

MOODLE-BASED TESTING: A CASE STUDY FROM TEACHING EXPERIENCE

ТЕСТУВАННЯ ЗА ДОПОМОГОЮ MOODLE: АНАЛІЗ ВИКЛАДАЦЬКОГО ДОСВІДУ

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This article explores the implementation and pedagogical impact of Moodle-based testing in higher education, based on a case study from Borys Grinchenko Kyiv Metropolitan University. As online testing becomes increasingly embedded in digital learning, Moodle has emerged as a versatile and widely adopted platform supporting various assessment types aligned with diverse educational goals. Drawing on a mixed-methods approach, the study analyzes data from 73 Master's students enrolled in linguistics courses between 2021 and 2024, combining quantitative indicators such as test scores, completion rates, time-on-task analytics, and question types with qualitative reflections from student feedback forms, faculty notes, and forum interactions. The findings show that Moodle-based testing contributes significantly to formative and summative evaluation processes by offering flexibility in assessment design, adaptability to learning styles, and immediate feedback. Multiple-choice, true/false, and short-answer formats proved especially effective for language learning, enabling frequent low-stakes checks reinforcing engagement and retention. Moodle's built-in features (automated grading, randomized question banks, adaptive questioning, and data analytics) support instructors in tracking student progress and refining their teaching strategies. The article also addresses technical limitations, test integrity, and student perceptions of fairness, particularly in the shift to online education during the COVID-19 pandemic. The study confirms that Moodle-based tests encourage pre-class preparation, enable self-assessment, and support flipped learning approaches. When thoughtfully integrated, Moodle testing saves time, enhances learning outcomes, fosters learner autonomy, and strengthens instructional design. The authors conclude that digital assessments, if aligned with sound pedagogy, can effectively complement traditional teaching, offering scalable and data-driven solutions for contemporary educational contexts.

Key words: Moodle-based testing, online assessment, higher education, learner engagement, assessment design.

У статті розглядається впровадження та педагогічний вплив тестування на платформі Moodle у вищій освіті на прикладі досвіду Київського столичного універси-

тету імені Бориса Грінченка. У контексті зростаючої ролі онлайн-тестування в цифровому навчанні Moodle виступає як універсальна платформа, що підтримує різноманітні форми оцінювання відповідно до освітніх цілей. Дослідження базується на змішаній методології, що охоплює кількісний і якісний аналіз даних 73 магістрантів, які навчалися на лінгвістичних спеціальностях у 2021–2024 роках. До кількісних показників належать результати тестів, рівень проходження, час, витрачений на завдання, та типи запитань. Якісні дані включають відгуки студентів, викладацькі нотатки та обговорення на форумах. Результати свідчать, що тестування на базі Moodle суттєво сприяє як формувальному, так і підсумковому оцінюванню завдяки гнучкості у проектуванні завдань, адаптації до стилів навчання та миттєвому зворотному зв'язку. Формати множинного вибору, «так/ні» та коротких відповідей виявилися особливо ефективними для вивчення мов, оскільки дають змогу здійснювати часті, низькоризикові перевірки знань, які підтримують залученість і запам'ятовування. Інструменти Moodle (автоматичне оцінювання, рандомізація запитань, адаптивне тестування та аналітика) допомагають викладачам відстежувати успішність студентів і вдосконалювати методи навчання. У статті також розглянуто проблеми технічного характеру, академічної доброчесності та сприйняття студентами справедливості під час переходу до онлайн-освіти в умовах пандемії COVID-19. Дослідження засвідчує, що Moodle-тестування стимулює підготовку до занять, сприяє самооцінюванню та підтримує методику перевреного навчання. При належній інтеграції Moodle-тестування не лише економить час, а й підвищує результати навчання, сприяє автономії студентів і покращує дидактичний дизайн. Автори роблять висновок, що цифрове оцінювання, за умови педагогічно обґрунтованого використання, може ефективно доповнювати традиційне навчання, забезпечуючи масштабовані та аналітично підтримані рішення для сучасної освіти.

Ключові слова: тестування на базі Moodle, онлайн-оцінювання, вища освіта, залучення студентів, моделі оцінювання.

