

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/374415674>

Role of AI in higher education

Article · October 2023

DOI: 10.24919/2617-0825.6/214.2023

CITATIONS

0

READS

624

1 author:



[Oksana Chaika](#)

National University of Life and Environmental Sciences of Ukraine

96 PUBLICATIONS 186 CITATIONS

[SEE PROFILE](#)

Молодь і ринок

ЩОМІСЯЧНИЙ НАУКОВО-ПЕДАГОГІЧНИЙ ЖУРНАЛ

№ 6–7 (214–215) червень-липень 2023

Видається з лютого 2002 року

УДК 051 Журнал “Молодь і ринок” внесений до переліку наукових фахових видань України (категорія “Б”) у галузі педагогічних наук: 011 – Освітні педагогічні науки, наказ Міністерства освіти і науки України від 02.07.2020 № 886 (додаток 4). Спеціальності: 012 – Дошкільна освіта; 013 – Початкова освіта; 014 – Середня освіта (за предметними спеціалізаціями); 015 – Професійна освіта (за спеціалізаціями); 016 – Спеціальна освіта, наказ МОН України від 24.09.2020 № 1188 (додаток 5).

Засновник і видавець: Дрогобицький державний педагогічний університет імені Івана Франка
Україна, 82100, Львівська область, Дрогобич, вул. Івана Франка, 24
Видання зареєстровано в Міністерстві юстиції України.

Свідчення про державну реєстрацію друкованого засобу масової інформації:
Серія KB №12270–1154 ПР від 05.02.2007 р.

ISSN 2308-4634 (Print) “Молодь і ринок” індексується у таких базах даних: Google Scholar; Polish Scholarly Bibliography (PBN); **ERIH PLUS**; **Index Copernicus** (ICV 2018: 80.20; ICV 2019: 85.80; ICV 2020: 82.12; ICV 2021: 85.55)

DOI: <https://doi.org/10.24919/2617-0825.6/214.2023>

РЕДАКЦІЙНА КОЛЕГІЯ

Головний редактор: Микола ГАЛІВ – д.пед.н., проф., Дрогобицький державний педагогічний університет імені Івана Франка

ЧЛЕНИ РЕДАКЦІЙНОЇ КОЛЕГІЇ

Іван БАХОВ – д.пед.н., проф., Міжрегіональна академія управління персоналом

Наталія БИШЕВЕЦЬ – к.пед.н., Національний університет фізичного виховання і спорту України

Галина БІЛАВИЧ – д.пед.н., проф., ДВНЗ “Прикарпатський національний університет імені Василя Стефаника”

Ірина ЗВАРИЧ – д.пед.н., проф., Київський національний торговельно-економічний університет

Микола ПАНТЮК – д.пед.н., проф., Дрогобицький державний педагогічний університет імені Івана Франка

Тетяна ПАНТЮК – д.пед.н., проф., Дрогобицький державний педагогічний університет імені Івана Франка

Лукаш ТОМЧИК – д.соц.н. (педагогіка), Педагогічний університет в Кракові, Польща

Надія Лаура СЕРДЕНЦЮК – к.пед.н., Сучавський університет імені Штефана чел Маре (м. Сучава, Румунія)

Даніель УОЛЛЕР – д.філос.н., Університет Центрального Ланкаширу (м. Престон, Великобританія)

Марія ЧЕПІЛЬ – д.пед.н., проф., академік АНВО України, Заслужений діяч науки і техніки України, Дрогобицький державний педагогічний університет імені Івана Франка

Олександра ЯНКОВИЧ – д.пед.н., проф., Тернопільський національний педагогічний університет імені Володимира Гнатюка; д.таблiт., проф., Куявсько-Поморська вища школа (м. Бидгош, Польща)

Адреса редакції: Україна, 82100, Львівська область, Дрогобич, вул. Івана Франка, 24
Тел., +38 (068) 502-45-49; e-mail: molodirynok@gmail.com; веб-сайт: <http://mir.dspu.edu.ua>

Рекомендовано до друку вченою радою Дрогобицького державного педагогічного університету
(протокол № 8 від 15.06.2023)

Посилання на публікації “Молодь і ринок” обов’язкові

Редакція зберігає за собою право скорочувати і виправляти матеріали. Статті, підписані авторами, висловлюють їх власні погляди, а не погляди редакції.

За достовірність фактів, цитат, власних імен, географічних назв, статистичних даних та інших відомостей відповідають автори публікацій.

Youth & market

MONTHLY SCIENTIFIC-PEDAGOGICAL JOURNAL

No. 6–7 (214–215) June–July 2023

Published since February 2002

UDC 051 The journal “Youth and market” is included into the list of scientific professional publications of Ukraine (**category “B”**) in the field of pedagogical sciences: 011 – Educational, pedagogical sciences, the order of the Ministry of Education and Science of Ukraine from 02.07.2020 No. 886 (Appendix 4). Specialties: 012 – Preschool education; 013 – Primary education; 014 – Secondary education (due to subject specializations); 015 – Professional education (according to specializations); 016 – Special education, order of the Ministry of Education and Science of Ukraine from 09.24.2020 No. 1188 (Appendix 5).

