

SEEJSD

SOUTH EAST EUROPEAN JOURNAL OF SUSTAINABLE DEVELOPMENT

Vol. 9 (1/2025)



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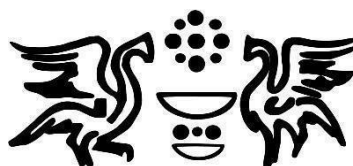
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Editorial Foreword

Prof.Dr. Bekim Fetaji

Editor

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Welcome to the new Issue of the SEEJSD Journal with ISSN: 2545-4471. The topics covered by this Issue are related to the current trends of research, original research that uncovers sustainable development.

SEEJSD Journal as an international journal that effectively provides a forum for academics, professionals, graduate and undergraduate students, fellows and associates to share the latest developments and advances in knowledge and practice of Economics and Business; Information Technology and Engineering, Technics and Technology; Humanities and Social Sciences. Our interest in promoting high-quality research is clearly reflected in having an established peer reviewing process and a high-profile expert group of Associate Editors and Editorial Board Members.

Hopefully you find this Issue valuable and we definitely look forward to receiving your high-quality studies for the next issue of the Journal.

Prof. Dr. Bekim Fetaji
Editor

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Review of the Usage of E-learning Platforms

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ABSTRACT

E-learning is a delivery of learning resources through special e-learning platforms and the Internet. These resources can be used anytime and from anywhere. The need for such systems was especially evident during the Covid-19 pandemic. A large number of institutions implemented e-learning systems in order to continue with the educational process. In this paper we present a comprehensive review of the usage of e-learning platforms.

KEYWORDS

E-learning platforms, Learning Management Systems, Moodle.

1 Introduction

Nowadays, the technology plays a major role in addressing the everyday challenges we face. The availability of the Internet has significantly helped in obtaining fast and timely information. All this contributed to rapid technological progress and development of new digital skills [1, 2].

E-learning or electronic learning is a delivery of learning content using digital technologies and tools that enable access to learning resources over the Internet [3, 4]. For this purpose, Learning Management Systems (LMS) are developed and used [12, 13]. The delivered content is in digital format and can be viewed, downloaded and reused at any time and from any device [5, 6]. In this way, the shortcomings of traditional learning are removed, where the resources are not constantly available or cannot be used in a certain period of time. The e-learning often includes a variety of learning resources such as presentations, videos, quizzes, audio, simulations, animations and so on. A variety of content helps students master the material more easily and quickly. The students can study at their own pace depending on their daily activities. Some of the e-learning platforms offer virtual classrooms [7, 8] where the classes take place online and are led by a professor. Modules such as assignments and quizzes allow professors to regularly monitor student progress through specific questions and assignments. Collaboration and communication with students are possible through forums, direct messages and discussion forms. The importance of e-learning was especially noted during the period of Covid-19 pandemic [9, 10, 11]. By using the e-learning platforms, the educational process continued, which had to be carried remotely due to circumstances. During that period, some educational institutions had implemented e-learning platforms, while others had to do that.

According to our research, there are several papers related to e-learning that present a review of literature for a certain period of time, but not for a longer one. All this limits us in terms of drawing general conclusions regarding the usage of platforms and technologies. This is the reason why in this research we present a comprehensive review of the usage of e-learning platforms.

The rest of the paper is structured as follows. Section 2 presents some of the most used LMS and the application of e-learning in specific fields. Section 3 describes the research methods used for the review of the papers. Section 4 presents the main findings and results. The last Section 5 is a conclusion of our work.

2 E-learning Platforms

Nowadays, multiple LMS have been developed and are in use. Such systems are: Moodle, Blackboard, Canvas, Google Classroom, TalentLMS, etc. Some of these systems are open source and free to use while others are commercial. They enable and encourage the concept of e-learning. They are most often used in the education sector, although their application in other fields is not excluded. For example, e-learning platforms can be used in the healthcare sector to train healthcare professionals [13]. They can be used by businesses to train their employees. The platforms can be used to conduct personalized training in a specific field with adaptive learning paths. Given the flexibility they offer in terms of availability of materials and access to them, they can be used in different scenarios.

