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A test to cater for all tastes: Exploring the functionalities of a teaching platform

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Abstract

Online education has been around for a few decades now, with a growing number of higher education institutions offering various online courses either as part of a degree or as further professional development. However, the global COVID-19 pandemic forced the transfer of education from a traditional classroom to a virtual environment. Such a sudden transit meant that not only teaching and learning, but also assessment had to be conducted online. This paper aims to present our experience of online assessment of a Medical English course delivered in the first semester of the academic year 2021-2022 to first-year medical students. Data were collected through observation and were used to perform a qualitative assessment of the system that the university used at that time. Various types of exercises typically used in English language assessment were designed: multiple choice questions, word formation, open cloze, etc. The results proved that the multiple features of the online system were effective in assessing the students' progress.

Keywords: Medical English; online assessment; online teaching; teaching platform.

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1. Introduction

Education has always used the research findings of various fields, may it be physics, biology or technology, and, to make it more appealing and widely available, education witnessed the introduction of Massive Open Online Courses (MOOCs) and Learning Management Systems (LMSs). MOOCs were developed in order to reach a higher number of students, but since the early days of MOOCs, other groups have also been targeted (Baturay, 2015). The biggest providers nowadays, Udemy, Coursera, EdX, and FutureLearn, to name a few, offer courses, degrees, and micro-credentials to millions of learners worldwide.

A distinct advantage of such education platforms is that learning occurs asynchronously so students enrolled in one particular course can be located anywhere on the Globe without having to log in at a certain time of the day (Broadbent, Panadero, Lodge & Fuller-Tyszkiewicz, 2022). Another benefit of MOOCs is that learning is self-paced, a student can spend more or less time on the course, provided that (s)he completes it in the allotted time, which, for many of the courses offered, is weeks, depending, naturally, on the type of subject and the depth of details (Li & Xing, 2021; Semenova, 2022). If such courses are appealing to learners, it is because they combine reading materials with video presentations and lectures, thus, a higher level of interest is maintained throughout thanks to the variation of the teaching methods. Moreover, students enroll in such courses because they find the subject matter interesting and useful for their professional development (Moore, 2022).

However, a drawback of MOOCs is that professional feedback is rarely available. Because of the large number of learners taking one particular course at any given time, teacher or course instructor feedback would be impossible. Some MOOCs, however, require students to upload their assignments to be assessed by instructors, but this is mainly the case for courses or specializations which have a tuition fee. In the case of free courses, assessment is done by peers, usually following a guideline or a checklist, as such, a learner is expected to assess the work of two or three peers.

On the other hand, higher education institutions are more likely to use LMSs for their students to deliver courses and to conduct assessments, apart from keeping track of student progress, library permits, tuition fees, anything that is needed to administer the learning process of students (Chen & Cui, 2020; Sulaiman, 2022). Such LMSs are usually tailored to the specific needs of each higher education institution, thus, functionalities and features may vary extensively across such platforms. However, not all countries may be inclined to use such systems (Al-Mamary, 2022) and to keep abreast with changes in education.

Technology and online education were the only solutions during the lockdowns imposed by governments worldwide to reduce the spread of the SARS-CoV-2 infection which caused the COVID-19 global pandemic (Carrillo & Assuncao Flores, 2022). As such, education was abruptly shifted from a brick-and-mortar setting to the online environment. In many countries around the world, this sudden transfer was met with unpreparedness (Haider et al., 2022) and may not have rendered the expected outcomes. Some institutions had already been using their own LMSs, but other ones turned to different solutions such as online videoconferencing tools, file-sharing, business meeting solutions, etc.

One of the problems of online teaching and learning is the risk of academic misconduct during online assessment (Zhang et al., 2022). Academic misconduct may take various forms such as plagiarism (Ampuni et al., 2020), ghostwriting (Awdry & Newton, 2019; Mellar et al., 2018), impersonation (Chirumamilla et al., 2020; Wenzel & Reinhard, 2020), outside assistance, screen sharing, messaging services, and social media, etc. Reasons for cheating are also various, whether online or in a classroom setting, and include stress during home isolation, gender, and nationality (Amzalag et al., 2021; Bilen & Matros, 2021), unwillingness to fail, anxiety caused by isolation, achieving short term goals with minimal effort, weak online controls in online assessments (Garg & Goel, 2022), etc.

