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Testing, assessment and evaluation in an online environment: a case study of tertiary ESP courses

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Abstract

Modern technologies have irreversibly changed the educational process. Numerous virtual learning environments (VLEs), learning management systems (LMSs), communication platforms and other software tools not only enable easier communication and content sharing, but can also be used in measuring students' achievement at almost all levels of education. This paper presents the use of software tools and platforms for testing, assessing and evaluating students' knowledge and language skills in several courses in English for Specific Purposes (ESP) at a business-oriented university. The tools presented include Moodle LMS, MS Forms, MS Teams, Socrative, Mentimeter, and Kahoot!. After listing the functionalities of these platforms and tools and presenting their advantages and drawbacks, the paper compares testing, assessment and evaluation done in the traditional classroom environment with the ones conducted online, focusing on the benefits and limitations of each enviroment.
Keywords*: *ESP, testing, assessment, evaluation, LMS, VLE, gamification

1. Introduction

Education has irreversibly changed with recent advances in modern education technologies. Various software tools and platforms came into the spotlight at the start of COVID-19 pandemic. In new and unexpected circumstances schools at all educational levels were at first left to their own devices, compelled to look for alternative methods for teaching their students and testing and assessing their knowledge. This temporary and enforced transfer to alteratives gradually evolved into a more organized and better thought-out distance teaching and learning, enabled by a number of Learning Management Systems (LMSs)and commercial software packages and applications (e.g., *MS Teams, Zoom, Cisco Webex, Google Meet,* etc.) that had not been so extensively used before the pandemic. Even after the pandemic, some elements of the said software solutions were kept because of their effectiveness and usefulness as parts of hybrid and blended learning environments.

Technological advances also brought about new means of assessing students' knowledge and skills. The advantages of online assessment go beyond simply saving time on grading by replacing paper-based tests with automated computer-based ones, and include, for example improved and more engaging learner's experience through the use of gamification platforms such as *Kahoot!* and *Mentimeter*, tailoring test to suit individual learners through the use of adaptive testing, numerous benefits brought about with learning analytics enabled in LMSs, etc.

There are two major obstacles to using online environment for summative assessment at Serbian universities. Firstly, the The University of Belgrade *Rulebook on taking examinations and grading* (http://www.bg.ac.rs/files/sr/univerzitet/univ-propisi/Pravilnik_o_polaganju_ispita_i_ocenjivanju_2020.pdf) requires university examinations (both oral and written) to take place exclusively on the faculties' premises. Second, even though this does not necessarily exclude the use of software platforms for examinations, Serbian universities are for the most part underequipped when it comes to computer rooms and related equipment and cannot always support online exams with larger number of students at the same time. Even though final examinations are rarely held online on the university premises for the abovementioned reasons, there

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are ways to make use of unline environments for formative and less formal ways in traditional, blended, hybrid and online learning environments, using a number of mobile friendly apps, communication platforms and LMSs. The use of such tools can not only help in assessing students' current knowledge, understanding of subject matter and achievement in certain units or segments of a language course and direct their further work through formative feedback, but it can also significantly boost their motivation and engagement in foreign langauge classes.

This paper reports on the use of several software tools and platforms for testing, assessing and evaluating students' knowledge and language skills in undergraduate and graduate ESP (English for Specific Purposes) courses at the Faculty of Organizational Sciences, University of Belgrade in the course of several academic years. The tools presented include *Moodle LMS, MS Forms, MS Teams, Socrative, Mentimeter, and Kahoot!.* After presenting the main theoretical concepts pertaining to this topic and outlining some relevant research, the paper will list the functionalities of these platforms used in our context, introduce their advantages and drawbacks, and in conclusion provide a view on the benefits brough by online testing options to the traditional classroom environment.

2. Theoretical Framework

The terms testing, evaluation and assessment are often used interchangeably in the context of applied linguistics and language teaching (Janković, 2022, p. 55). Richards and Schmidt (2010), however, make an attempt at distinguishing their meaning.The term evaluation seems to be the broadest, as it refers to "the systematic gathering of information for purposes of decision making" (ibid: 206) and can, as such, be carried out for language courses and programs (in order to determine the quality of their curriculum, teaching materials, grading system etc.) and individuals – language learners (in order to determine their progress, placement, achievement, etc.). The same authors claim that assessment is "a systematic approach to collecting information and making inferences about the ability of a student or the quality or success of a teaching course on the basis of various sources of evidence." Assessment and evaluation are therefore two interconnected processes (Janković, 2022, p. 59; and assessment can be observed as an integral part of evaluation. On individual level, i.e., level of students, evaluation includes continuous monitoring, measuring and assessing whether teaching goals and outcomes have been achieved. Assessment is therefore a way of measuring students' success at a course / programme using quantitative methods and instruments, one of which is testing, i.e., employing a variety of tests for measuring ability, knowledge, or performance of students (ibid: 591).