With the development of technology, other new technologies such as Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), etc., are increasingly being used alongside the e-learning systems. These technologies contribute to improving the learning process, increasing the motivation of learners, and creating innovative approaches in education.

3 Research Methods

In our research, we include papers that have been published in the period from 2020 to 2024. This includes the period during and after the Covid-19 pandemic. Many e-learning platforms have been implemented in this period and with this paper we review the new trends and technologies related to e-learning. We used the Google Scholar platform for literature review.

For excluding the papers that are inappropriate to our main topic and point of interest, we used the following criteria:

- The research papers are not published in the period from 2020 to 2024;
- Papers that present the basics of e-learning platforms but do not provide examples of e-learning platforms in certain area;
- The research work is thesis, dissertation, survey or review paper;
- Papers that provide introduction to e-learning and learning management systems;
- Papers with informal context.

According to the given criteria, we selected a total of 23 papers. The Appendix A at the end of the paper covers the selected research papers.

The main research questions are:

- In which field are the e-learning platforms used?
- Which e-learning platforms are mentioned?
 - Do e-learning platforms include application of new trends and technologies related to Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), etc.?
- Are the mentioned e-learning platforms open-source and free to use or commercial?
- Are there mobile applications for the used e-learning platforms?
- What are the benefits of e-learning platforms?

4 Findings and Results

- In which field are the e-learning platforms used?

The e-learning platforms were most widely used in education during the given research period. This is expected given the fact that during this period, the majority of educational institutions had distance learning. Only paper [26] shows a possible application of e-learning in business sector. In the future, e-learning should be appropriately and better promoted to expand its application in different fields.

- Which e-learning platforms are mentioned?

Moodle - [15] [16] [17] [18] [19] [21] [22] [23] [24] [26] [27] [28] [29] [30] [33] [34] [35] [36] [37]

Google Classroom - [15] [16] [18] [19] [23] [28] [30] [32] [34] [35]

Edmodo - [15] [17] [18] [19] [27] [30] [35]

Schoology - [15] [24] [29]

Blackboard - [17] [27] [29] [30] [32] [34] [36] [37]

Sakai - [17] [29] [30] [37]

Canvas - [17] [24] [29]

Docebo - [24] [32]

iSpringLearn's - [24]

Brightspace - [24]

TalentLMS - [24]

Absorb LMS - [24]

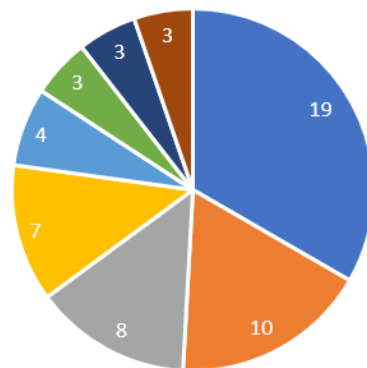
Desire2Learn - [29]

ANGEL - [29]

Jenzabar - [29]

PowerSchool (Haiku) - [29]

Etudes - [29]



- | | |
|--------------|---|
| ■ Moodle | ■ Google Classroom |
| ■ Blackboard | ■ Edmodo |
| ■ Sakai | ■ Canvas |
| ■ Schoology | ■ Specially developed e-learning platform |

Figure 1. Mentioned e-learning platforms

Cisco Collaborative Knowledge - [30]
 Braidio Collaborative Learning Platform - [30]
 Echo 360 Active Learning Platform - [30]
 WizIQ - [30]
 Snapwiz - [30]
 ATutor - [37]
 MyGuru2 - [37]
 Claroline - [37]
 SumTotal - [37]
 Litmos - [37]
 Connect Edu - [37]
 Specially developed e-learning platform - [20] [25] [31]

According to the conducted research, it can be seen that the most used e-learning platforms are Moodle, Google Classroom and Blackboard.

- Do e-learning platforms include application of new trends and technologies related to Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), etc.?