Many instances of cheating can be prevented with the aid of proctoring, whether live, recorded, or automated (Nigam et al., 2021), but proctoring greatly depends on the type of learning system that is used. While it is exactly the technological environment that aids students in cheating, whether in the form of mobile or computer-based communication, it is also technology than can deter students from cheating and detect academic misbehavior (Garg & Goel, 2022). Advanced proctoring software can nowadays rely on student authentication (Atoum et al., 2017; Marachi & Quill, 2020), systems can analyse keystroke dynamics, it can detect movement and sound (Butler-Henderson & Crawford, 2020) or can recognise the voice and face of the student (Nigam et al., 2021). Facial recognition mostly relies on a convolutional neural network algorithm (Li & Lima, 2021) and can detect movements of facial muscles based on the images collected by the webcam of students (Jadi, 2021; Sharma et al., 2021).

1.1. Purpose of study

The COVID-19 pandemic was declared by the World Health Organization in March 2020, as such, in the middle of the spring semester, quick alternatives were needed to continue education. Our university first adopted Microsoft Teams™ and, in a very short time, all students and faculty were provided with usernames, and groups of students and courses were set up. The institutional accounts for Microsoft Teams™ came with the added benefits of using the other functionalities provided by the software giant such as Forms, Outlook, OneDrive, PowerPoint, etc. The conferencing tool allowed us to deliver courses synchronously, whereas Forms, for example, was widely used for formative assessment. Due to the fact that the lockdowns were still in force at the beginning of the academic year 2020-2021, education had to continue in the virtual environment. Our university moved on to the Blackboard™ system, and at the commencement of the academic year, all students and faculty were provided with usernames and accounts on the platform.

Our investigation aims to present our experience of online assessment of a Medical English course delivered in the first semester of the academic year 2021-2022 to first-year medical students and to explore the functionalities that the online platform has in terms of prevention of cheating, randomisation of questions, and the types of exercises that can be implemented. We embarked on this study with the hypothesis of the reliability and functionality of the system used by our university at that time with the aim to perform a qualitative investigation of the assessment methods offered by the system.

2. Materials and Methods

All figures and descriptions used in the subsequent sections refer to the Medical English course taught online by the author of this study via the Blackboard™ system. For the assessment of the first-year medical students, typical exercises for English language examinations were employed: multiple choice questions (MCQs), gap filling, open cloze, multiple matching, item rearrangement in process descriptions, and word-building. Tests were hidden from student view until the time of examination. All tests were timed and the system was set to save student progress and to automatically submit the test after the time had elapsed. Students could see a progress bar on their screen and a countdown timer in order to be able to better organise their work and administer their time. Students were particularly instructed not to use hand-held devices, such as mobile phones, for the examination. The students' webcams were turned on during the assessment in order to reduce the likelihood of cheating.

2.1. Participants

Participants included in the study were the first-year students enrolled in the first semester of the academic year 2021-2022 and belonged to one single group.

2.2. Data collection instrument

Data were collected through observation. The foreign language course is compulsory for every student in the first two years, and courses are offered in English, French, and German. Only the students taking the English course were enrolled in this study.