Introduction. Online testing is an integral part of the modern education system, which offers flexibility, efficiency, and accessibility to students and educators. Online assessments allow teachers to assess student knowledge, track growth and progress, and give timely feedback. They also offer different engagement opportunities with content, fostering deeper learning and self-regulation. Online tests feature automated grading and adaptive questioning, and the assessment process is becoming more intelligent. Online tests allow each educator to use different question formats, whether multiple choice,

short answer, or interactive exercises. This variety suits different learning styles and makes students more studious in their educational performance.

Given these abilities and improvements, it is pretty unexpected that learning management systems like Moodle are now viewed as comprehensive solutions for online assessment. According to Hrastinski [11], "Moodle allows instructors to design assessments that promote analytical thinking and application of knowledge, rather than simple memorization." Randomized question banks, time limits, and automatic feedback mechanisms in platforms like

Moodle help ensure fair and trustworthy assessments. Moodle includes online testing features that support data-driven decision-making; instructors can review trends in student performance and modify their teaching strategies as needed.

The aim of the article is to examine the effectiveness of Moodle-based testing based on our teaching experience. The paper describes Moodle as an assessment tool by analyzing test design, student engagement, and assessment outcomes, pointing out strengths and weaknesses. The study also discusses challenges such as test security, the prevention of cheating, and technical problems. It evaluates the pros and cons of the tested tasks within the Moodle platform and identifies best practices. We completely support the idea offered by Douglas and Alemanne [7] that “the success of digital assessment tools depends on their ability to balance automation with meaningful pedagogical strategies”.

Literature overview. As a learning management system (LMS), Moodle has become an attractive alternative for various educational contexts thanks to its versatility and user-friendly interface. It provides a web-based learning environment for both traditional and blended education approaches. Many education professionals have used it to develop interdisciplinary courses that are more immersive than what might be achieved in a classroom setting. The utilitarian nature of Moodle has often been hailed as the indicator of its effectiveness, as it embodies the core principles of communication, assessment, and content management, which can match requirements for various education systems [9]. Moodle supports interactive and collaborative learning processes, one of its main strengths. This approach has also been found to increase academic results, with students now learning interactively outside of the classroom thanks to the incorporation of Moodle into curricula [17].

It is worth mentioning how Moodle is flexible to different educational contexts. It has been convenient in language learning, where it can adopt varying teaching methodologies and modify content based on students' learning needs [18]. This adaptability is essential for meeting the challenges of learning environments during COVID-19, which requires a quick transition to an online medium [22]. Its functionality, which includes a structured workflow combining scheduled lecture videos and interactive tools for coursework and communication, has made the platform a successful option for many institutions worldwide with millions of users [22]. Researchers have focused on technical support [24] and perceived ease of use [13] as two critical determinants of Moodle acceptance by students and educators. Moreover, developing user-friendly and well-structured Moodle interfaces is essential for improving user engagement and accelerating educational activities [19].

In a review of studies related to Moodle testing, various perspectives and results demonstrate the platform's effectiveness and user-friendliness in various setups. This research also integrates multiple test methods to determine the proper functions of Moodle and how satisfied the user is with that application [20]. This aligns with the broader theme in education technology research that sees user-centered design as the heart of learning management systems. Additionally, many studies have focused on the advantages of quizzes provided by Moodle in testing students' knowledge. A study that focused primarily on Moodle Tests for online assessments showed that these tools can assess students well on their understanding, which is a critical part of formative assessment, and provide them feedback instantly [9]. Moodle's effect on learning outcomes has been studied in several settings. As Aida's research [1] showed, the e-learning orientation and effective use of Moodle greatly impacted students' learning outcomes regarding on-demand lectures. Educational practices are enhanced not only in engagement but also in academic performance through the integration of Moodle. The comparative efficiency of Moodle versus other platforms has also been explored [23]. These studies prove the different strengths of Moodle in creating a good learning environment.

