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ROLE OF LEARNING MANAGEMENT SYSTEMS IN THE DIGITAL TRANSFORMATION OF HIGHER EDUCATION

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Abstract

The integration of digital technologies has significantly transformed higher education worldwide, reshaping pedagogical practices, administrative processes, and learner engagement. Among the most influential technological tools supporting this transformation is the Learning Management System (LMS). LMS platforms enable educational institutions to organise, deliver, and evaluate learning activities within digital environments. As universities increasingly adopt online and blended learning models, LMS platforms have become indispensable for managing instructional processes and facilitating sustained interaction between teachers and learners (Turnbull et al., 2021). The National Education Policy of India (NEP, 2020) further underscores the importance of digital learning platforms in improving access, quality, and flexibility in higher education. This paper examines the conceptual foundations and defining characteristics of Learning Management Systems, reviews the major LMS platforms deployed in universities globally and within India, and analyses the advantages and limitations of LMS adoption. The study additionally explores emerging technological developments, particularly the integration of Artificial Intelligence (AI), adaptive learning systems, and predictive learning analytics (Zawacki-Richter et al., 2019). The paper concludes that, while LMS platforms have become fundamental to modern higher education, systemic challenges including digital inequality, inadequate technical infrastructure, resistance to change, and data privacy concerns must be addressed through coordinated institutional and policy interventions.

Keywords: Learning Management System, Higher Education, Online Learning, Educational Technology, Artificial Intelligence, Digital learning

1. INTRODUCTION

Advances in information and communication technologies (ICTs) have catalysed profound changes in educational systems across the globe, particularly within higher education institutions (HEIs). Universities are increasingly leveraging digital platforms to enhance teaching, learning, and assessment processes, driven by imperatives of widening access, improving educational quality, and responding to the evolving demands of a knowledge-based economy (UNESCO, 2020). Central to this digital shift is the concept of technology-enhanced learning, wherein digital tools mediate pedagogical interaction and expand the reach of formal education beyond traditional spatial and temporal constraints.

Within this broader context, Learning Management Systems (LMS) have emerged as critical digital infrastructures for organising, delivering, assessing, and monitoring learning experiences. An LMS provides a digital environment in which instructors can structure course content, communicate with students, administer assessments, and track academic progress (Watson & Watson, 2007). These platforms facilitate diverse instructional modes including fully online, blended, and distance education, thereby enabling institutions to transcend the limitations of physical classrooms (Cavus, 2015).

The significance of LMS platforms became particularly pronounced during the COVID-19 pandemic, which necessitated an abrupt and large-scale transition to remote learning across universities worldwide. During this period, LMS technologies played a crucial role in maintaining academic continuity and sustaining learner engagement in the absence of face-to-face instruction (Dhawan, 2020). Platforms such as Moodle, Canvas, and Blackboard Learn were widely deployed to support virtual classrooms and digital course delivery. In India, the pandemic accelerated an already growing momentum toward digital learning, further reinforced by the National Education Policy (NEP, 2020), which explicitly advocates the integration of technology in teaching and learning and calls for the development of robust online educational platforms to expand access and improve quality.

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The expanding adoption of LMS platforms raises important questions about their effectiveness, the challenges associated with their implementation, and the future directions of their technological development. This paper addresses these questions through a systematic review of existing literature and policy documents. Specifically, it: (i) establishes a conceptual definition and functional characterisation of LMS; (ii) surveys major LMS platforms used globally and in India; (iii) evaluates the advantages and limitations of LMS adoption; and (iv) examines emerging developments in LMS technology, with particular emphasis on AI integration and adaptive learning.

2. CONCEPT AND DEFINITION OF LEARNING MANAGEMENT SYSTEMS

A Learning Management System (LMS) is a software application or digital platform designed to administer, document, track, report, and deliver educational courses, training programmes, and learning development materials (Ellis, 2009). According to Watson and Watson (2007), the term encompasses a broad category of information systems that integrate multiple functions related to course management, learner tracking, and content delivery. At its core, an LMS consists of two primary architectural components: (1) a server-side component responsible for core functionality—including course creation, user authentication, data management, and notification services—and (2) a browser-based user interface accessible to administrators, instructors, and students.