2.3. Ethics

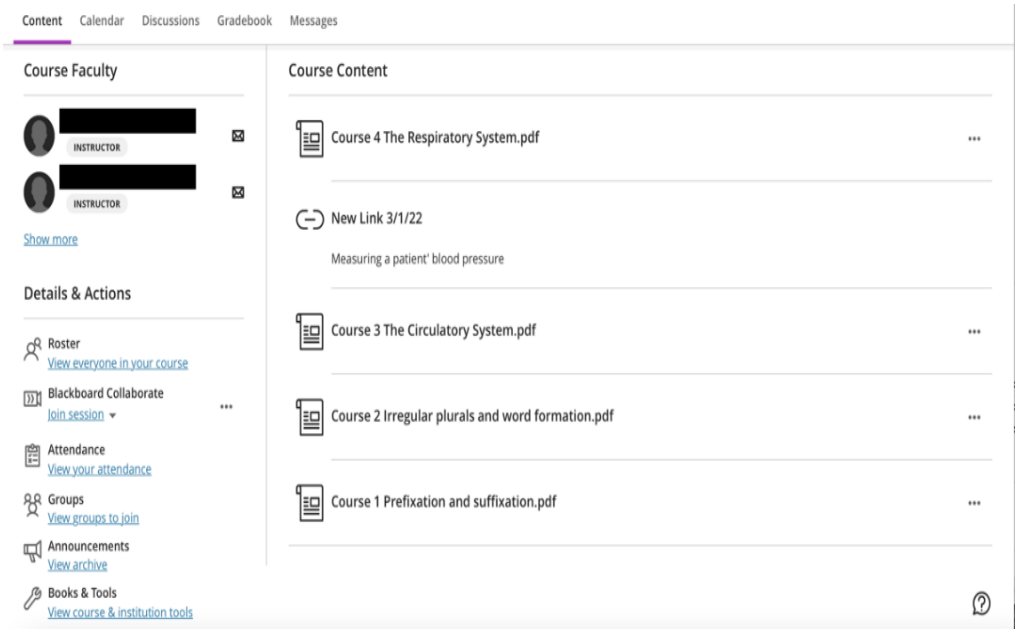
No personal data that could identify any of the participants were collected.

3. Results

As course instructors, all the courses that we taught were listed in our accounts and all the students of one particular course were already enrolled. The platform allows the uploading of various types of files ranging from presentations to videos, from links to external websites to different kinds of document formats and extensions. Thus, when a student accesses their account, the courses they are enrolled in are listed so that they can choose any that they want to attend or any from which they want to download content. Figure 1 shows the content of a Medical English course for module 1 for first-year students of medicine. The course content section stores the materials and links uploaded for that particular course, whereas the left-hand menus allow the user to view announcements, join the live session or check their attendance. For reasons of anonymity, the names of the course instructors were concealed.

