Moodle's impact on learner motivation

Vladimir Beketov [a1], I.M. Sechenov First Moscow State Medical University, Russian Federation, vladimirbeketov2@rambler.ru https://orcid.org/0009-0004-2757-8029

Marina Taranova[b], I.M. Sechenov First Moscow State Medical University, Russian Federation, marinataranova5@rambler.ru https://orcid.org/0009-0002-9861-2453

Marina Lebedeva[c*], I.M. Sechenov First Moscow State Medical University, Russian Federation, marinalebedeva11@rambler.ru

Abstract

This paper examines the impact of online learning platforms on learner motivation throughout an academic program. A survey conducted among university students served as the primary research method, with findings analyzed through ANCOVA. The results revealed that online learning platforms positively influence learner motivation, as evidenced by significantly higher scores in key areas such as acquired knowledge, proficiency, and overall graduation outcomes in the experimental group compared to the control group. These findings underscore the potential of online learning platforms to enhance educational engagement and performance. The study offers valuable insights for educators and administrators by highlighting the advantages of integrating online platforms into academic curricula. It also supports the conclusions of previous studies, affirming the role of technology in fostering motivation among learners. The results can guide educational institutions in selecting the most effective platforms by providing a balanced overview of their strengths and limitations

Keywords: distance learning; learner motivation; LMS; Moodle; online learning

** ADDRESS FOR CORRESPONDENCE: Vladimir Beketov, I.M. Sechenov First Moscow State Medical University, Russian Federation. *E-mail address*: vladimirbeketov2@rambler.ru

1. INTRODUCTION

Online learning in higher education will become more popular, as evidenced by the growing number of students enrolling in online courses (Snyder & Cannoy, 2013). The quality of online learning is getting better every year (Davletova et al., 2016). An online learning system that motivates students to be proactive learners needs to be logical, user-friendly, and down-to-earth, and it needs to address student needs (Nagra, 2014; Kidron & Kali 2024). The system should contain various elements of communication with instructors, so they can assess students' learning activities from time to time (Liao et al., 2011). Students may provide feedback on online forums (Songkram, 2017; Xue et al., 2023).

Online learning effectiveness is based on clear planning and teaching. Students and instructors can communicate outside the classroom, allowing students to develop research and thinking skills as well as gain new knowledge needed in their careers (Songkram, 2012; Simon et al., 2024). The learning environment and interaction between instructors and students can also affect student learning, although the technical reasons are more often addressed in online learning research (Rabe-Hemp et al., 2009).

Online learning methodology enables higher education institutions to improve the quality of their services (Liu et al., 2020). Distance learning probably came about to provide equal access to education for those who do not have the resources to get a traditional education (Zamecnik et al., 2022). Therefore, educational institutions need to build quality systems and resources to support teaching and learning, which is critical to the effectiveness of distance learning. The system's success depends on its design and management. That way all elements of the system are integrated and meet the required quality standards (Abuhassna et al., 2020; Gamage et al., 2022).

The key functions of distance learning include creating systems for designing and developing course content and resources tailored to students, establishing operational and administrative procedures suitable for online learners (Cakrawati, 2017), identifying and supporting appropriate learning technologies and interconnections, and implementing effective student support systems (Gunawan et al., 2020).

Quality support needs to be provided for distance learners in compliance with labor laws. The teaching approaches are based on the division of labor principles. Employees contribute differently when working as a team, developing and delivering learning resources (Jumareng et al., 2021). The operational management in distance learning should integrate all components of the system because one part of the system will depend on the other (Ritonga et al., 2022).

1.1. Literature review

Motivation in education is determined by a set of motives that push the student to acquire knowledge and engage in learning activities (Irvine, 2018; Wigfield et al., 2012). Motivating factors in education can be primarily the curiosity of educational material and interest for students how to present it to students in class, a variety of tasks, balance between theory and practice, the use of modern teaching methods and innovative technologies, attention to the level of success of each student (Greene et al., 2020). The level of motivation affects the success of students and the effectiveness of the educational process.