In higher education, LMS platforms frequently function as Virtual Learning Environments (VLEs), providing digital spaces in which instructors and students engage through communication tools, discussion forums, content repositories, and collaborative activities (Dabbagh & Kitsantas, 2012). The boundary between LMS and VLE has become increasingly blurred as modern platforms expand their functionalities; however, the LMS retains a particular emphasis on administrative and assessment management, distinguishing it from broader conceptions of the VLE (Kats, 2010).

Turnbull et al. (2021) distinguish three generations of LMS development: first-generation systems characterised by basic content delivery and administrative functions; second-generation systems with enhanced interactivity, multimedia support, and communication tools; and third-generation systems incorporating advanced analytics, AI-driven personalisation, and integration with external applications. Contemporary LMS platforms largely belong to this third generation, reflecting the convergence of educational technology with data science and artificial intelligence.

3. KEY FEATURES OF CONTEMPORARY LEARNING MANAGEMENT SYSTEMS

Modern LMS platforms incorporate a diverse array of functional features that collectively support effective digital learning environments. The following are the major components characterising contemporary systems:

Course Content Management: A core function of any LMS is the structured organisation and distribution of digital learning resources. Instructors can upload lecture notes, slide presentations, video recordings, reading materials, and multimedia content, which learners can access according to the sequence and conditions set by the instructor. Advanced systems support adaptive release conditions, whereby content becomes available based on learner performance or completion of prior activities (Lonn & Teasley, 2009).

User Administration and Role Management: LMS platforms support differentiated user roles—typically encompassing administrators, instructors, students, and guest users—each assigned specific permissions governing their interactions with the platform. This role-based access control ensures both security and functional appropriateness across user categories.

Communication and Collaboration Tools: Effective LMS platforms embed a suite of communication tools including discussion forums, internal messaging, live chat, announcement boards, and collaborative activity modules such as wikis and group projects. These features promote learner-learner and learner-instructor interaction, which is recognised as a critical determinant of online learning effectiveness (Garrison & Vaughan, 2008).

Assessment and Feedback Mechanisms: LMS platforms support diverse forms of digital assessment including formative quizzes, summative examinations, assignment submission portals, peer review activities, and e-portfolios. Automated grading tools enable efficient and timely feedback, while rubric-based evaluation tools support transparent and consistent assessment practices (Gikandi et al., 2011).

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Learning Analytics: Embedded analytics dashboards provide instructors and administrators with actionable data on learner engagement, participation frequency, assessment performance, and time-on-task. Learning analytics tools allow educators to monitor individual and cohort-level progress and to identify at-risk learners requiring early intervention (Siemens & Long, 2011).

Mobile Accessibility: With the widespread adoption of smartphones and portable devices, modern LMS platforms offer responsive mobile interfaces or dedicated applications, enabling learners to access course content and participate in learning activities from any location at any time. Mobile accessibility is particularly important in developing country contexts where smartphone penetration often exceeds desktop or laptop computer ownership (Crompton, 2013).

Integration with External Technologies: Contemporary LMS platforms support integration with a wide range of third-party tools, including video conferencing applications (e.g., Zoom, Microsoft Teams), digital library systems, plagiarism detection software (e.g., Turnitin), and cloud storage services. This interoperability is facilitated by adherence to open standards such as Learning Tools Interoperability (LTI) and Experience API (xAPI) (Rustici Software, 2013).

4. MAJOR LMS PLATFORMS IN GLOBAL AND INDIAN HIGHER EDUCATION

4.1 Global LMS Platforms

A range of LMS platforms are deployed by universities worldwide, varying in licensing model, technical architecture, and pedagogical affordances.

Moodle (Modular Object-Oriented Dynamic Learning Environment): Moodle is an open-source LMS maintained by a global community of developers and used by over 300 million users across 242 countries (Moodle.org, 2023). Its appeal lies in its flexibility, extensive plugin architecture, and zero licensing cost, making it especially popular among resource-constrained institutions. Moodle supports the full range of LMS functionalities including content management, assessment, forums, and analytics (Dougiamas & Taylor, 2003).