Founder and published: Drohobych Ivan Franko State Pedagogical University
Ivan Franko Str., 24, Drohobych, Lviv Region, Ukraine, postal code 82100
The journal is registered in the Ministry of Justice of Ukraine
Published State registration license: Series KB № 12270–1154 IIP since 05.02.2007

ISSN 2308-4634 (Print) “Youth and market” is indexed in such databases: Google Scholar; Polish Scholarly Bibliography (PBN); **ERIH PLUS**; **Index Copernicus** (ICV 2018: 80.20; ICV 2019: 85.80; ICV 2020:82.12; ICV 2021: 85.55)

DOI: <https://doi.org/10.24919/2617-0825.6/214.2023>

EDITORIAL BOARD

Head editor: Mykola HALIV – *Doctor of Pedagogic Sciences, Prof., Drohobych Ivan Franko State Pedagogical University*

EDITORIAL BOARD MEMBERS

Ivan BAKHOV – *Doctor of Pedagogic Sciences, Prof., Interregional Academy of Personnel Management*

Nataliya BYSHEVETS – *Candidate of Pedagogic Sciences, National University of Physical Education and Sports of Ukraine*

Halyna BILAVYCH – *Doctor of Pedagogic Sciences, Prof., SHEE “Vasyl Stefanyk Precarpathian National University”*

Iryna ZVARYCH – *Doctor of Pedagogic Sciences, Prof., Kyiv National University of Trade and Economics*

Mykola PANTYUK – *Doctor of Pedagogic Sciences, Prof., Drohobych Ivan Franko State Pedagogical University*

Tetyana PANTYUK – *Doctor of Pedagogic Sciences, Prof., Drohobych Ivan Franko State Pedagogical University*

Lukasz TOMCZYK – *Doctor of Social Sciences (Pedagogic), Pedagogical University of Cracow, Poland*

Nadia Laura SERDENCUC – *Candidate of Pedagogic Sciences, Stefan cel Mare University from Suceava (Romania)*

Daniel WALLER – *Doctor of Philosophy Sciences, University of Central Lancashire (Preston, UK)*

Mariya CHEPIL – *Doctor of Pedagogic Sciences, Prof., Academician of the Academy of Higher Education of Ukraine, Honored Worker of Science and Technology of Ukraine, Drohobych Ivan Franko State Pedagogical University*

Oleksandra YANKOVYCH – *Doctor of Pedagogic Sciences, Prof., Ternopil Volodymyr Hnatyuk National Pedagogical University*

Editorial office: Ukraine 82100, Lviv region, Drohobych, Ivan Franko, 24 str,
Tel. +38 (068) 502-45-49; e-mail: molodirynok@gmail.com; website: <http://mir.dspu.edu.ua>

Recommended for publication by Academic Council of Drohobych State Pedagogical University
(protocol No. 8, 15.06.2023)

Links to the publication of “Youth and market” obligatory

Edition reserves the right to shrink and correct the matter. Articles signed by author express their own point of view.

Authors of publications are responsible for the accuracy of facts, quotations, private names, geographical names, statistics etc.

Молодь і ринок

№ 6–7 (214–215) червень-липень 2023

ЗМІСТ

Тетяна Пантюк, Юрій Якимець

Педагогічні умови прилучення дітей і молоді до праці та формування у них господарської культури7

Наталя Султанова

Соціальна профілактика насильства над дітьми в сім'ї: проблеми та шляхи розв'язання11

Ірина Мельничук

Міждисциплінарний підхід у системі викладання фахових дисциплін майбутнім фармацевтам16

Олександра Бородієнко

Регіональна залученість: аналізуючи досвід фламандських університетів21

Віталія Примакова

Трансформація змісту післядипломної підготовки керівників закладів загальної середньої освіти України в історичній ретроспективі: психолого-педагогічний аспект29

Олена Кохановська

Виконання заходів цивільного захисту в закладах освіти України: історичний аспект34

Галина Безверхня, Вікторія Цибульська, Тамара Лошицька, Ірина Олійник

Методика підвищення ефективності ігрової діяльності баскетболістів з використанням інтерактивних технологій39

Анатолій Бровченко

Дизайн-освіта в контексті сучасних реалій47

Наталія Орлова

Використання перспективних методів проектування природоінтегрованої архітектури у процесі навчання майбутніх викладачів дизайну51

Лариса Наконечна

Розширення граматичної компетенції студентів спеціальності “Початкова освіта”: функціонування часових форм дієслова55

Юлія Силенко, Яна Романцова, Олена Лисицька, Ярослав Гарбич

Інформаційне освітнє середовище як платформа реалізації інформаційно-комунікаційних технологій у ЗВО60

Oksana Chaika

The role of Artificial Intelligence in higher education69

Мирослава Мазурок, Леся Заводна, Ольга Саприкіна

Мова воєнного часу: смисловий вимір новотвірної лексики75

Liudmyla Kanova

Features of the methods of conducting classes with the armed forces officers of Ukraine in accordance with STANAG 6001 standard79

Євгенія Гончарова, Олена Беляєва, Вікторія Костенко, Ірина Сологор, Світлана Ефендієва

Формування адаптації студентів-першокурсників до освітнього середовища закладів вищої освіти84

Михайло Короткіх, Юрій Лісніченко

Актуальні питання формування професійної компетентності майбутніх офіцерів у процесі фахової підготовки89