In the conditions of the pandemic, online learning is intensified, which can be implemented with the help of online educational platforms, the work requires prior acquaintance and training with the specifics of the implementation of training on educational platforms. To maintain a sufficient level of motivation for students to study or increase motivation, it is necessary to acquaint students with what online educational platforms exist and how to use them properly so that students can confidently use them in learning without difficulty.

The study identified such components of motivation as motivation to gain knowledge, motivation to develop the necessary professional qualities and skills, and motivation to graduate, as well as analyzed opportunities to improve each component through online educational platforms. Nine different online learning platforms are

becoming increasingly popular. University administrators face challenges in choosing the best platform to provide quality education and maximize student and faculty comfort (Liu et al., 2020).

Moodle can convert course content and learning resources into online forms (Abdula et al., 2020). Moodle is a free open-source software (under the GNU Public License) (Cabero-Almenara et al., 2019). Using this system, online learners enjoy free access to various learning resources, as well as interact with their professors and classmates, which makes learning dynamic. Moodle has several features that can support online learners and various learning activities, including videos, discussion forums, chat, and quiz learning resources (Papadakis et al., 2018). Moodle can be used for text lectures, surveys, and interactive learning resources. The platform's feature set can be expanded with plug-ins (Simanullang & Rajagukguk, 2020).

iSpring Learn is the world's leading producer of e-learning courses and online presentations. iSpring makes extensive use of advances in cutting-edge multimedia technology in education and business (Pak, 2020). Several versions of this program have become popular, including iSpring Presenter, iSpring Online, iSpring PRO, iSpring QuizMaker, and iSpring Suite. With iSpring, instructors can not only record videos for each lecture but also prepare various interactive exercises and tests, and get the results of tests and assignments. *iSpring Learn* for distance learning makes learning proactive and tracks learning outcomes (Andriani & Hutagalung, 2021).

WebTUTOR is a web application running on the LAMP platform (Linux, Apache, MySQL, PHP). All information and academic program structures are stored in a database. Exams and course information can be exported from the app either through the web interface or as an XML file (Khaluyeva, 2019). Various reports can also be processed using the web interface or XML files, based on specific arrangements. Students can also import their statements and certificates into the system if they meet the particular requirements. The app is run via a web browser (Banko, 2022). Users are divided into three different roles: students, faculty, and administrators. Students constitute the main target group. They make their plans. First, they choose the plan structure. While planning, they can make some limited changes. After choosing a structure, students import their current research into the system and place it in the structure. The plan is then filled with missing research (Staselko & Sychev, 2019).

Open edX is an online learning system that is used for distance learning anytime, anywhere (Volchek et al., 2017). A flexible learning schedule is another advantage (Kerr et al., 2018). Recorded video tutorials can be viewed at any time, and homework can be done whenever convenient, but within the deadlines. Such arrangements constitute a proactive learning approach.

NEO LMS. This software is proprietary and requires a license. This is a commercial platform with 14 days trial period (Zapata & Polo-Mantuano, 2021). This resource is free for institutions with a maximum of 400 students (Muñoz-Vázquez et al., 2020). NEO LMS has an extensive feature set for creating learning content. Webinars may be held as well (Sari, 2021). For student convenience, the platform provides options for creating schedules, posting news, downloading and uploading assignments, and learning resources in various formats. Group chats can be set up. The instructor may track students' overall progress, time they spend on a topic, track their activity on the site, etc. NEO LMS provides ample opportunities for assessing students' learning activities (Sosnovskikh & Rogova, 2021).

1.2. Purpose of study

The paper examines Moodle's impact on learner motivation throughout the academic program. Research tasks included the following: assess the learner motivation with a survey; identify any differences in motivations within the control and experimental groups; provide recommendations for instructors regarding improvements in online learner motivation.

2. METHODS AND MATERIALS

To determine the online learning platforms' impact on learner motivation, a quasi-experimental study was conducted to identify and analyze the cause-and-effect relationships between independent and dependent variables in a controlled context.

2.1. Participants

One hundred (100) students of [BLINDED] University were selected for the survey, of which 50 were randomly selected for an experimental group and the other 50 were randomly selected for a control group. The participants' mean age is 19 years. The control group's online learners used social media and email (Viber, Telegram, ZOOM, etc.), while the experimental group used Moodle. The classes were conducted by university professors for a month. Students and instructors required a smartphone and/or PC to learn.