Assessment can be classified according to its function and approach (Janković, 2022, p. 59). The approach to assessment can be either formative or summative; while formative assessment takes place during the learning process and involves teacher's (formal or informal) feedback to students aimed at their further progress (Brown, 2004: 6), summative assessment is the assessment of the final outcome of learning in a certain period and often takes form of final examinations (ibid). With regard to function, assessment can be aimed at assessing students' current knowledge and skills, often in form of pre-tests or entry tests (diagnostic assessment), it can assess students' achievement in relation to a certain norm, i.e., typical achievement of a group of students with the purpose of ranking them (normative assessment) or it can be done by using pre-determined set of criteria for measuring students' knowledge and skills for each grade (Janković, 2022, p. 61-63).

Assessment often employs the method of testing, i.e., using tests as assessment instruments. In the context of foreign languages, the purpose testing is to measure a student's declarative *knowledge* of a language and his or her *ability* to use it (expressed through communicative competencies and speaking, listening, writing and reading skills) (Richards and Schmidt, 2010, p. 546). Tests can be standardized (e.g., for international language certificates, such as TOEFL, IELTS, and Cambridge English exams) and non-standardized – made by individual teachers for the purpose of measuring students' achievement in their own courses (Janković 2022, pp. 81-83). Furthermore, testing techniques can employ a variety of questions and tasks, such as multiple-choice questions, gap filling tasks, information gap tasks, cloze tests, etc.

Assessing students' knowledge and abilities has always been one of the challenging tasks for teachers and educators. Some aspects of assessment and testing, however, have been improved using various software tools and platforms.

Moodle (*Modular Object-Oriented Dynamic Learning Environment),* a Learning Management System (LMS) and open-code software especially designed for education, brings many benefits to the assessment process as it contains a number of functionalities both for testing and assessing students' knowledge and measuring their alignment with the learning outcomes of the course. From teachers' perspective, using *Moodle* for testing and assessment significantly reduces the time spent on creating and grading tests, reduces the amount of administrative work related to collecting data and storing grades for homework, tests, quizzes and other assignments (Reinders 2018). Data analytics options enable teachers to evaluate the successful use of each question and task, compare students' data across different semesters and school years and make the necessary adjustments not only to the tasks and assignments, but to the teaching and learning process in general to make them more in line with the learning outcomes of the courses in question.

In addition to *Moodle,* several other software solutions have been used for testing, assessing and evaluating students and courses / programs. One of them is *Microsoft Teams*, "*a cloud app digital hub that brings conversations, meetings, files*

and apps together in a single Learning Management System (LMS)" (Microsoft, 2018) and a part of a commercial software package of tools and applications *MS Office 365* (in addition to *Word, Excel, PowerPoint, Outlook, OneDrive, SharePoint, Forms,* etc.). Though not originally intended for educational, but for business purposes, MS Teams adapted to the new reality that came with COVID-19 pandemic and now contains many education-friendly functionalities, including some basic learning analytics. Numerous research papers deal with the use of MS Teams for educational purposes, especially in the context of its effectiveness for online teaching and learning during COVID-19 (see, for example, Rojabi 2020; Pal & Vanijja 2020, Martin & Tapp 2019) and in comparison, to other similar platforms (e.g., Zou et al. 2020, Coates at al. 2005, Katić et al. 2022), but the possibility of testing, assessing and evaluating students using this platform seems not to have been explored enough.

Testing and assessment can be made more engaging by using elements of play and competition. Even though game elements and strategies have been used in language teaching and learning for a long time, the use of gamified web and mobile apps as an aid in a traditional classroom can significantly contribute to student motivation and engagement and therefore lead to better achievement in a variety of disciplines and educational levels (as reported by Barata et al., 2017; Campos et al., 2015; Deterding et al., 2011; Rachels & Rockinson-Szapkiw, 2017; Zainuddin et al., 2020, etc.). This is especially true with current generations of students, so called digital natives, who are highly engaged in mobile-friendly technology, but also have short attention spans (Csobanka, 2016), are highly competitive, autonomous and individualistic (Singh & Dangmei, 2016). Very popular gamification apps, *Mentimeter* (www.mentimeter.com), *Kahoot!* (www.kahoot.com) and *Socrative* (www.socrative.com), belong to the group of Student Response Systems - SRSs (Moorhouse & Kohnke, 2020), also known as Audience Response Systems – ARSs (Mayhew et al. 2020). Even though they were not originally created for educational, but rather for business purposes (Jović et al. 2021) can be easily adapted not only for in-class testing and assessment, but for engaging students through diverse tasks as well, especially because of the game elements they contain: levels, points, badges, leaderboards, avatars, etc. (Barata et al. 2017).