Уляна Борис Природничі екскурсії у системі початкової освіти Галичини за міжвоєнної доби XX ст.	94
Наталія Сем'ян Методичні аспекти оцінювання англomовних креативних текстів студентів	99
Дзвенислава Васирик Хор Дмитра Котка у світлі публікацій в газеті “Діло” 20-х рр. XX ст.	106
Валентина Водяна, Людмила Щур, Сергій Маловічко, Ірина Машталер, Тетяна Солонинка Емоційний інтелект у структурі фахової компетентності здобувачів вищої мистецької освіти: аналіз проблеми	111
Лариса Гриценко, Світлана Ляшенко Вплив мислительних та практичних дій на формування понять учнів 8–9-х класів з предмету “Трудове навчання”	116
Ольга Чемерис, Іванна Кулик, Євген Прокоф'єв Індивідуалізація навчання у ЗВО як необхідна умова підвищення якості професійної підготовки	120
Наталія Беляєва Модель формування готовності майбутніх учителів до проєктування та реалізації безпечного освітнього середовища молодших школярів в умовах воєнного стану	125
Лілія Стахів, Василь Стахів, Сузанна Волошин Освітній потенціал музейної педагогіки у закладах загальної середньої освіти	131
Оксана Волошина Формування інформаційно-комунікативної компетентності студентів у процесі вивчення іноземної мови в аграрному закладі вищої освіти	138
Маріанна Онищенко Роль технологій у викладанні іспанської мови як другої іноземної: використання комп'ютерних програм, мобільних додатків та онлайн-ресурсів для поліпшення мовних навичок здобувачів освіти	152
Артем Курбатов Удосконалення професійної підготовки майбутніх офіцерів НГУ щодо формування їх готовності до ведення бойових дій	158
Сергій Поляков Комп'ютерні технології як засіб формування графічної компетентності учнів у новій українській школі	162
У Юеюань Педагогічні інновації в процесі формування професійного іміджу у майбутніх молодших фахових бакалаврів журналістів у коледжах: теоретичні та практичні аспекти	168
Чжао Жуйсюе Проблема мотивації майбутніх педагогів у формуванні їх естетичної компетентності	173
Zhu Fangzhou Features of training future journalists in current conditions	178
Юе Їн Потенціал освітнього середовища закладу як орієнтир підготовки учителів музики до навчання мистецтва школярів	182
Ши Юе Музично-виконавська компетентність студентів-струнників у системі педагогічних умов її формування	187

Youth & market

No. 6–7 (214–215) June-July 2023

CONTENTS

Tetiana Pantiuk, Yurii Yakymets

Pedagogical conditions for involving children and youth into work and forming their economic culture7

Natalia Sultanova

Social prevention of violence against children in the family: problems and solutions11

Iryna Melnychuk

Interdisciplinary approach in the system of teaching professional disciplines to future pharmacists16

Oleksandra Borodiyenko

Regional engagement: analyzing the experience of Flemish universities21

Vitaliia Prymakova

Transformation of the content of postgraduate training of managers of general secondary education institutions of Ukraine in historical retrospect: psychological and pedagogical aspect29

Olena Kokhanovska

Implementation of civil protection measures in educational institutions of Ukraine: historical aspect34

Halyna Bezverkhnia, Victoriia Tsybulska, Tamara Loshytska, Iryna Oliinyk

The methods of increase the efficiency of game activities of basketball players using interactive technologies39

Anatoliy Brovchenko

Requirements for the system of design education in the context of modern realities47

Nataliia Orlova

Use of prospective design methods of nature-integrated architecture in the process of education of future teachers of design51

Larysa Nakonechna

Development of grammatical competence of the students majoring in elementary education: the functioning of tense forms of the verb55

Yuliia Sylenko, Yana Romantsova, Olena Lysytska, Yaroslav Harbych

Information educational environment as a platform for the implementation of information and communication technologies in an institution of higher education60

Oksana Chaika

The role of Artificial Intelligence in higher education69

Myroslava Mazurok, Lesya Zavodna, Olga Saprykina

Wartime language: the semantic dimension of new vocabulary75

Liudmyla Kanova

Features of the methods of conducting classes with the armed forces officers of Ukraine in accordance with STANAG 6001 standard79

Yevheniya Honcharova, Olena Bieliaieva, Viktoria Kostenko, Iryna Solohor, Svitlana Efendiieva

Formation of adaptation of the first-year students to the educational environment of higher education institutions84

Mychaylo Korotkich, Yurii Lisnichenko

Current issues of professional competence formation of future officers in the process of professional training89

Uliana Borys Nature excursions of the primary education system of Galicia during the interwar days of the 20th century	94
Nataliia Semian The assessment of students' English creative writing: methodological aspects	99
Dzvenislava Vasylyk Choir of Dmytro Kotko in the light of publications in the "Dilo" newspaper of the 20s of the XX century	106
Valentyna Vodiana, Liudmyla Shchur, Serhii Malovichko, Iryna Mashtaler, Tetiana Solonyinka Emotional intelligence in the structure of professional competence of applicants for higher art education: analysis of the problem	111
Larisa Hrytsenko, Svitlana Lyashenko The influence of thinking and practical actions on the formation of the 8–9th grades students' concepts of the subject "Work training"	116
Olha Chemerys, Ivanna Kulyk, Yevhen Prokofiev Individualization of education in high schools as a necessary condition for improving the quality of vocational training	120
Nataliya Belyayeva A model for forming the readiness of future teachers for the design and implementation of a safe educational environment for younger school students under the conditions of the state of war	125
Liliya Stakhiv, Vasyl Stakhiv, Suzanna Voloshin Educational potential of museum pedagogics in institutions of general secondary education	131
Oksana Voloshyna Formation of students' information and communicative competence in the process of studying a foreign language in an agricultural institution of higher education	138
Marianna Onyshchenko The role of technology in teaching Spanish as a second foreign language: using computer programs, mobile apps, and online resources to improve learners' language skills	152
Artem Kurbatov Improving the professional training of future officers of NGU in order to shape their readiness to conduct combat duties	158
Serhiy Polyakov Computer technologies as a means of forming the graphic competence of students in the new Ukrainian school	162
Wu Yueyuan Pedagogical innovations in the process of professional image formation in the future junior professional bachelor of journalists in colleges: theoretical and practical aspects	168
Zhao Ruixue The problem of motivation of future teachers in the formation of their aesthetic competence	173
Zhu Fangzhou Features of training future journalists in current conditions	178
Yue Ying The potential of the educational environment of the institution as a guideline for training of music teachers to teach school students art	182
Shi Yue Musical performance of string students in the system of pedagogical conditions of its formation	187