Figure 1

Course content, student's view

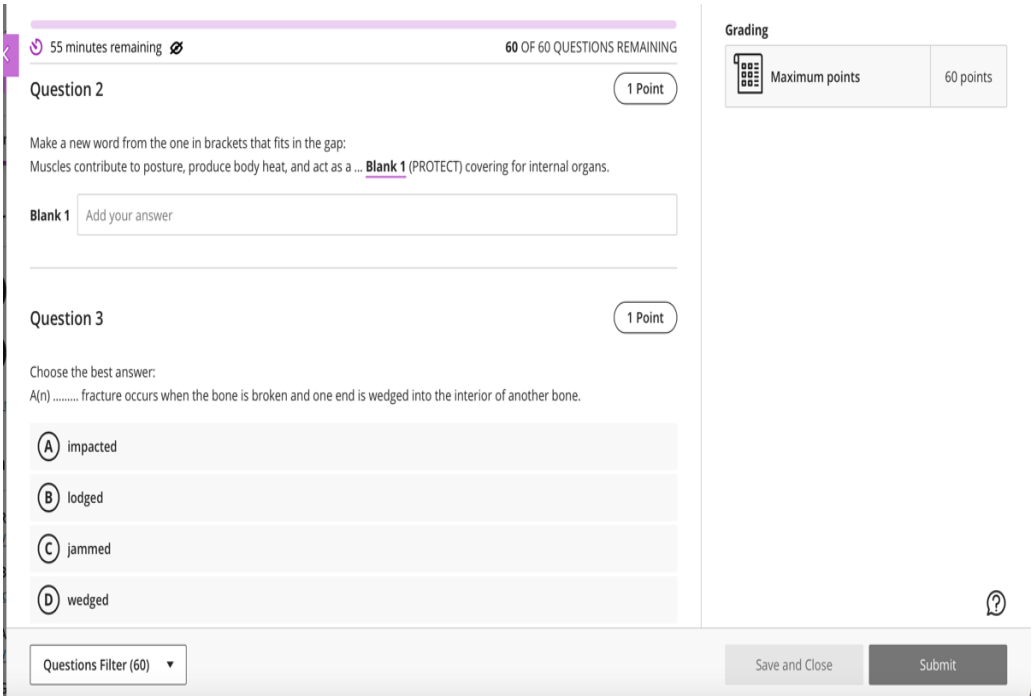


Live lectures were delivered synchronously, so students joined sessions to attend them according to the timetables. The courses used presentations, videos, short quizzes and formative assessments, discussion forums, pair and group work activities, etc. As far as pair or group work is concerned, the course instructor could break the participants up into pairs or groups randomly or assign them to a particular group. Moreover, the system can allow a participant to join a certain group or another if this option is selected by the instructor. The course instructor can visit any of the groups or pairs in order to monitor their work. Whenever in the main room or the small virtual rooms, students can raise a hand, and a notification is displayed on the screen so that the instructor is notified when somebody wants to ask a question or give an answer. This is particularly useful during a question-and-answer session if somebody needs further clarifications or wishes to ask a question that concerns the entire group of participants.

As far as assessment is concerned, the instructor has several functions to build or administer a test. At the end of the Medical English course, the students were required to take an end-of-module test to gain partial credit toward the final grade. The types of questions that the system allows for assessment are MCQs, gap filling, ranking, open-ended questions, matching, true/ false questions, etc. A distinct advantage is the fact that questions can be imported from previously built tests, question banks can be added, the test can be scheduled to become visible to students at a pre-set time, questions and answers, in the case of MCQs, can be randomised, and the test can be timed. Whenever a student opens a timed test, a warning regarding the start of the timer is displayed on the screen. If the student wishes, they can save their draft and work on the test later, however, when the time runs out, the test will be submitted automatically with the current progress of the student. Figure 2 shows the different types of questions within a test in student view. The questions displayed here are word formation, which is in the form of gap filling, and an MCQ. The questions were randomised so no two students had the same numbering. A timer is also displayed at the top of the page to remind the test taker about the remaining time.

Figure 2

A test in student view



To ease the work of the course instructor, the system automatically calculates the scores of each student based on the answers provided when building the test and the score for each question.

After the pre-set time for the test elapses, all answers are collected automatically and the instructor can view the submissions along with the scores for each student. Figure 3 shows the scores for the submissions. The submissions are accompanied by a time stamp so the instructor can see when the test was submitted. For reasons of anonymity, the students' code numbers were concealed. Figure 4 presents the answers of a student to two true/ false questions with the corresponding scores. Moreover, the system allows the instructor to send feedback to students regarding their progress.