2.2. Data collection tools

T.I. Ilyina's Methodology for Measuring University Student Motivation was used (Appendix 1) (Testoteka, 2022). The questionnaire contains 50 statements. The respondents had to either agree or disagree with them. There are three scales: "Acquired Knowledge" (motivation to gain knowledge), "Proficiency" (motivation to develop the necessary professional qualities and skills), and "Graduation" (motivation to graduate). The questionnaire contains several underlying statements that were not factored in.

2.3. Analysis

Cronbach's alpha (which had a value of 0.91) was used to test the questionnaire's reliability. This implied the questionnaire's validity for the study (Mallery & George, 2000). ANCOVA determined the model's effectiveness. The Shapiro-Wilk test was used to calculate the data normality.

3. RESULTS

3.1. Motivation analysis

The Shapiro-Wilk test yielded the value of 0.96 (p=0.23), suggesting a normal distribution of the data. Levene's test (F=3.11, p>0.05) made it clear that there were no significant differences in the two groups' variance. The assumption of regression slopes' homogeneity was validated, enabling a one-way ANCOVA (F=0.26, p> 0.05).

Table 1 shows ANCOVA findings on learner motivation. The adjusted mean and standard error were 6.7 and 0.11 for the control group and 8.4 and 0.12 for the experimental group. The results suggest that there was a significant difference in scores between the two groups after the survey (F = 9.84, p < 0.05).

Table 1
ANCOVA findings on motivation

Scale		N	Value	SD	Adjusted mean	SE	*F*	η^2
Control group								
Acquired Knowledge		50	8.4	0.70	8.7	0.08		
Proficiency		50	6.2	0.59	6.4	0.11		
Graduation		50	5.3	0.92	5.0	0.15		
Experimental group								
Acquired Knowledge		50	10.6	0.68	10.4	0.08	8.23[**]	0.76
Proficiency		50	8.7	0.63	8.9	0.11	6.70[*]	0.10
Graduation		50	6.2	0.81	6.0	0.15	7.17[*]	0.10
	Control group	50	6.6	0.74	**6.7**	0.11		
Total	Experimental group	50	8.5	0.71	**8.4**	0.12	9.84[**]	0.15
**p<0.01. * p < 0.05.								

The current study further analyzed three scales of the questionnaire. The findings suggested that the experimental group achieved significantly higher scores than the control group on "Acquired Knowledge" (AM = 10.4, SE = 0.08), "Proficiency" (AM = 8.9, SE = 0.11), "Graduation" (AM = 6.0, SE = 0.15). The resulting data suggest that Moodle is effective in improving learner motivation. The experimental group had a much better motivation compared to the control group.

4. DISCUSSION

Significant differences in the three scales of the motivation questionnaire were observed between the two groups when using this learning system, making it clear that learner motivation has been improved in the case of online platforms. The approach makes learners more conscious, improves learning behavior, and self-observation, allows learners to reach their objectives, and improves critical thinking and deep learning skills (Atabay & Çakıroğlu 2024).

Moodle's impact on learner motivation, as well as the achievements of students who used this platform, were measured (Frisnoiry & Darari, 2020). The research findings suggested that the system significantly affects learner motivation and is consistent with the resulting data. The students' mean scores (as measured by the test) also increased. Students' mean score on the pre-test was 67.6, and students' mean score on the post-test was 92.3.

Indonesian researchers addressed online learner motivation using LMS-based Moodle apps (Simanullang & Rajagukguk, 2020). The platform improved the learning expertise. Observations showed that the average learner motivation ranges from 83% to 90%, suggesting a proactive learning approach, which is consistent with the findings of this study. The authors concluded that Moodle-based LMS can enhance online learning. That way, learning will not be subject to any classroom-related time restrictions.