3. Case Study: Online Testing, Assessment and Evaluation in ESP Courses at FOS

3.1. Background

The Faculty of Organizational Sciences, University of Belgrade, is a business-oriented university with two undergraduate study programs: Management and Organization and Information Systems and Technologies, each divided into several more study modules, and even more specialized master and PhD studies. With each accreditation process, the faculty has made changes and innovations regarding its curriculum (the last accreditation cycle started in the academic year of 2022/23), and each change affected courses in English for Specific Purposes - ESP (Anđelković & Meršnik 2022). For example, the ESP courses present in the previous accreditation cycle, two-semester mandatory courses in ESP1 and ESP2, and one-semester elective ESP3 and ESP4 courses at undergraduate and graduate level were replaced by more specialized and mostly elective courses in English for Management 1 and 2, English for Information Technologies, English for Finances, English for Human Resources Management and Academic English.

Continuing issues in ESP courses, however, are mostly large, mixed ability classes, debatable motivation and mediocre engagement of students that language teachers have been trying to deal with without compromising the quality of teaching and learning and without increasing their already huge work overload. Information technologies have been recognized as a powerful tool for overcoming these issues; fortunately, the faculty itself provides excellent infrastructure to support the use of it in teaching and learning by providing very good internet access, IT support, many computer labs, etc.

In the following lines, we will provide a brief overview of software tools and platforms used for testing, assessment and evaluation over the years in ESP classes at the Faculty of Organizational Sciences.

3.2. Moodle

The first use of LMSs for testing and assessment in our ESP courses started during the accreditation cycle that began in the academic year of 2014/15, and only for students enrolled in Information Systems and Technologies distance learning study program (approximately 80 students per school year). Then available https://dls.fon.bg.ac.rs/ Moodle platform was initially only intended for uploading, distributing and managing teaching materials for ESP1 and ESP2, while both formative and summative testing and evaluation was supposed to be held on the faculty's premises. ESP teachers, however, occasionally made short quizzes aimed at revising individual units or segments of teaching during the semester, which enabled students to win 2-5 bonus points towards their final grade (regular students could win these points during classes). The quizzes would be announced several days beforehand so students could prepare, and would not last longer than 10 minutes. As the quizzes were intended for distance students, they could have been done from any location, so there was no control over academic honesty. The use of *Moodle* for assessment in this period, though limited and uncontrolled, made ESP teachers realize its potential.

In the academic year of 2018/19, ESP teachers decided to transfer mid-term examinations for ESP1 and ESP2, the courses with the largest enrollment, online. Another *Moodle* platform, https://e-learn.fon.bg.ac.rs/, was now used for this purpose

as it had more functionalities and offered more restrictions on quiz attempts. The reason behind the transfer of mid-term examinations from paper to online was practical: the teachers needed to reduce the time spent on grading and providing feedback, as the number of students enrolled in the two courses in question was huge, with more than 800 students in ESP1, and around 700 in ESP2. The preparation for online-mid term examination lasted several months, during which ESP teachers carefully prepared and double-checked question banks and made sure all students become familiar with how to open an account, log into, use the platform and approach the tests. In preparation for online mid-term exams, students were occasionally also presented with brief quizzes for bonus points. It is important to note that mid-term examinations have been held in the faculty's computer rooms and that all the attempts were strictly controlled by using extra restrictions on attempts such as passwords and mandatory network address. The effort devoted to creating and managing quizzes, tests and data banks certainly paid off in the long run, as it not only reduced teacher grading time, but also provided useful learner analytics data for further improvement of the activity (Anđelković-Labrović et al., 2023). Another important advantage of using *Moodle* is that its tests can be set to provide immediate feedback to students, except for feedback on open-ended questions, which still had to be graded manually. The use of this platform continued regularly even during online teaching in COVID-19 pandemic.

With the new accreditation cycle in academic 2022/23 also came new courses (English for Management and English for Information Technologies) and a new Moodle platform https://nastava.fon.bg.ac.rs/which is now quite successfully used not only for short quizzes and mid-term exams, but for final written examinations as well.