UDC 373.2.015.31:[17.022.1+7+796]

DOI: <https://doi.org/10.24919/2308-4634.2023.287898>

Oksana Chaika, Ph.D. (Linguistics), Associate Professor,
Visiting Researcher,
Luxembourg Center for Educational Testing,
University of Luxembourg

THE ROLE OF ARTIFICIAL INTELLIGENCE IN HIGHER EDUCATION

The rapid advancement of Artificial Intelligence (AI) has created significant opportunities and challenges across various sectors, and higher education is no exception. This research paper delves into the multifaceted role of AI in higher education and explores its potential to transform teaching, learning, and administrative processes. By examining the current state of AI integration in educational settings, this paper aims to shed light on the benefits, challenges, and ethical considerations associated with AI adoption in higher education.

The key areas identified where AI can make a profound impact in education are in enhancing student engagement, data collection and analysis for teaching / learning and administrative purposes. Intelligent tutoring systems and virtual assistants can provide personalized guidance and support to students, adapting to their individual needs and learning styles. This individualization of learning experiences has the potential to improve academic outcomes and foster a deeper understanding of complex subjects. Furthermore, AI-powered analytics and learning management systems can collect and analyze vast amounts of data on student performance, enabling educators to gain valuable insights into student progress and identify areas that require intervention. This data-driven approach can facilitate early intervention strategies and help students stay on track, reducing the likelihood of dropouts and improving overall retention rates. AI technologies also offer the potential to streamline administrative processes within higher education institutions. Automated systems can handle routine administrative tasks, such as registration, scheduling, and grading, freeing up valuable time for faculty and staff to focus on more meaningful and strategic activities. Additionally, AI-powered chatbots can provide timely and accurate responses to student inquiries, improving the overall student experience and reducing administrative burdens.

However, alongside these benefits, the integration of AI in higher education poses several challenges and ethical considerations. Privacy concerns, algorithmic biases, and the potential replacement of human interaction are among the critical issues that need careful attention. It is crucial to ensure transparency, accountability, and fairness in the development and deployment of AI systems to mitigate these challenges and uphold ethical standards. Through an extensive review of relevant literature, case studies, and expert opinions, this research paper provides a comprehensive analysis of the current landscape of AI in higher education. It offers recommendations for effective implementation strategies, emphasizing the need for collaborative partnerships between educators, administrators, and technology developers. By embracing AI technologies in a thoughtful and ethical manner, higher education institutions can harness the full potential of AI to enhance teaching and learning outcomes, improve administrative efficiency, and foster a future-ready educational ecosystem.

Keywords: artificial intelligence; AI; higher education; teaching; learning; personalized learning; administrative efficiency; institutional effectiveness; ethical considerations.

Fig. 3. Ref. 24.

Оксана Чайка, кандидат філологічних наук, доцент,
дослідниця за прикріпленням,
Люксембурзький центр тестування у сфері освіти,
Університет Люксембургу

РОЛЬ ВИКОРИСТАННЯ ТЕХНОЛОГІЙ ШТУЧНОГО ІНТЕЛЕКТУ У ВИЩІЙ ОСВІТІ

Використання штучного інтелекту (ШІ) у сфері вищої освіти постає викликом у сучасному світі, з одного боку, а з іншого, – відкриває нові можливості розвитку й навчання молоді. У статті йдеться про роль ШІ у навчанні, управлінні навчально-виховним й адміністративним процесами у вищій школі. Інтелектуальні системи підтримки навчання та уміння працювати з аналітикою даних уможливають сьогодні, по-перше, забезпечення персоналізації навчання студентів, та по-друге, автоматизацію низки адміністративних процесів. Водночас постають питання, які потребують детальнішого вивчення й пошуків конструктивних рішень: інтеграція ШІ породжує проблеми дотримання конфіденційності та етики, цифровізація – та сфера, навички у межах якої не завжди є сильною стороною навіть у досвідчених педагогів у системі вищої освіти. Тому результати проведеного дослідження фокусуються на аналізі сучасного стану використання ШІ вищою школою і висновками слугують рекомендації щодо ефективної роботи та впровадження елементів технологій навчання на базі ШІ. Успішна реалізація запропонованих ідей потребує тісної співпраці між педагогами, адміністраторами та розробниками навчальних і освітніх програм, керуючись метою цієї розвідки, яка полягає у поліпшенні навчання та систем управління операційними процесами у закладах вищої освіти за допомогою ШІ, забезпечуючи прозорість та посилення ролі відповідальності при розробці механізмів навчання і керування навчально-виховним та адміністративними процесами у вишах.

Ключові слова: штучний інтелект; вища освіта; навчання; управління; адміністративні процеси; персоналізація навчання; аналітика даних; конфіденційність; етика; ефективне впровадження; співпраця; прозорість; відповідальність.

Introduction and statement of the problem. The integration of Artificial Intelligence (AI) in higher education has gained significant attention in recent years [12; 17; 20; 21]. AI technologies offer the potential to transform various aspects of the education landscape, including teaching, learning, and administrative processes [17; 20]. By leveraging machine learning algorithms, natural language processing, and data analytics, AI can enhance instructional delivery, personalize learning experiences, and streamline administrative tasks in educational institutions [14; 22].

In the realm of teaching and learning, AI-powered intelligent tutoring systems offer personalized guidance and support to students, adapting to their individual needs and learning styles [7, 3422–3427; 9]. Additionally, AI-driven learning analytics and educational data mining facilitate the collection, analysis, and interpretation of vast amounts of student data, enabling educators to gain valuable insights into student progress, identify areas of improvement, and tailor instruction accordingly [4; 18].