Game elements introduced into Moodle e-learning courses were studied in the case of Thailand (Poondej & Lerdpornkulrat, 2020). Learner motivation and engagement can be one of the biggest challenges of e-learning. Gamification is gaining increasing attention as the teaching approach's crucial aspect that can be used to enhance learner engagement and motivation. The findings suggested that students were very satisfied with the gamification tools in Moodle and were involved in the gamified e-learning. The authors found a significant difference in the frequency of online interactions between the group that performed above average and the group that was below average.

Russian researchers have identified problems with learner and instructor motivation in the Moodle environment (Aikina & Bolsunovskaya, 2020). The research findings suggest that the crucial factors of learner motivation include: additional points for student evaluations; access to a cell phone and laptop; instructor's feedback via Moodle; and course content and learning resources available online. On top of that, the resulting data suggest that the most demotivating factors affecting online learner engagement through Moodle include: technical problems, deadlines, typos in tests, and improper automatic grading.

Improvements for more efficient learning have been suggested. First, because of a significant demand for continuous technical support, Moodle administrators and course creators must work in close coordination with those faculty who are updating e-courses and apply them to support their face-to-face teaching (Zainul et al., 2020). Different ways of instructing teachers should be provided regularly in the form of webinars, workshops, master classes, written instructions, etc. Possible problems can be prevented by checking each new course for errors and typos in focus groups. Second, students should be involved in discussing instructor-student collaboration rules in Moodle, such as reasonable deadlines for submitting essays, time to provide feedback, and the number of assignments uploaded online (Surjono, 2014). Third, steps should be taken to prevent plagiarism in student work, as well as to identify the platform's actual user (Kawuri et al., 2019). This can be achieved by establishing a transparent assessment system that includes grades for originality, meeting deadlines, and validating knowledge in class. The findings should be taken into consideration by instructors, administrators, and

the technical support team to set up a motivating environment for both students and instructors in Moodle (Sabah, 2020).

Online learner motivation was studied by Gustiani (2020). Due to the sudden shift from traditional face-to-face learning to online learning, some contemporary studies suggested that online learner motivation was affected by both internal and external factors. Online learner motivation was more affected by the intrinsic willingness to gain new knowledge and the pleasure of using new methods of learning. External motivation was also influenced by external regulators and the environment. However, lack of motivation was also caused by poor external support (Servidio & Cronin, 2018).

Based on the findings on the online learning platforms' impact on learner motivation, the following recommendations for instructors to effectively improve online learner motivation were developed by the authors.

Clearly define course and activity goals to enhance learner motivation. Provide a detailed program including course objectives, class format, schedule, and tips for success. Regularly update the course website with information on module openings, closings, or changes. Use a course syllabus survey at the beginning to inform decisions about assignments. Develop weekly schedules with predictable deadlines to foster consistency.

Engage actively by logging in frequently, responding promptly, and showing genuine enthusiasm. Introduce a weekly Tips and Tricks section where students can share suggestions with peers. Foster self-efficacy by recognizing students' achievements and improvements. Choose communication methods that suit students' preferences, such as email, forums, or video chats. Use iChat videos for personalized discussions and interactions.

Strike a balance between motivational learning and firm deadlines by setting clear expectations and consequences for late submissions. Ensure timely evaluation of completed assignments. Consider using video or audio feedback as an engaging alternative to written feedback for assignments. The findings suggested that, compared to the traditional approach to online learning, online platforms can be effective in improving learner motivation.

5. CONCLUSIONS

The research measured online learner motivation, as well as identified significant differences in learner motivation in the control and experimental groups. The experimental group scored significantly higher (8.4) than the control group (6.7), suggesting that this model can significantly improve learner motivation compared to the traditional approach to online learning.

Online learning systems have many advantages, which should be leveraged to make higher education more convenient and popular. It is important to ensure that such advantages are well understood. To this end, special classes can be held for instructors, where they will be introduced to the platform details. The findings may be relied upon when developing an action plan to streamline the online learning process, so that student motivation may be improved effectively.

Further research could be conducted among instructors to determine their attitudes toward online learning systems. To do this, a survey or semi-structured interviews may be arranged. Relevant systems can also be analyzed according to different criteria, expanding the number of systems and conducting a comparative analysis. The survey's short duration, as well as the relatively small sample size, could be regarded as the survey's limiting factors. Other limiting factors might include different learning styles and student personality traits, which should be taken into account to further expand the scope of the study.

