and obstacles from both students and faculty members were discussed. Possible solutions were thoroughly viewed from different perspectives to ensure the best solution to the situation at hand was taken.

At the moment we have conducted multiple online examinations with a larger number of students. From time to time, we have made some refinements to improve the assessment validity and practicality of the examination system. The COVID-19 pandemic may be a blessing in disguise. While it presents many challenges, it inevitably provides a huge opportunity for the faculty to utilise new technologies in assessment of which may play a vital role in the future medical curriculum. Nevertheless, it is paramount to ensure that even with higher adoption of technology, the assessment's validity and reliability are not compromised.

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