Despite the growing interest and potential benefits of AI in higher education, several challenges and concerns need to be addressed. The problem this research seeks to address is the need for a comprehensive understanding of how AI can be effectively implemented in higher education to enhance teaching and learning outcomes while ensuring ethical practices and student well-being [9; 24], and adding to the mentioned the latter research objectives, in particular the first three of the four, “the four research questions: (1) What are the major research purposes, methodologies, and outcomes addressed in mobile learning studies? (2) What types of mobile devices are mainly used in assisted learning and what are the general types of mobile learners? (3) How are different categories of disciplines and courses represented among mobile learning studies? (4) What are the highly-cited articles in studies of mobile learning?” [24, 818]. While existing literature provides valuable insights, there is still a gap in knowledge regarding the specific strategies, best practices, and potential pitfalls associated with the integration of AI in higher education [13; 17, 239]. This study aims to bridge this gap by examining successful AI implementation models, evaluating their impact, and identifying key factors that contribute to the effective utilization of AI technologies in higher education settings.

Aim of the research and objectives. Following that researchers and educators have been increasingly exploring the role of AI in high school in recent years in order to harness its capabilities and leverage its potential benefits, this research paper aims to explore the role of AI in higher education and its implications for students, educators, and institutions, in particular. One of the study objectives is to investigate the current state of AI integration in educational settings, while the others are to provide insights into the benefits and challenges

for AI implementation in educational institutions, and look into ethical considerations associated with AI adoption in higher education.

Methods. This research paper employs the methodology that consists of a comprehensive literature review, which serves as the foundation for examining existing research, identifying key themes, and gaining insights into the current state of AI integration in higher education settings. The literature review methodology follows a systematic and rigorous process to ensure the inclusion of relevant and credible sources, under which the initial step involves formulating specific research questions to guide the search process; then, these questions are designed to explore the various dimensions of AI in higher education, including its impact on teaching, learning, and administrative processes. Finally, the search strategy encompasses both electronic databases and manual searches of scholarly journals, conference proceedings, and relevant publications in the field of educational technology. Key search terms include such as “AI in education”, “artificial intelligence in higher education”, “machine learning in teaching”, and “educational data mining” [17; 23]. The inclusion criteria cover articles published within the last ten to twelve years, peer-reviewed studies, and empirical research focusing on the integration and impact of AI technologies in higher education.

Following the identification and retrieval of relevant articles, a systematic process of screening and selection was conducted. The screening involved reviewing the titles and abstracts of the retrieved articles to assess their relevance and alignment with the research questions. First, full-text articles had to meet the inclusion criteria and then they were thoroughly reviewed to extract key findings, methodologies, and implications related to the role of AI in higher education. To ensure the validity and reliability of the literature review, a critical appraisal of the selected articles was performed via assessing the quality of the research methods employed, evaluating the credibility of the data sources, and considering potential biases or limitations.

Additionally, this research paper acknowledges the limitations of the literature review methodology, such as the potential for publication bias and the dynamic nature of the field, lack of funds by many scholars to pay article processing charges to be published in distinguished journals and those indexed in Scopus and Web of Science data bases, etc.

Literature review. The literature study leads to understanding and need in emphasizing the role of AI technologies today, and educational settings make no exception. Moreover, fast adoption of AI technologies for higher educational purposes can help streamline administrative processes and make everyday life of educators much easier and more efficient at the same time, for instance, let us consider automating routine tasks such as student registration, scheduling, and grading

[13]. Virtual assistants powered by AI can provide timely and accurate responses to student inquiries, improving the overall student experience and reducing administrative burdens [15, 17–24]. Following Koedinger and Aleven (2007), “Intelligent tutoring systems are highly interactive learning environments that have been shown to improve upon typical classroom instruction”; moreover, reading further (ibid.), “Cognitive Tutors are a type of intelligent tutor based on cognitive psychology theory of problem solving and learning” [14, 239]. It is agreed with the researcher that the result will grow exponentially with such ‘Cognitive Tutors’ as they “provide a rich problem-solving environment with tutorial guidance in the form of step-by-step feedback, specific messages in response to common errors, and on-demand instructional hints. They also select problems based on individual student performance” [14, 239]. Furthermore, AI can support decision-making processes by generating actionable insights from data, enabling educational institutions to make informed choices regarding resource allocation, program development, and strategic planning [21, 1384–1388].

However, alongside the potential benefits, the integration of AI in education raises ethical considerations and challenges. These include privacy concerns related to the collection and use of student data, algorithmic biases, and the impact of AI on human interaction and teacher roles [23]. There has been a good amount of research completed under which the key findings underline that it is crucial for educational institutions to adopt

ethical guidelines, promote transparency, and ensure responsible AI implementation to address these concerns [2; 14; 15].

Results and discussion. The study demonstrates that the integration of Artificial Intelligence (AI) in education can be seen as a powerful driver and the immense potential to revolutionize various aspects of both the teaching and learning processes. This study proves the profound impact of AI in education and the findings reveal its particular influence on enhancing student engagement, data collection, and analysis for teaching, learning, and administrative purposes. With implementation of AI in education it will become much easier to unlock new possibilities to deliver personalized learning experiences for the student, automate a great number of everyday tasks for the educator, as well as optimize administrative tasks within and outside the educational institution, and finally, gain valuable insights into student performance.

The integration of AI in education offers several benefits. Firstly, AI-powered adaptive learning systems can enhance student engagement by providing personalized and tailored learning experiences (Fig. 1. *Impact of AI-powered systems on education*). These systems adapt to individual learning styles, preferences, and progress, leading to improved student motivation and comprehension [6; 7; 15]. Additionally, AI-based virtual tutors and chatbots can offer personalized guidance and support, extending learning opportunities beyond the classroom [1; 8].