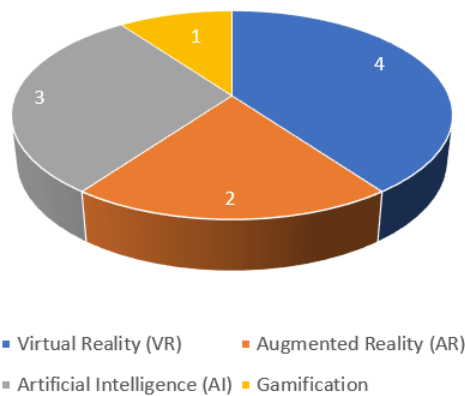


Figure 2. E-learning with new trends and technologies

Virtual Reality (VR) - [16] [19] [24] [34]
 Augmented Reality (AR) - [24] [34]
 Artificial Intelligence (AI) - [24] [31] [34]
 Gamification – [26]

In relation to the reviewed papers, the number of papers that use new technologies such as VR, AR, AI, etc. is small (Figure 2).

- Are the mentioned e-learning platforms open-source and free to use or commercial?
 Open source - [15] [16] [17] [18] [19] [21] [22] [23] [24] [26] [27] [28] [29] [30] [33] [34] [35] [36] [37]
 Commercial - [15] [16] [17] [18] [19] [23] [24] [25] [27] [28] [29] [30] [31] [32] [34] [35] [36] [37]

We can see that the reviewed papers include both open source and commercial e-learning platforms.

- Are there mobile applications for the used e-learning platforms?
 No - [15] [16] [18] [19] [20] [21] [22] [23] [25] [26] [27] [31] [32] [33] [34] [36] [37]
 Yes - [17] [24] [28] [29] [30] [35]

Most of the papers do not mention the existence of mobile applications as e-learning platforms. Given the popularity of portable devices and the increasing number of accesses from them, the existence of special mobile applications for e-learning can significantly improve the user experience.

- What are the benefits of e-learning platforms?
 The benefits of using e-learning platforms are enormous. Some of them are: flexibility, improved learning, efficiency, on demand availability, interactivity, self-pacing, increased convenience, improving the communication between the teachers and students, encouraging collaborative learning, sharing materials, interactive learning experience, collaboration, global scope, etc.

The main limitation of the paper is the limited number of analyzed papers and the usage of single source of papers for reviewing.

5 Conclusion

Electronic learning significantly contributes to access to digital learning resources anytime and from anywhere. For this purpose, special learning management systems have been developed nowadays. In this paper we present a comprehensive overview of the usage of e-learning platforms during and after the Covid-19 pandemic. It shows the most commonly used e-learning platforms, the usage of new trends and technologies in the process of e-learning, the availability of the platform, the existence of mobile version and benefits.

APPENDIX A

| | | Field of usage | Mentioned e-learning platforms | New trends and technologies (AI, VR, AR, etc.) | Open source and free to use or commercial | Mobile application | Benefits of using the e-learning platform |
|--|--|----------------|--------------------------------|--|---|--------------------|--|
| | | Education | Moodle Google | / | Open source and free to use or commercial | No | -Time management - Improvement of communications skills |

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| | | | C l a s s r o o m E d m o d o S c h o o l o g y | | m m e r c i a l p l a t f o r m s | | - Easier knowl edge applic ation |
| | | E d u c a t i o n | M o o d l e G o o g l e C l a s s r o o m | V R | O p e n S o u r c e a n d c o m m e r c i a l p l a t f o r m s | N o | / |
| | | E d u c a t i o n | B l a c k b o a r d M o o d l e S a k a i | / | O p e n S o u r c e a n d c o m m e r c i a l p l a t f o | Y e s | - Focus on the needs of indi vid ual learne rs - Impro ves studen ts' perce ption towar ds home work - |