The need to evaluate the merits and drawbacks of online assessments compared to traditional assessments has received much interest from educational research in recent months, as the world in general has had to rapidly adjust to an online learning environment due to the COVID-19 pandemic. This comparison touches on multiple dimensions, from effectiveness, students' perception, and academic integrity to the overall learning experience. Online assessments may offer a viable alternative to traditional face-to-face assessments, especially since technological developments aim to increase security and credibility and address cheating and plagiarism [14]. According to Rubab and Imran [21], students perceive traditional assessments as more effective for their studies, but they prefer. However, assessments for their flexibility and the possibility of reaching wider areas and improving learning experiences. In addition, the data reported by Ali et al. confirm the validity and reliability of the assessment [2]. Despite all the benefits, the integrity of online assessments is still a concern. Research by Koçdar et al. [12] suggests that students taking courses using distance education report lower confidence measures in relationships than their counterparts in traditional face-to-face courses, leading to concerns regarding the perceived authority of online measurements. This challenge is further magnified by the work of Ali et al. [2], who found that while online assessments can substitute for traditional components, they must be designed with appropriate integrity measures, such

as e-proctoring systems, to ensure fairness and authenticity.

Research literature has focused on the question of whether or not online assessments support student engagement and learning outcomes. For instance, the research reported that while most faculty and students preferred traditional face-to-face classes, they acknowledged the potential of online assessments to enhance interactions and concentration during lectures [16]. Similarly, it has been shown that students in online courses often perform better than those in traditional settings, indicating that well-structured online assessments can improve learning [8]. Research has shown a strong user acceptance of online evaluations from students. It is indicated that a significant shift to online assessments occurred for medical students during the pandemic, resulting in examination methodology changes [3]. Yet still, many students are favoring traditional assessments as they relate them to a more structured and conducive learning environment [16]. This dichotomy manifests itself in educators' need to put in place student preferences or readiness when preparing online assessment formats.

Methodology. This study used a case study approach based on the learning experience of teaching engagement with Moodle-based tests conducted to examine pedagogical implications and quantitative assessment practices. The mixed-method design of the research integrated qualitative and quantitative techniques to provide dual perspectives of how Moodle acts as an enhancing agent for assessment, student knowledge, and learning outcomes.

The sample consisted of 73 Master's students, enrolled in Borys Grinchenko Kyiv Metropolitan University, majoring in period and trained during linguistics courses taught in English from 2021 to 2024.

Data collection. Data were obtained using multiple channels. Quantitative data included scores on moodle-based tests (Module tests, Self-Study tests, and current tests in class), and system-generated analytics (time taken by students to complete tasks, frequency of attempts was not included as the settings allow only one try; completion rates on tests, and numbers of different types of questions attempted, such as multiple-choice questions, True/False questions, and short answer questions. Qualitative data were collected from open-ended student feedback forms administered after course modules, reflective notes by faculty during the teaching period, and by analyzing student participation in the Moodle forums. These qualitative inputs provided insights into the assessment tools' perceived usability, engagement, and pedagogical value. The consent was obtained from all participants to protect the ethical integrity of the study. Students were informed of the study's

purpose, their participation was voluntary, and their responses would remain confidential.

Results and Discussion. To test or not to test. Whether or not to test students is a perennial issue in education. Some teachers indeed turn to alternative assessment methods. However, others value testing to measure a student's progress, reinforce learning, and ensure students engage with course materials. According to Brown [5], assessment is an inherent component of the teaching and learning process, as students and teachers use it to gain feedback that influences instructional decisions. In the same way, Nicol and Macfarlane-Dick [15] argue that good assessments are not only assessments of knowledge; they are assessments for learning: tools that help the learner (the novice) regulate their learning. In higher education, especially inside learning management systems (LMS), Moodle facilitates this by allowing different types of assessments to be developed within the platform itself and allows students to do different kinds of assessments, tests being one of them. Testing is still widely used in higher education because tests are easy to collect course results (audit), but tests are also time-consuming since they take time to construct.

The Moodle platform is widely used in our university, and online testing is integral to the education process. One thing that allows students to benefit from Moodle-based tests is that they allow educators to embed assessments in various ways throughout the learning process. This implies that tests should not be treated separately from the session plan: they can be embedded as a one-minute verification of students' home assignments, as they can provide insight into multiple components rapidly – vocabulary, grammar, reading, etc. Formative assessments, such as polls and quizzes, allow students to receive on-the-spot feedback, honing in on what they know and where they struggle early in the learning process.