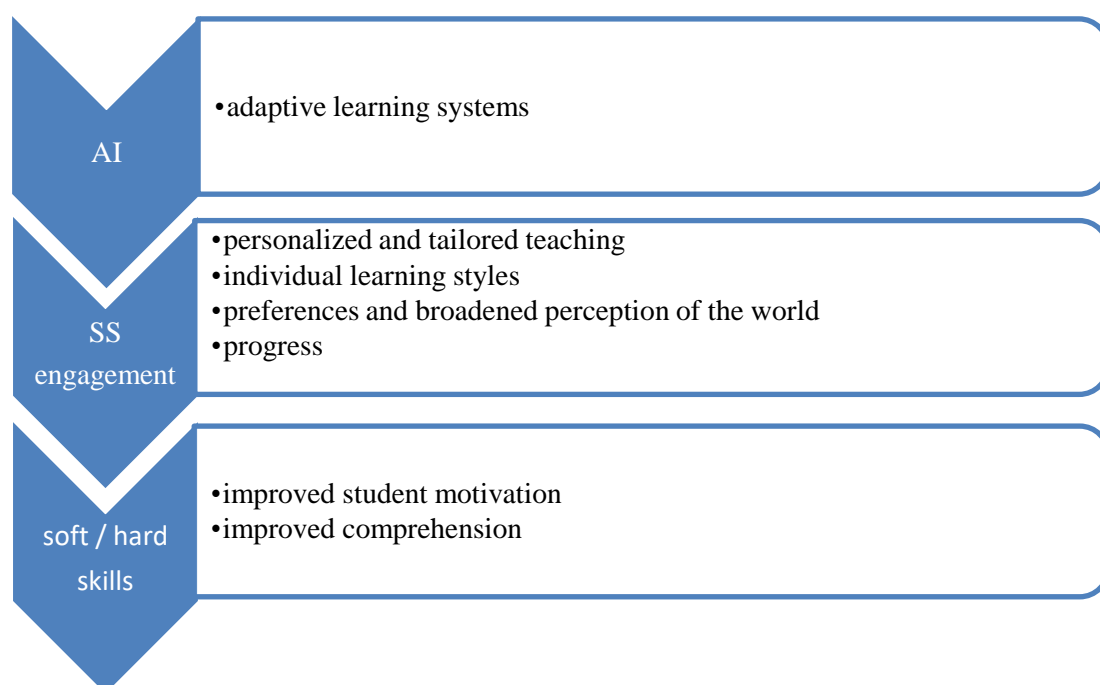


Fig. 1. Impact of AI-powered systems on education

Secondly, AI enables efficient data collection and analysis for teaching and administrative purposes (Fig. 2. *Benefits of AI in education*). Learning management systems equipped with AI algorithms can gather comprehensive data on student performance, engagement, and interactions [19]. This data-driven approach allows

educators to identify areas of improvement, customize instructional strategies, and provide targeted interventions to optimize learning outcomes [3].

As regards the first tier through the lens of *student-oriented vs task-oriented* approaches in education, AI technologies have shown promising potential in enhan-

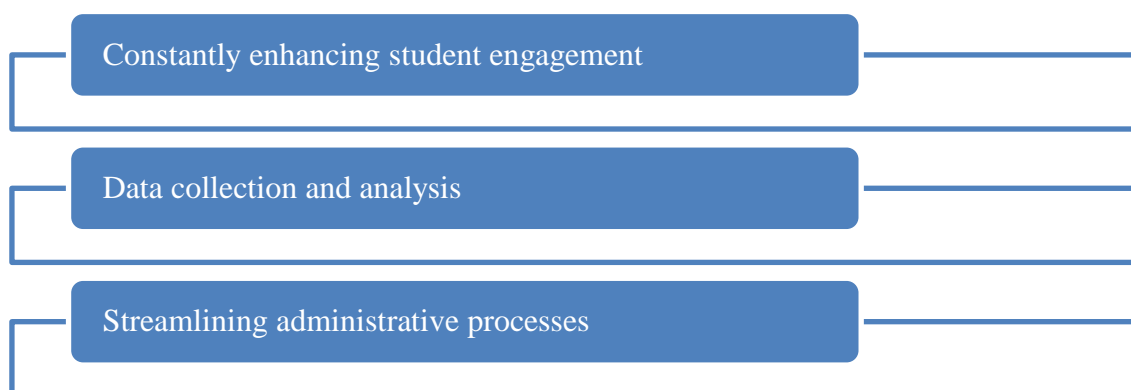


Fig. 2. Benefits of AI in education

cing student engagement within educational settings. Intelligent tutoring systems and virtual assistants can provide personalized guidance and support to students, adapting to their individual needs and learning styles [13; 16; 17]. This individualized approach fosters a deeper understanding of complex subjects and improves academic outcomes [15, 19–22]. The educator may take advantage of smart systems and utilize them for tailoring teaching and [students'] learning experiences to the unique requirements of each student; moreover, AI-powered systems create an environment that promotes active participation and engagement, students become more excited and motivated following the task-based approach in learning and growing their self-discipline and managing time for delivery of the desired results [8, 1478–1481].

Next, AI-powered analytics and learning management systems have revolutionized the collection and analysis of student data, enabling educators to gain valuable insights into student progress and performance. These systems can collect and process vast amounts of data on student behaviors, learning patterns, and performance indicators [19, 23–26]. Through data-driven analysis, educators can identify areas that require intervention, implement early intervention strategies, and enhance student outcomes [3, 267]. The use of AI in data analysis also allows for predictive modeling, helping identify students at risk of dropping out and facilitating targeted support to improve retention rates [5, 40–44]. That will also enhance role of the educator as a Partner, Moderator, Facilitator rather than that of a classical Teacher [7].