Blackboard Learn: Blackboard is a commercial LMS widely adopted by universities in North America and Europe. It offers comprehensive tools for course management, student engagement, and learning analytics. Blackboard's acquisition by Anthology in 2021 has resulted in an integrated suite of education technology products, although some institutions have noted concerns about licensing costs and platform complexity (Naveh et al., 2010).

Canvas LMS : Canvas is a cloud-native, open-application LMS developed by Instructure and recognised for its intuitive user interface and strong integration capabilities via LTI. It has gained substantial market share in higher education globally, particularly in the United States and Australia (Dawson et al., 2018).

Brightspace (D2L): Brightspace, developed by Desire2Learn (D2L), is distinguished by its advanced adaptive learning tools, detailed analytics dashboards, and emphasis on personalised learning pathways. It is particularly noted for supporting competency-based education models (Dziuban et al., 2018).

Google Classroom: Google Classroom provides a streamlined, cloud-based platform for assignment distribution, grading, and class communication. While it lacks some of the advanced features of dedicated LMS platforms, its seamless integration with the Google Workspace suite has made it popular, particularly in contexts where cost and ease-of-use are primary considerations (Iftakhar, 2016).

4.2 LMS Platforms in Indian Higher Education

India has developed and adopted several digital platforms that function as LMS environments for higher education, reflecting both governmental initiative and institutional adoption of international platforms.

SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) is a nationally developed Massive Open Online Course (MOOC) platform launched by the Government of India under the Ministry of Education. SWAYAM hosts courses from school level through postgraduate, delivered by faculty from premier institutions, and integrates content management,

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video lectures, self-assessment quizzes, and discussion forums (MHRD, 2016). The platform aligns with the NEP 2020's vision of providing high-quality, accessible digital education at scale.

DIKSHA (Digital Infrastructure for Knowledge Sharing) serves as a national digital infrastructure for school education, providing access to e-textbooks, learning materials, and teacher training resources. The National Programme on Technology Enhanced Learning (NPTEL), a joint initiative of the Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc), offers technical and science courses via video lectures and online certification, reaching millions of learners across India (Balaji & Chakrabarti, 2010). In addition, numerous Indian universities have implemented their own LMS deployments, frequently based on Moodle or proprietary systems, to support course delivery, assignment management, and digital assessment within their institutional frameworks.

5. ADVANTAGES OF LMS ADOPTION IN HIGHER EDUCATION

The adoption of LMS platforms in higher education institutions offers a spectrum of pedagogical, administrative, and institutional benefits, as evidenced by a growing body of empirical research.

Enhanced Accessibility and Flexibility: LMS platforms remove geographical and temporal barriers to education, enabling learners in remote or underserved areas to access high-quality instructional content. Asynchronous learning affordances allow students to engage with course materials according to their own schedules, benefiting non-traditional learners such as working adults and students with disabilities (Tarus et al., 2015).

Support for Diverse Pedagogical Approaches: LMS platforms accommodate a wide range of instructional strategies including direct instruction, problem-based learning, collaborative learning, and flipped classroom models. The availability of multimedia content, interactive tools, and collaborative features allows instructors to design rich, varied learning experiences (Garrison & Vaughan, 2008).

Efficient Administration and Management: By automating administrative tasks such as enrolment management, grade book maintenance, and attendance tracking, LMS platforms significantly reduce the administrative burden on faculty and staff, enabling a greater focus on instructional quality (Al-Fraihat et al., 2020).

Continuity of Instruction in Crisis Contexts: The COVID-19 pandemic demonstrated the critical role of LMS platforms in maintaining academic continuity during disruptions to face-to-face instruction. Institutions with established LMS infrastructures were better positioned to transition rapidly to online delivery modes (Dhawan, 2020).

Data-Driven Decision Making: Learning analytics capabilities embedded within LMS platforms generate actionable insights into learner behaviour and performance, enabling data-informed pedagogical decisions and early identification of at-risk students (Siemens & Long, 2011).

Standardisation and Quality Assurance: LMS platforms enable consistent course delivery across multiple instructors and sections, supporting institutional quality assurance frameworks and facilitating external accreditation processes.