Figure 3

Test results

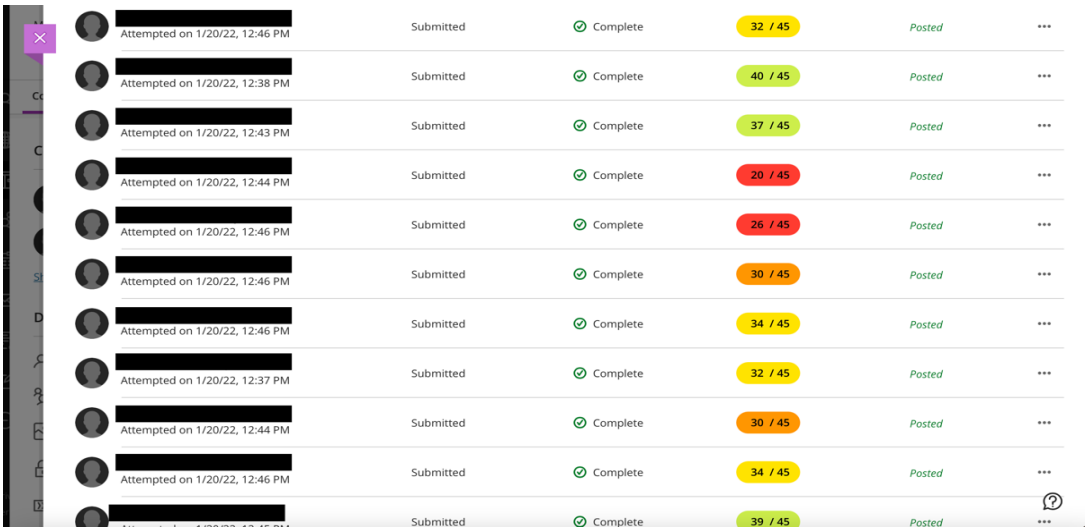
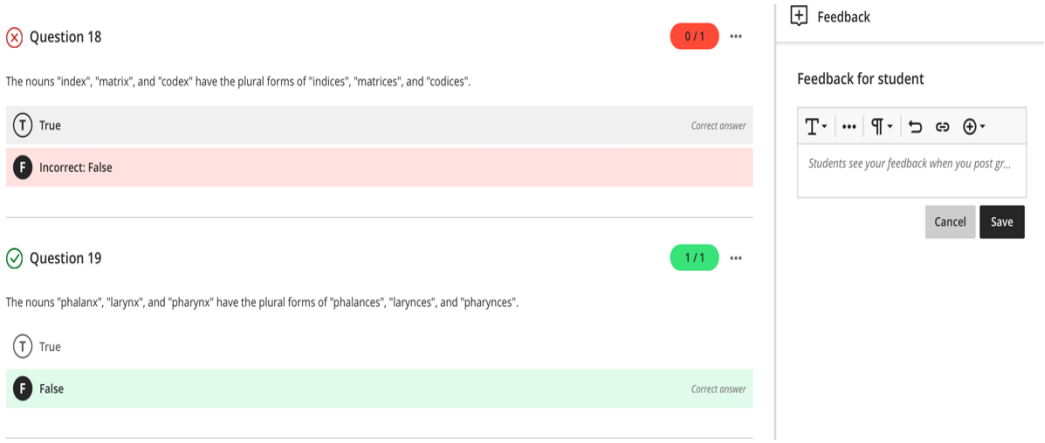


Figure 4

A student's answers to two questions



What is particularly useful is the way the system allows test and question analysis. This is a very helpful tool for an instructor to examine the difficulty of the questions, their ratio in the test, the time students needed to answer one particular question, etc. Figures 5 and 6 display test and question analysis.

Figure 5

Test analysis

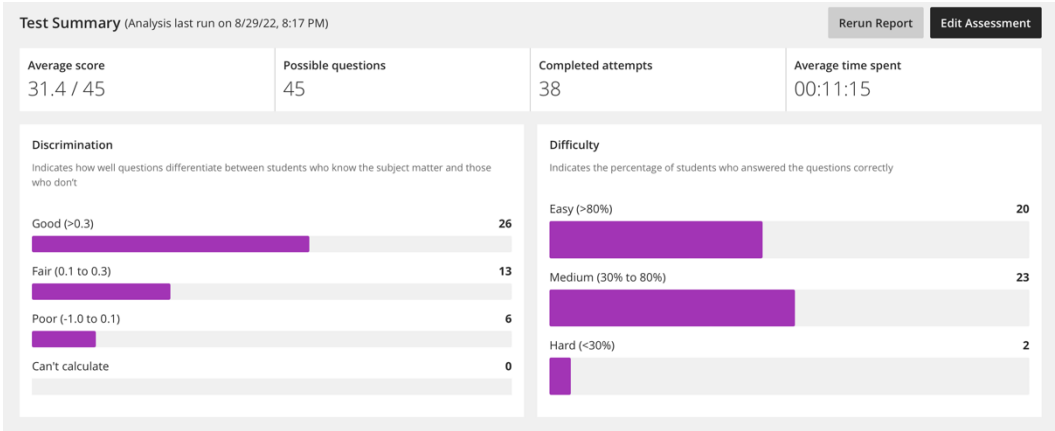
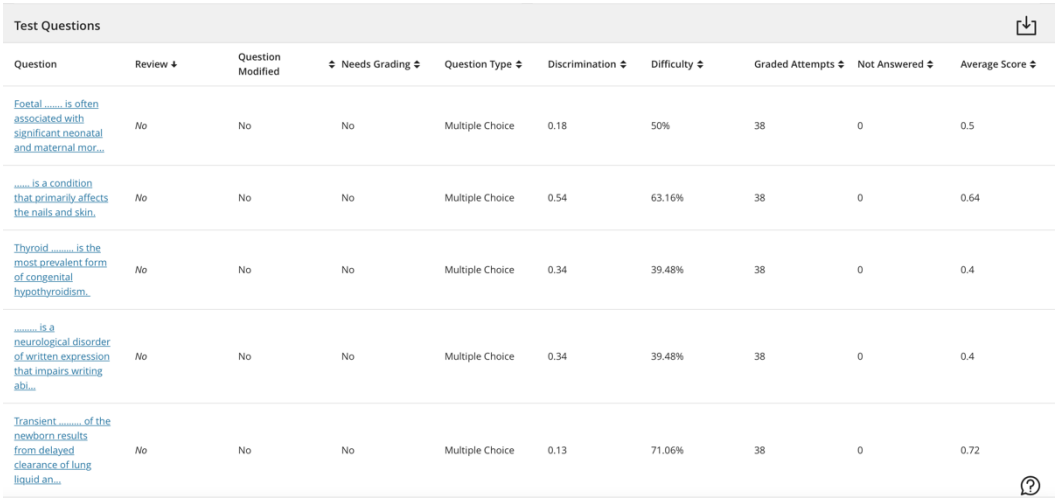