In the end, the integration of AI technologies in higher education institutions offers the potential to streamline administrative processes, reducing manual workload

and enhancing overall efficiency. Automated systems can handle routine administrative tasks such as registration, scheduling, and grading, freeing up valuable time for faculty and staff to focus on more strategic activities [17]. AI-powered chatbots provide timely and accurate responses to student inquiries, enhancing the student experience and reducing administrative burdens [11, 63–67]. Additionally, AI systems can assist in resource allocation and optimization, enabling institutions to make data-driven decisions for improved operational efficiency [10, 3056]. It highly reduces the risk of errors and the so-called man factor in the administrative domain [6].

While the benefits of AI in education are significant, there are several challenges that need to be addressed (Fig. 3. *AI-related Risks for educators and administrators in educational setting*). One of the primary concerns is the ethical use of student data. With the extensive collection and analysis of sensitive information, there is a need for robust data privacy and security measures [1]. It is crucial to ensure transparency, consent, and compliance with privacy regulations to protect student confidentiality.

Another challenge lies in addressing algorithmic biases. AI systems can inadvertently perpetuate biases present in the data they are trained on, potentially leading to unequal educational experiences and outcomes [1]. Continuous monitoring and evaluation of AI algorithms are necessary to mitigate biases and ensure fair and equitable learning environments.

Furthermore, the integration of AI raises concerns about the potential displacement of human educators. While AI can enhance teaching and learning, it is essential to strike a balance between technology and human interaction to preserve the value of personal engagement,

mentorship, and social-emotional aspects of education [16].

Therefore, despite the fact that AI integration in higher education brings numerous benefits, it is highly recommended to consider the ethical challenges as these require careful attention. Taken the above findings it is obvious that privacy concerns arise from the collection and storage of student data; the solution can be found

with robust data protection measures [1]. Another concern is with algorithmic biases in AI systems, which can perpetuate discrimination or favor certain groups, necessitating ongoing monitoring and evaluation to ensure fairness [7; 11]. Ultimately, the potential replacement of human interaction raises questions about the impact on interpersonal skills and the role of educators in the learning process [16].

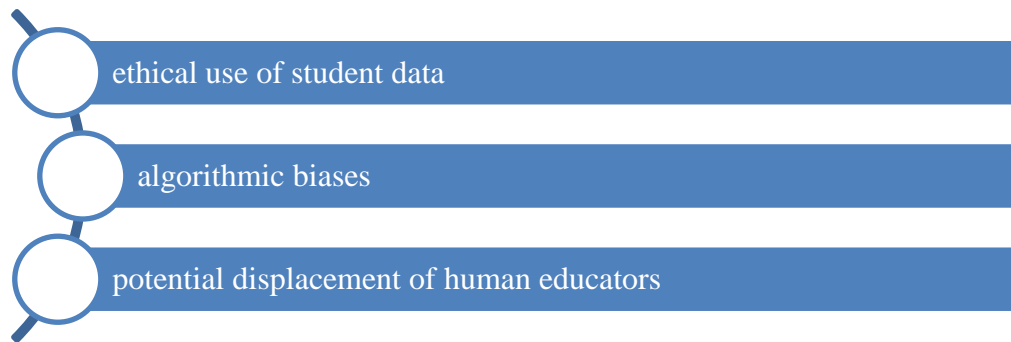


Fig. 3. AI-related Risks for educators and administrators in educational setting

To summarise, the integration of AI technologies in higher education holds significant potential for enhancing teaching and learning outcomes, improving administrative efficiency, and fostering a future-ready educational ecosystem. Through a comprehensive analysis of the current landscape, the research findings highlight the benefits and challenges associated with AI integration in higher education. On the one hand, they emphasize the role of AI in education, and on the other, need for effective implementation strategies and collaborative partnerships between educators, administrators, and technology developers to ensure the ethical and responsible use of AI in the pursuit of improved educational outcomes.

Conclusion. The integration of AI in education holds immense potential to transform the learning experience and optimize administrative processes. The educational institutions with the AI technologies when implemented can enhance student engagement, collect and analyze data for personalized instruction, and address administrative challenges more efficiently. However, ethical considerations surrounding data privacy, algorithmic biases, and the role of human educators must be carefully addressed. It is critical to remember that AI should be embraced in a highly responsible way and it requires striking a balance between technology and human interaction. The result would be highly efficient and empowering as educational institutions can harness the benefits of AI to create inclusive, personalized, and effective learning environments.

REFERENCES

1. Akgun, S. & Greenhow, C. (2022). Artificial intelligence in education: Addressing ethical challenges in K-12 settings. *AI Ethics*, 2 (3):431–440. doi: 10.1007/s43681-021-00096-7. Epub 2021 Sep 22. PMID: 34790956; PMCID: PMC8455229.