6. CHALLENGES AND LIMITATIONS IN LMS IMPLEMENTATION

Notwithstanding their considerable advantages, LMS platforms present several significant challenges that can impede their effective adoption and sustained use within higher education institutions.

Digital Divide and Inequitable Access: Unequal access to reliable internet connectivity, digital devices, and power supply creates structural disparities in learner ability to engage with LMS platforms. This digital divide is particularly pronounced in developing country contexts, including rural regions of India, where infrastructure deficits can effectively exclude economically disadvantaged students from the benefits of digital learning (Tarus et al., 2015; Warschauer, 2004).

Insufficient Digital Literacy: Effective use of LMS platforms requires a baseline level of digital literacy among both instructors and students. Many HEIs, particularly in low- and middle-income countries, face significant capacity gaps in this regard, necessitating substantial investment in training and professional development programmes (Bates, 2019).

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Resistance to Pedagogical Change: The adoption of LMS platforms involves not merely a technological but a pedagogical transition. Some educators may resist digital teaching methods due to unfamiliarity with the technology, concerns about increased workload, or scepticism regarding the effectiveness of online instruction relative to face-to-face teaching (Jalaluddin, 2016). Institutional change management strategies are therefore essential alongside technical implementation.

Technical Infrastructure Limitations: Sustained LMS operation requires robust server infrastructure, reliable bandwidth, ongoing technical support, and regular software maintenance. Institutions in resource-limited settings may struggle to meet these requirements, resulting in platform instability and learner frustration (Al-Fraihat et al., 2020).

Data Privacy and Cybersecurity Risks: LMS platforms collect and process substantial volumes of personally identifiable information, including demographic data, academic records, and behavioural data generated through platform interactions. Ensuring compliance with data protection regulations (such as India's Digital Personal Data Protection Act, 2023, and the GDPR in the European context) and safeguarding against cybersecurity threats represent ongoing institutional responsibilities (Prinsloo & Slade, 2017).

Pedagogical Quality and Learner Engagement: The mere availability of an LMS platform does not guarantee pedagogical quality. Poorly designed courses, insufficient learner support, and limited interactivity can result in low learner engagement, high dropout rates, and diminished educational outcomes, particularly in fully online environments (Garrison & Vaughan, 2008).

7. EMERGING TRENDS: ARTIFICIAL INTELLIGENCE AND THE FUTURE OF LMS

The convergence of LMS platforms with Artificial Intelligence (AI) and advanced data science methodologies represents the most significant frontier in the ongoing development of educational technology. These emerging trends are expected to substantially reshape the capabilities and pedagogical affordances of LMS platforms over the coming decade.

AI-Driven Personalised Learning: Machine learning algorithms embedded within LMS platforms can analyse individual learner behaviour, performance patterns, and learning preferences to generate personalised content recommendations and adaptive learning pathways (Zawacki-Richter et al., 2019). This moves the LMS beyond a static content repository toward a dynamic system capable of responding in real time to individual learner needs.

Predictive Learning Analytics: Predictive analytics models can process LMS-generated data to forecast learner performance trajectories and identify students at risk of disengagement or academic failure prior to critical assessment points (Siemens & Long, 2011). This enables proactive early intervention strategies, improving retention and completion rates.

Intelligent Tutoring Systems: AI-based Intelligent Tutoring Systems (ITS) integrated into LMS platforms can provide personalised, context-sensitive feedback and guidance to learners, simulating aspects of one-to-one tutoring interaction. Recent advances in natural language processing (NLP) have enabled the development of sophisticated conversational tutoring agents capable of engaging in substantive academic dialogue (Graesser et al., 2012).

Automated Assessment and Feedback: Natural language processing tools are increasingly capable of evaluating short-answer and essay responses, providing formative feedback at scale. Automated essay scoring systems now demonstrate performance comparable to human raters in a range of subject domains (Shermis & Burstein, 2013), reducing instructor workload and enabling more frequent formative assessment.

AI-Powered Chatbots for Learner Support: Conversational AI agents integrated into LMS platforms can respond to routine learner queries regarding course content, assessment deadlines, and platform navigation on a 24/7 basis, enhancing accessibility and reducing the burden on instructor and support staff time (Winkler & Soellner, 2018).