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Appendix 1

Data input form
Instructions: Mark your agreement or disagreement with the following statements with a "+" or "-".
1.   The best classroom environment is one of free speech.
2.   I usually work with a lot of tension.

3. I rarely get headaches in case of agitation and trouble.
4. I learn independently several subjects that I think are necessary for my future career.
5. Which of your personality traits do you value most? Write the answer next to it.
6. I believe that life should be devoted to a chosen career.
7. I enjoy being challenged in class.
8. I do not see the point in most of the work we do at the university.
9. I feel greatly satisfied when telling my friends about my future career.
10. I am a pretty average student, never going to be quite good, and so there is no point in making the effort to get better.
11. I believe that higher education is not a must-have.
12. I am sure in my career.
13. Which of your personality traits would you like to get rid of? Write the answer next to it.
14. Whenever possible, I use auxiliary stuff (notes, cheat sheets) in exams.
15. My college years are the most wonderful time of my life.
16. I have extremely restless and interrupted sleep.
17. I believe that all academic disciplines must be approached equally well to become proficient in my field.
18. If possible, I would have gone to another university.
19. Normally I take on the easier tasks first and leave the more difficult ones for later.
20. I experienced difficulties when choosing a career.
21. I can sleep well after any trouble.
22. I firmly believe that my career will give me satisfaction and prosperity.
23. I think my friends can learn better than I can.
24. I need to have a graduate degree.
25. For some reason, it is the most convenient university for me.
26. I am committed to learning without being reminded by the administration.
27. Life for me is almost always associated with extraordinary tension.
28. Exams should be passed with minimal effort.
29. There are many institutions where I could have studied with just as much interest.
30. What is the one personality trait that prevents you from learning the most? Provide the answer next to it.
31. I am a very enthusiastic person, but all my hobbies are somehow related to my future career.
32. Worrying about an exam or work that is not done on time often keeps me from sleeping.
33. High salary after graduation is not the main thing for me.
34. I need to be in good spirits to support the group's decision.
35. I had to go to the university to get the social status I wanted and to avoid military service.
36. I learn to become a professional rather than for the exam.
37. My parents are experienced professionals, and I want to be like them.
38. I need to graduate to be promoted.
39. What is one of your personality traits that helps you learn? Write the answer next to it.
40. I find it very difficult to make myself study properly in subjects that are not directly related to my career.
41. I am very concerned about possible failures.
42. I do best when I am inspired or spurred on from time to time.
43. My choice of this university is final.
44. My friends have graduate degrees, and I do not want to fall behind them.
45. To convince a group, I have to work very hard on my own.
46. I am usually in an even and good mood.
47. I am attracted by the convenience, neatness, and ease of my future career.
48. Before enrollment in the university, I had been interested in this career for quite a long time, I read a lot about it.
49. The career I am pursuing is the most important and promising.
50. My knowledge of the profession was sufficient for a confident choice.

Processing and interpretation of results
"Acquired Knowledge"
- agreement ("+") with the statement on clause 4: 3.6 points; agreement ("+") with the statement on clause 17: 3.6 points; agreement ("+") with the statement on clause 26: 2.4 points;
- disagreement ("-") with the statement in clause 28: 1.2 points; disagreement ("-") with the statement in clause 42: 1.8 points.
The maximum is 12.6 points.
"Proficiency"

- agreement on clause 9: 1 point; agreement on clause 31: 2 points; agreement on clause 33: 2 points; agreement on clause 43: 3 points; agreement on clause 48: 1 point; agreement on clause 49: 1 point.
The maximum is 10 points.
"Graduation"
- disagreement on clause 11: 3.5 points;
- agreement on clause 24: 2.5 points; agreement on clause 35: 1.5 points; agreement on clause 38: 1.5 points; agreement on clause 44: 1 point.
The maximum is 10 points.
The questions in clauses 5, 13, 30, and 39 are neutral to the questionnaire's purpose and were not processed.

T.I. Ilyina's Methodology for Measuring University Student Motivation was used (Testoteka, 2022)