2. Androsovykh, K.A., Rudyk, Y.M., Melnyk, M.Y., Kovalova, O.A. & Yakymova, I.O. (2021). Psychological Guidance of the Socialisation Process of Gifted Students using Information and Communications Technology Means. *Journal of Intellectual Disability – Diagnosis and Treatment*, 9 (3), 236–246. <https://doi.org/10.6000/2292-2598.2021.09.02.11>
3. Arnold, K.E. & Pistilli, M.D. (2012). Course signals at Purdue: Using learning analytics to increase student success. In *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge*. pp. 267–270. ACM.
4. Baker, R.S. & Siemens, G. (2014). Educational data mining and learning analytics. In *Handbook of educational psychology*. pp. 775–788. Routledge.
5. Campbell, J.P., DeBlois, P.B. & Oblinger, D.G. (2007). Academic Analytics: A New Tool for a New Era. *EDUCAUSE Review*, 42 (4), pp. 40–57.
6. Chaika, O. (2021). Can leadership-coaching mind-set substitute that of crisis management in higher education? *Journal for Researching Education Practice and Theory (JREPT)*, 4 (2) (Special Issue), pp. 14–50. <https://bspace.buid.ac.ae/handle/1234/1931>.
7. Chaika, O. (2021). Adoption of Team Coaching Competencies for Innovative Translation and Foreign Language Instruction: Polylingual and Polycultural Dimensions in Higher Education. *International journal of social science and human research*, 04 (11), 3420–3431. <https://doi.org/10.47191/ijsshr/v4-i11-52>.
8. Chaika, O. (2023). Multicultural Education in Foreign Language Teaching: Task-Based Approach. *International Journal of Social Science and Human Research*, 06 (03), pp. 1476–1482. <https://doi.org/10.47191/ijsshr/v6-i3-18>.
9. D'Mello, S.K. & Graesser, A.C. (2012). Dynamics of affective states during complex learning. *Learning and Instruction*, 22 (2), pp. 145–157.
10. Dogan, M.E., Goru Dogan, T. & Bozkurt, A. (2023). The Use of Artificial Intelligence (AI) in Online Learning and Distance Education Processes: A Systematic Review of Empirical Studies. *Applied Sciences*, 13 (5), 3056. <https://doi.org/10.3390/app13053056>.

11. Duan, Y., Edwards, J.S. & Dwivedi, Y.K. (2019). Artificial intelligence for decision making in the era of Big Data evolution, challenges and research agenda. *International Journal of Information Management*, 48, pp. 63–71. <https://core.ac.uk/download/pdf/186333091.pdf>
12. Holmes, W., Bialik, M. & Fadel, C. (2019). Artificial intelligence in education: Promise and implications for teaching and learning. Center for Curriculum Redesign.
13. Johnson, L., Adams Becker, S., Estrada, V. & Freeman, A. (2015). NMC/CoSN Horizon Report: 2015 Higher Education Edition. The New Media Consortium. Available at: <https://library.educause.edu/resources/2015/2/nmc-cosn-horizon-report-2015-higher-education-edition>
14. Koedinger, K.R. & Aleven, V. (2007). Exploring the assistance dilemma in experiments with cognitive tutors. *Educational Psychology Review*, 19 (3), pp. 239–664. <https://doi.org/10.1007/s10648-007-9049-0>.
15. Koedinger, K.R., McLaughlin, E.A. & Stamper, J.C. (2012). Automated student model improvement. *Proceedings of the 5th International Conference on Educational Data Mining*, pp. 17–24.
16. Moravec, J.V. (Ed.). Emerging education futures: Experiences and visions from the field. <https://www.educationfutures.com/storage/app/media/documents/EmergingEducationFutures.pdf>.
17. Nikolaienko, S.M., Shynkaruk, V.D., Kovalchuk, V.I. & Kocharyan, A.B. (2017). Використання Big Data в освітньому процесі сучасного університету. *Information Technologies and Learning Tools*, 60 (4), 239. <https://doi.org/10.33407/itlt.v60i4.1681>
18. Pardo, A. & Siemens, G. (2014). Ethical and privacy principles for learning analytics. *British Journal of Educational Technology*, 45 (3), pp. 438–450.
19. Romero, C. & Ventura, S. (2013). Data mining in education. *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, 3 (1), pp. 12–27.
20. Shynkaruk, V. & Kharchenko, S. (2021). Lexicographic E-Resources in the Informational Support of “Lifelong Education” in the Context of Constant Development. *International Journal of Philology*, 12 (4). <https://doi.org/10.31548/philolog2021.04.014>
21. Siemens, G. (2013). Learning Analytics: The Emergence of a Discipline. *American Behavioral Scientist*, 57 (10), pp. 1380–1400. <https://doi.org/10.1177/0002764213498851>
22. Siemens, G. & Long, P. (2014). Penetrating the fog: Analytics in learning and education. *Italian Journal of Educational Technology*, 22 (3), pp. 132–137. <https://doi.org/10.17471/2499-4324/195>.
23. Williamson, B. (2017). Introduction: Learning machines, digital data and the future of education. SAGE Publications Ltd. <https://doi.org/10.4135/9781529714920>.
24. Wu, W.H., Wu, Y.C.J., Chen, C.U., Kao, H.Y., Lin, C.H. & Hwang, S.H.H. (2012). Review of trends from mobile learning studies: a meta-analysis. *Computers & Education*, 59 (2), pp. 817–827. <https://doi.org/10.1016/j.compedu.2012.03.016>

Стаття надійшла до редакції 31.05.2023



“Заняття наукою живлять юність і приносять насолоду старості, прикрашають в щасті, служать притулком і розрадою в нещасті”.

Цицерон
давньоримський політичний діяч, видатний оратор, філософ та літератор

“Для вченої й освіченої людини жити – значить мислити”.

Квінт Цицерон
давньоримський оратор, політик

“Не важливо з якою швидкістю ти рухаєшся до своєї мети, головне не зупинятися”.

Конфуцій
давньокитайський філософ

“Майбутнє повинно бути закладене в сьогоднішні. Це називається планом. Без нього ніщо у світі не може бути гарним”.

Георг Крістоф Ліхтенберг
німецький вчений

“Ви зможете все, чого захочете, тільки почніть. Сміливість породжує геніальність. Починайте негайно”.

Йоганн Вольфганг фон Гете
німецький поет, прозаїк, драматург