3.3. MS Teams

The commercial communication tool *Microsoft Teams*was introduced to FOS courses at the beginning of the pandemic and intended primarily for online teaching and distribution of teaching materials, and not for testing, assessment and evaluation (which could be done either in paper or by using *Moodle* in the faculty's computer labs). ESP teachers have, however, used several of *MS Teams* functionalities and integrated tools to present students with short quizzes or written assignments done individually or in groups during both online and in-class teaching. Additionally, *MS Forms* (as an integral part of MS Teams) has been used for end-of-semester evaluation of the courses, providing valuable student feedback for their further improvements.

MS Teams proved more practical as it exists as a mobile app (unlike *Moodle*) and can be accessed in-class or any other location using a mobile phone. Next, it is more user-friendly for creative individual group assignments that consist of several consecutive steps and require formative feedback provided by either the teacher or the peers. For example, in ESP3 students' hand in the first draft of academic essays and receive both teacher and peer feedback before handing in the final version – all using *MS Teams Assignments* option (this task is described in more detail in Anđelković, 2022).

MS Teams (i.e., its tool *MS Forms*) is, however, less convenient for more formal and summative testing and assessment as it offers fewer question types, weaker security features and fewer restrictions on quiz attempts and therefore less teacher control than *Moodle*, making it fit for cheating. Additionally, *MS Forms* does not enable the creation of question banks, so new questions need to be created (or copied and pasted from another test) each time a new quiz is made, nor does it generate grades automatically, which is impractical and time-consuming for teachers, and makes it inadequate for summative assessment in mid-term and end-of-term examinations.

3.4. Gamification Tools

A detailed account of use of mobile-friendly gamification tools *Kahoot!*, *Mentimeter* and *Socrative*in our ESP classes was provided in Jović at al. (2021). In short, the main reason behind the introduction of short quizzes created using these tools in our large and mixed ability classes was an attempt to increase student engagement and motivation while at the same time measuring their achievement (ibid: 8). Though very convenient for in-class use, these tools were not used during online classes (even though several attempts were made), as competition only motivates and boosts students' morale when they are physically present in the classroom with their peers. The use of gamified quizzes proved to be extremely motivating for our students to engage in learning (Jović et al. 2021, pp. 12-15) and was helpful in mastering the course material (ibid: 10-11).

Other gamification tools, such as *Quizlet.com* (for creating vocabulary lists), *VisuWords.com* (modern online visual dictionary and thesaurus), *Quizbot* (a collaborative gamified quiz application) were only recommended to students for individual work, but their effectiveness was not observed nor measured.

5. Discussion and Conclusion

The software tools presented in this paper belong to different categories and therefore have diverse features and offer varied testing and evaluation possibilities.

On one hand, *Moodle* is a system specially designed for educational purposes (a LMS), with a formal interface, strict organization, high security for testing and evaluation, instant feedback on quizzes, multiple types of questions, extremely valuable learning analytics features that may help teachers improve many aspects of their teaching and assessment / evaluation and align them with the learning outcomes, and many other features. *Moodle* is therefore very useful for testing larger groups of students, as its use saves teacher time spent on grading and providing feedback, on condition that the educational institution is able to offer the facilities necessary for the execution of online examinations (computer labs and good internet connectivity).

Microsoft Teams, on the other hand, was not originally created for education, but was very well adapted for these purposes following the changes brought by COVID-19 pandemic. Since this is predominantly a communication platform, it does not offer such sophisticated testing options for more formal and summative assessment as *Moodle*, but can be successfully used for formative assignments and quizzes that do not require strict control over academic (dis)honesty. Its interface is more appealing that the one *Moodle* has, and the existence of a mobile app makes it more conventient for student use both in-class and from a distance.

Finally, gamified mobile friendly applications *Kahoot!*, *Socrative* and *Mentimeter* serve a different purposes than the previous two: the quizzes created in them can be used as fun activities that raise student engagement and motivation for learning, as they have an appealing interface, make students compete and win various (virtual) awards, but are not adequate for formal assessment of student knowledge as they give teachers very little control over student activities.

In conclusion, all three software solutions make a great difference to the learning and teaching experience, each in their own way. Each one has its own unique features, and the best results are achieved by combining them. By "best results" we do not just mean successful, effortless and fun testing and assessment of students, but using the information gained through tests and quizzes (in form of data analytics) for improving the teaching and learning in our courses, and aligning them with the learning outcomes for better student achievement.

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