Integration with Immersive and Emerging Technologies: Future LMS developments are likely to include deeper integration with Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR) environments, enabling immersive, experiential learning scenarios unsuitable for delivery through conventional digital interfaces. Blockchain-based credentialing systems may additionally transform the verification and portability of educational achievements (Chen et al., 2018).

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8. CONCLUSION

Learning Management Systems have evolved from relatively simple content delivery platforms to sophisticated digital ecosystems that underpin the teaching, learning, and administrative operations of higher education institutions worldwide. They provide digital infrastructures that support online learning, blended instruction and flexible educational opportunities. The growing adoption of LMS platforms by universities worldwide demonstrates their importance in managing digital learning environments. However, challenges such as digital inequality, insufficient technological infrastructure and concerns about data privacy continue to affect the effective implementation of LMS platforms. Looking ahead, the integration of Artificial Intelligence and advanced learning technologies will likely reshape the capabilities of LMS platforms, enabling personalized learning, predictive analytics and intelligent tutoring systems. To fully realize these benefits, educational institutions must invest in digital infrastructure, faculty training and effective policy frameworks.

Future research should focus on longitudinal evaluations of LMS effectiveness across diverse institutional and socio-cultural contexts, the development of evidence-based frameworks for AI integration in LMS environments, and the formulation of regulatory and ethical guidelines governing the use of learner data generated by these platforms.

REFERENCES

1. Al-Fraihat, D., Joy, M., Masa'deh, R., & Sinclair, J. (2020). Evaluating e-learning systems success: An empirical study. Computers in Human Behavior, 102, 67–86. https://doi.org/10.1016/j.chb.2019.08.004
2. Balaji, B. S., & Chakrabarti, D. (2010). Student interactions in online discussion forum: Empirical research from 'Media Richness Theory' perspective. Journal of Interactive Online Learning, 9(1), 1–22.
3. Bates, A. W. (2019). Teaching in a digital age: Guidelines for designing teaching and learning (2nd ed.). Tony Bates Associates Ltd.
4. Cavus, N. (2015). Distance learning and learning management systems. Procedia – Social and Behavioral Sciences, 191, 872–877. https://doi.org/10.1016/j.sbspro.2015.04.611
5. Chen, G., Xu, B., Lu, M., & Chen, N. S. (2018). Exploring blockchain technology and its potential applications for education. Smart Learning Environments, 5(1), 1–10. https://doi.org/10.1186/s40561-017-0050-x
6. Crompton, H. (2013). A historical overview of mobile learning: Toward learner-centered education. In Z. L. Berge & L. Y. Muilenburg (Eds.), Handbook of mobile learning (pp. 3–14). Routledge.
7. Dabbagh, N., & Kitsantas, A. (2012). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. Internet and Higher Education, 15(1), 3–8. https://doi.org/10.1016/j.iheduc.2011.06.002
8. Dagger, D., O'Connor, A., Lawless, S., Walsh, E., & Wade, V. P. (2007). Service-oriented e-learning platforms: From monolithic systems to flexible services. IEEE Internet Computing, 11(3), 28–35. https://doi.org/10.1109/MIC.2007.70
9. Dawson, S., Joksimovic, S., Poquet, O., & Siemens, G. (2018). Increasing the impact of learning analytics. In Proceedings of the 8th International Conference on Learning Analytics and Knowledge (pp. 446–455). ACM. https://doi.org/10.1145/3170358.3170372
10. Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. Journal of Educational Technology Systems, 49(1), 5–22. https://doi.org/10.1177/0047239520934018
11. Dougiamas, M., & Taylor, P. C. (2003). Moodle: Using learning communities to create an open source course management system. In D. Lassner & C. McNaught (Eds.), Proceedings of ED-MEDIA 2003 – World Conference on Educational Multimedia, Hypermedia & Telecommunications (pp. 171–178). AACE.
12. Dziuban, C., Graham, C. R., Moskal, P. D., Norberg, A., & Sicilia, N. (2018). Blended learning: The new normal and emerging technologies. International Journal of Educational Technology in Higher Education, 15(3), 1–16. https://doi.org/10.1186/s41239-017-0087-5
13. Ellis, R. K. (2009). Field guide to learning management systems. American Society for Training and Development (ASTD). https://assets.td.org/m/788c366c54cfed87/original/Microsoft-Word-LMS_fieldguide_2009.pdf
14. Garrison, D. R., & Vaughan, N. D. (2008). Blended learning in higher education: Framework, principles, and guidelines. Jossey-Bass.