Figure 6

Question analysis



Test Questions

Question	Review	Question Modified	Needs Grading	Question Type	Discrimination	Difficulty	Graded Attempts	Not Answered	Average Score
Foetal ..... is often associated with significant neonatal and maternal mor...	*No*	No	No	Multiple Choice	0.18	50%	38	0	0.5
..... is a condition that primarily affects the nails and skin.	*No*	No	No	Multiple Choice	0.54	63.16%	38	0	0.64
Thyroid ..... is the most prevalent form of congenital hypothyroidism.	*No*	No	No	Multiple Choice	0.34	39.48%	38	0	0.4
..... is a neurological disorder of written expression that impairs writing abi...	*No*	No	No	Multiple Choice	0.34	39.48%	38	0	0.4
Transient ..... of the newborn results from delayed clearance of lung liquid an...	*No*	No	No	Multiple Choice	0.13	71.06%	38	0	0.72

Another useful feature is the automatic rescoring of all the submissions in case the instructor changes the correct answer provided that a mistake had been made when building the test. Additionally, in the case of MCQs with at least two correct answers, the instructor can choose whether partial or full credit will be awarded, that is, if a student chooses only one correct answer of the two, they may receive partial or no credit at all.

4. Conclusion

During the assessment, students were requested to turn their cameras on to be proctored live, but microphones needed to be muted so that background noises would not disrupt the students' attention. This, however, may have been a drawback because, for example, tones of instant messaging via the chat feature of the platform could not be detected by the course instructors. Although the test was administered with randomised questions, as well as randomised answers in the case of MCQs, this does not guarantee that students did not help one another during the test. Another disadvantage is the fact that during such live sessions, a gallery view of the participants allows only a limited number of them, thus, in the case of over 30 participants in the live session, there are two pages of gallery view, and not all the students can be seen at the same time. Nevertheless, knowing that they are constantly monitored considerably reduced the risk of cheating.

This paper presents and discusses our experience in assessing first-year students' progress in the Medical English course of the first semester of the academic year 2021-2022 using the Blackboard™ online teaching platform. The system allows for the design of various types of questions for formative or end-of-module assessment including MCQs, gap-filling questions, true/ false ones, etc. An advantage of the system is that it logs the students' attendance and can analyse and generate various reports of the tests prompting the course instructor to any necessary adjustments.

However, our study has some limitations. While the functionalities of the particular system used by us and described in this paper are numerous and allow for various types of typical English language assessment exercises, it lacks the option of randomising MCQs and several instances of gap-filling questions in a longer text in the same test. Another limitation is the fact that the study was conducted on only one group of first-year students some of whom may have had difficulty finding their way around, although mock examinations had been carried out prior to the study. Nevertheless, a follow-up study, perhaps with the same group of students, may shed some light on certain aspects.

Conflict of interest

None to declare

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