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| | | | C a n v a s S c h o o l o g y E d m o d o | | r m s | | Enhancing the confidence and ability of students to lead Discussions - Supports Learners with disabilities - Staff Professional Development - Continued Education |
| | | E d u c a t i o n | G o o g l e C l a s s r o o m E d m o d o M o o d l e | / | O p e n S o u r c e a n d c o m m e r c i a l p l a t f o r m s | N o | - Flexible and widely usage |
| | | E d u c a t i o n | M o o d l e E d m o | V R | O p e n S o u r c e a n | N o | - Development of personalized schedules of |

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| | | | <p>d o G o o g l e C l a s s r o o m</p> | | <p>d c o m m e r c i a l p l a t f o r m s</p> | | <p>work - Increa sing the cognit ive and metac ogniti ve abiliti es for perso ns with disabi lities - Impro ving self- estee m - Impro veme nt of social intera ctions and relatio nships</p> |
| | | <p>E d u c a t i o n</p> | <p>N o - s p e c i a l l y d e v e l o p e d e - l e a r n i n g p l a t</p> | / | / | <p>N o</p> | <p>- Overc ome proble ms with traditi onal educat ion</p> |

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| | | | f o r m | | | | |
| | | E d u c a t i o n | M o d l e | / | O p e n S o u r c e | N o | <ul style="list-style-type: none"> - Effective coordination of learning processes - Improved learning - Improving the contacts between teachers and students - Improving the speed of learning - Better remembering of details - Strengthened time management ability - Improved motivation |
| | | E d u c a t i o n | M o d l e | / | O p e n S o u r c e | N o | <ul style="list-style-type: none"> - Better management of teaching environments |

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|--|--|-------------------|---|-----------------|---|-------|--|
| | | | | | | | <ul style="list-style-type: none"> Instant feedback to students - Collecting assignments - Usage of integrated grading system - Improvement of training - Time efficiency |
| | | E d u c a t i o n | M o o d l e G o o g l e C l a s s r o o m | / | O p e n S o u r c e a n d C o m m e r c i a l P l a t f o r m s | N o | / |
| | | E d u c a t i o n | M o o d l e , C a n v a s L M S | V R , A R , A I | O p e n S o u r c e a n d C o m m e r | Y e s | <ul style="list-style-type: none"> -Free access - Lower tuition fees - Dividing the course into modules - Flexibility |

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| | | | <p>, D o c e b o ; i S p r i n g L e a r n ' s ; B r i g h t s p a c e ; S c h o o l o g y ; T a l e n t L M S ; A b s o r b L M S .</p> | | <p>ci al Pl at fo r m s</p> | | <p>of learni ng - Asses sment of knowl edge with given criteri a</p> |
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| | | E d u c a t i o n | M o o d l e , B l a c k b o a r d , C a n v a s , D e s i r e 2 L e a r n , S a k a i , A N G E L , | / | O p e n S o u r c e a n d C o m m e r c i a l | Y e s | / |

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| | | E d u c a t i o n | M o o d l e | / | O p e n S o u r c e | N o | / |
| | | E d u c a t i o n | M o o d l e , B l a c k b | V R , A R , A I | O p e n S o u r c e a n d C o | N o | - Acces sibilit y and Flexib ility -Cost Effici ency - Intera ctive learni |

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| | | | oard, and Google Classroom | | mercial | | ng experience - Collaboration and global scope |
| | | E d u c a t i o n | G o o g l e C l a s s r o o m , M o o d l e , E d m o d o | / | O p e n S o u r c e a n d C o m m e r c i a l | Y e s | - Flexibility - Access to learning content |
| | | E d u c a t i o n | M o o d l e B l a c k b o a r d | / | O p e n S o u r c e a n d C o m m e r c i a l | N o | - Good at dissemination of the module content |

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|--|--|---|--|---|---|--------|---|
| | | | | | al | | |
| | | E d u c a t i o n | M o o d l e , A T u t o r , S a k a i , M y G u r u 2 , C l a r o l i n e , B l a c k b o a r d , S u m T o t a l , L i t m o s a n d C | / | O p e n S o u r c e a n d C o m m e r c i a l | N o | / |

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