Cover Page

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15. Gikandi, J. W., Morrow, D., & Davis, N. E. (2011). Online formative assessment in higher education: A review of the literature. Computers & Education, 57(4), 2333–2351. https://doi.org/10.1016/j.compedu.2011.06.004
16. Government of India. (2020). National Education Policy 2020. Ministry of Education. https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
17. Graesser, A. C., Conley, M. W., & Olney, A. (2012). Intelligent tutoring systems. In S. Graham & K. Harris (Eds.), APA Educational Psychology Handbook (Vol. 3, pp. 451–473). American Psychological Association.
18. Iftakhar, S. (2016). Google Classroom: What works and how? Journal of Education and Social Sciences, 3, 12–18.
19. Jalaluddin, I. (2016). Using YouTube in the ESL classroom. Language in India, 16(6), 32–47.
20. Kats, Y. (Ed.). (2010). Learning management system technologies and software solutions for online teaching: Tools and applications. IGI Global.
21. Lonn, S., & Teasley, S. D. (2009). Saving time or innovating practice: Investigating perceptions and uses of learning management systems. Computers & Education, 53(3), 686–694. https://doi.org/10.1016/j.compedu.2009.04.008
22. Ministry of Human Resource Development (MHRD). (2016). SWAYAM: Study Webs of Active-Learning for Young Aspiring Minds. Government of India. https://swayam.gov.in
23. Moodle.org. (2023). Moodle statistics. Retrieved from https://moodle.net/stats/
24. Naveh, G., Tubin, D., & Pliskin, N. (2010). Student LMS use and satisfaction in academic institutions: The organizational perspective. Internet and Higher Education, 13(3), 127–133. https://doi.org/10.1016/j.iheduc.2010.02.004
25. Prinsloo, P., & Slade, S. (2017). An elephant in the learning analytics room: The obligation to act. In Proceedings of the 7th International Learning Analytics and Knowledge Conference (pp. 46–55). ACM. https://doi.org/10.1145/30273853027406
26. Rustici Software. (2013). Experience API (xAPI) specification. Advanced Distributed Learning Initiative. https://github.com/adlnet/xAPI-Spec
27. Shermis, M. D., & Burstein, J. (Eds.). (2013). Handbook of automated essay evaluation: Current applications and new directions. Routledge.
28. Siemens, G., & Long, P. (2011). Penetrating the fog: Analytics in learning and education. EDUCAUSE Review, 46(5), 30–40.
29. Tarus, J. K., Gichoya, D., & Muumbo, A. (2015). Challenges of implementing e-learning in Kenya: A case of Kenyan public universities. International Review of Research in Open and Distributed Learning, 16(1), 120–141. https://doi.org/10.19173/irrodl.v16i1.1816
30. Turnbull, D., Chugh, R., & Luck, J. (2021). Learning management systems: An overview. Education and Information Technologies, 26, 2733–2752. https://doi.org/10.1007/s10639-020-10261-6
31. UNESCO. (2020). Embracing a culture of lifelong learning: Contribution to the Futures of Education Initiative. UNESCO Institute for Lifelong Learning.
32. Warschauer, M. (2004). Technology and social inclusion: Rethinking the digital divide. MIT Press.
33. Watson, W. R., & Watson, S. L. (2007). An argument for clarity: What are learning management systems, what are they not, and what should they become? TechTrends, 51(2), 28–34. https://doi.org/10.1007/s11528-007-0023-y
34. Winkler, R., & Soellner, M. (2018). Unleashing the potential of chatbots in education: A state-of-the-art analysis. Academy of Management Proceedings, 2018(1). https://doi.org/10.5465/AMBPP.2018.15903abstract
35. Zawacki-Richter, O., Marin, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? International Journal of Educational Technology in Higher Education, 16(39), 1–27. https://doi.org/10.1186/s41239-019-0171-0