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RESEARCH METHODOLOGY AND ACADEMIC INTEGRITY IN THE TRAINING OF MANAGERS

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МЕТОДОЛОГІЯ НАУКОВИХ ДОСЛІДЖЕНЬ ТА АКАДЕМІЧНА ДОБРОЧЕСНІСТЬ У ПІДГОТОВЦІ МЕНЕДЖЕРІВ

The current stage of higher education development is characterized by an active transformation of the educational process, driven by digitalization and the rapid integration of artificial intelligence (AI) technologies into teaching and research activities. This influence is particularly pronounced in the training of future managers, where analytical thinking, managerial decision-making, handling large volumes of information, and conducting research play a crucial role. In this context, research methodology is evolving, acquiring new conceptual and practical dimensions related to the use of AI tools. Accordingly, the aim of this article is to theoretically substantiate and analyze the impact of AI technologies on research methodology in the training of future managers, as well as to identify the key challenges associated with maintaining academic integrity. Within the scope of this study, it has been established that the use of artificial intelligence technologies in the training of future

managers necessitates a systematic update of research methodology, with a clear definition of ethical standards and principles of academic integrity. It has been logically demonstrated that among the key norms and principles of academic integrity that contribute to high-quality higher education are: the prohibition of academic plagiarism (arising from the automatic generation of texts by AI systems without proper source citation); the prohibition of non-transparent authorship (where it is difficult to clearly distinguish the contributions of AI and the student to the creation of a scientific product); and the prohibition of low research autonomy (which contradicts the principles of developing research competence in future managers). Implementing these norms fosters a culture of responsible AI use, which is a crucial factor in ensuring quality education. Such education should promote the development of critical thinking, research skills, and professional responsibility among future managers. From a practical perspective, this approach creates conditions for the systematic verification of research results obtained using AI—that is, all data and conclusions generated by AI systems must be checked for accuracy, aligned with existing sources, algorithms, and research methods, and only then incorporated into scholarly work.

Сучасний етап розвитку вищої освіти характеризується активною трансформацією освітнього процесу, зумовленою його цифровізацією та стрімким упровадженням технологій штучного інтелекту (ШІ) в освітню й науково-дослідницьку діяльність. Особливо відчутним цей вплив є у сфері підготовки майбутніх менеджерів, де ключову роль відіграють аналітичне мислення, ухвалення управлінських рішень, робота з великими обсягами інформації та здійснення наукових досліджень. У цьому контексті методологія наукових досліджень змінюється, набуває нових змістовних і практичних вимірів, пов'язаних із використанням інструментів ШІ. Відтак, мета статті полягає у теоретичному обґрунтуванні та аналізі впливу технологій штучного інтелекту на методологію наукових досліджень у процесі підготовки майбутніх менеджерів, а також у визначенні ключових проблем дотримання академічної доброчесності. Констатовано, що використання технологій штучного інтелекту в підготовці майбутніх менеджерів зумовлює необхідність системного оновлення методології наукових досліджень шляхом чіткого визначення етичних норм і принципів академічної доброчесності. Логічно доведено, що серед ключових норм і принципів академічної доброчесності, дотримання яких сприятиме здобуттю якісної вищої освіти, виокремлюються: неприпустимість академічного плагіату (що виникає внаслідок автоматичної генерації текстів інтелектуальними системами без належного цитування джерел); неприпустимість непрозорості авторства (коли ускладнюється визначення внеску здобувача освіти у створення наукового продукту); неприпустимість низького рівня самостійності наукових результатів (що суперечить принципам формування дослідницької компетентності майбутніх менеджерів). Запровадження цих норм сприятиме формуванню культури відповідального використання ШІ, що є ключовим чинником забезпечення якісної освіти. Вона має забезпечувати розвиток критичного мислення, дослідницьких навичок та професійної відповідальності майбутніх менеджерів. З практичного погляду, реалізація підходу створює умови для системної верифікації результатів досліджень, отриманих із використанням ШІ (тобто усі дані та висновки, згенеровані інтелектуальними системами, мають перевірятися на коректність, узгоджуватися з наявними джерелами, алгоритмами та методами дослідження, і лише після цього включатися у наукову роботу).

Key words: manager training; research findings; artificial intelligence technologies; academic integrity; inadmissibility of academic plagiarism; inadmissibility of non-transparent authorship.

Ключові слова: підготовка менеджерів; результати досліджень; технології штучного інтелекту; академічна доброчесність; неприпустимість академічного плагіату; неприпустимість непрозорості авторства.

PROBLEM STATEMENT

The current stage of higher education development is undergoing active transformation, driven by digitalization and the rapid integration of artificial intelligence (AI) technologies into teaching and research activities [8-9].