Another key function of testing is its encouragement of preparatory work before sessions. Pre-session tests may encourage students to read the material before the session begins as in most lecture-type classes where theoretical concepts are introduced. Making it compulsory for the students to do a short test before attending the lecture ensures that they come to the class with a basic idea of the topic, which can enhance their contribution and engagement during the lecture. This model is consistent with flipped learning theory, which requires students to independently prepare theory before the formal onset of discussions in class [4].

Moodle-based tests are also helpful for self-study, in addition to their use in synchronous learning activities. When used as self-assessment exercises, tests can help students gauge their progress over time and assess material that may need further review. This is especially beneficial when tests cover

material that will eventually be on final exams, as it allows students to reinforce their learning through spaced practice. Self-study tests, further, can be designed to adapt to the student, giving personalized feedback and directing them to particular resources based on performance. Paced testing facilitates customized learning, which has become the focus in modern education and is expanding rapidly [10].

Types of Tests Available in Moodle. Moodle-based testing is used for a constructive and integrated experience of course learning. Moodle provides reliability and fairness in assessment with features like randomized question banks, automated grading, and analytics tools. Moreover, online testing can make room for different types of questions, such as the common multiple-choice and short-answer questions, matching exercises, and fill-in-the-blank tasks. This versatility creates a more engaging and representative view of students' revised cognitive abilities.

The other important aspect of Moodle-based tests is that they can include adaptive and interactive elements. For example, teachers use drag-and-drop practices, an exercise where students organize concepts or pair definitions with terms, which gives interactive learning. Moodle also allows for randomization of question banks, so students will receive different sets of questions with each iteration of a quiz, reducing the chances of memorization-based answers. They can also be time-restricted and include the opportunity to provide students with instant feedback, with explanations of what constitutes the correct and incorrect answers. Thus, Moodle is a great Learning Management System for applying diverse and practical assessment approaches in formative and/or summative contexts.

Preference for Multiple-Choice and True/False Tests. Based on our teaching experience, a probabilistic test (multiple-choice or true/false) is one of the fastest test formats most appreciated by the participants when associated with other session activities. These tests are easy to design, fast to take, and efficient to grade, making them well-suited to checking students' understanding of vocabulary, grammar, and reading comprehension. Since we do not primarily instruct through testing but rather see testing as an activity that supports instruction, these formats provide the best balance between assessment and instruction time: "Well-constructed multiple-choice tests ... reinforce learning by promoting retrieval practice and immediate feedback" [6].

This is particularly important in foreign language teaching, where teachers must assess various language competencies in a limited time. Multiple-choice and true/false tests enable us to check if students are grasping key concepts quickly and without breaking the flow of our lesson. However, such assessments also allow the instructor to ensure students are consistently exposed to the course

materials, as they tend to be easy checkpoints rather than high-stakes assessments. Moreover, with Moodle's automatic grading feature, assessments are quickly evaluated, saving instructors from investing all their time in correction and allowing them to spend more time on interactive and communicative activities.

We have found that including these test formats in our session plans has improved their structure and helped keep student interest up. By inserting short tests at either the start or the end of a session, we cement the learning and keep students' minds on essential points. Open-ended assessments like essay questions are sometimes practical. Still, we prefer formats with more closed-ended assessments, like multiple-choice or true/false questions, for their practicality in language learning. It helps maximize the time we have in class, on the one hand, for discussions and, on the other hand, minimize the loss of time spent on checking and verifying home assignments.

Conclusions. Due to the importance of the pedagogical impact of Moodle-based testing, the debate on the question of testing or non-testing continues, and perhaps it will never find a clear direction; however, we can confidently say that, based on our experience, the Moodle solution provided significant pedagogical benefits. It has different purposes: formative assessment, motivation to prepare before the session, help for self-study topics, or summative evaluation. Once practical tests are designed and integrated into the learning process, they enhance student engagement and ultimately lead to an improved, structured, and data-driven approach to the assessment. Testing in Moodle helps educators adapt how they teach and provide the best learning experience to students.

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