This impact is particularly pronounced in the training of future managers, where analytical thinking, managerial decision-making, handling large volumes of information, and conducting research play a critical role. In this context, research methodology is evolving, acquiring new

Table 1. Changes in research methodology principles in the training of future managers under AI integration

Research principle	Traditional interpretation	Transformation under AI technologies
Scientific rigor	Focus on verified theories, methods, and empirical data	Supplemented by the need for critical evaluation of results generated or supported by AI systems
Systematic approach	Comprehensive analysis of the research object, considering interconnections among its elements	Enhanced by the possibility of automated analysis of complex, multifactorial processes and large datasets
Objectivity	Researcher impartiality and independence of results from subjective factors	Complicated by risks of algorithmic bias and dependence on the quality of AI training data
Reproducibility of results	Ability to replicate the study and obtain similar results	Requires transparency of algorithms, data accessibility, and documentation of AI tool usage conditions
Personal responsibility of the researcher	Individual accountability for results and their scientific novelty	Takes on a new dimension, including responsibility for the accuracy, appropriateness, and ethical use of AI

Source: Compiled based on data from the Digital Education Council, HEPI [8—9] and [5].

substantive and practical dimensions associated with the use of AI tools.

Alongside significant advantages—such as increased efficiency in information retrieval and processing, automation of certain stages of data analysis, and support for academic writing—the use of AI technologies raises several challenges directly related to upholding principles of academic integrity. Chief among these are the risks of academic plagiarism, lack of transparency in authorship of scientific texts, reduced independence in students' research outcomes, and difficulties in verifying the reliability of results obtained with AI systems.

Therefore, the relevance of this study lies in the need to rethink research methodologies in higher education institutions in light of AI's opportunities and limitations, as well as to cultivate strong values of academic integrity in future managers. In the context of digital transformation in education, developing clear methodological and ethical guidelines for the use of AI in teaching and research becomes particularly important, ensuring a balance between innovation and responsibility.

ANALYSIS OF RESEARCH AND PUBLICATIONS

The features of classical research methodology and the assurance of academic integrity in manager training have been examined in the works of Batechko N. [1], Herasymenko O., Demchenko A. [2], Danylyan O. H., and Dzioban O. P. [3]. In particular, these scholars emphasize combating plagiarism and developing in future managers the skills necessary for high-quality research, critical thinking, and a responsible approach to research outcomes. Danylyan O. H. and Dzioban O. P. [3] additionally focus on structuring the research process, which enhances the systematic and consistent nature of students' academic work.

At the same time, in recent years, research methodology in the training of future managers has undergone active transformations due to the emergence and widespread use of AI systems by higher education students, which significantly facilitate information retrieval, processing, and organization, as well as automate data analysis and the preparation of academic texts. However, this also introduces new challenges concerning academic integrity, transparency of authorship, and the independence of research results.

These issues remain largely underexplored, underscoring the need for focused research and the development of methodological approaches that effectively combine modern technological practices with rigorous standards of academic integrity.

FORMULATION OF THE ARTICLE'S OBJECTIVES

This article aims to provide a theoretical justification and analysis of the impact of artificial intelligence technologies on research methodology in the education of future managers, while also identifying the primary challenges associated with upholding academic integrity.

THE PAPER MAIN BODY

The authors emphasize that, in the training of future managers, research methodology has traditionally been grounded in the principles of scientific rigor, systematic inquiry, objectivity, reproducibility of results, and the researcher's personal accountability for their findings. This is further evidenced by the studies of Batechko N. [1], Herasymenko O., and Demchenko A. [2].

Simultaneously, in the context of the digital transformation of higher education, traditional research methodology principles are experiencing significant shifts

Table 2. Changes in researcher functions and the role of AI at different stages of research conducted by future managers

Research stage	Researcher functions (Traditional)	Researcher functions with AI	Role of AI at different research stages
Problem Formulation	Defining the problem, setting objectives	Critical evaluation of the problem, formulation and description of hypotheses	Assisting in identifying trends, generating alternative research questions
Source retrieval	Independent search and organization of literature	Assessing relevance, critical selection of sources	Automated search, classification, and organization of publications
Data analysis	Calculations, comparisons, basic statistical analysis	Interpretation of results, significance assessment	Processing large datasets, detecting correlations, trend forecasting
Preparation of scholarly texts	Structuring and writing the research text	Ensuring accuracy, logical consistency, and academic integrity	Supporting text structuring, language correction, and presentation suggestions
Result Interpretation	Drawing conclusions and recommendations	Critical evaluation of results, determining practical significance	Data visualization, scenario modeling, decision-support assistance

Source: created by the authors based on [3—4; 6—7].

due to the influence of artificial intelligence (AI) technologies, which are increasingly being integrated into educational and research practices, posing potential risks to the quality of higher education. A global survey by the Digital Education Council (2024) reported that 86% of 3,800 students from 16 countries use AI in their studies (54% weekly and 24% daily); the survey included undergraduate, master's, and doctoral students across various disciplines, including management [8]. According to the Higher Education Policy Institute (HEPI, 2025), 92% of 1,041 surveyed UK university students used AI tools such as ChatGPT in 2024, with 88% applying generative AI for exams and research tasks—a notable increase compared to February 2024, when only 66% and 53% of respondents reported such usage, respectively [9]. In Ukraine, AI adoption in education is also advancing rapidly, and a considerable proportion of students are already utilizing intelligent tools; however, comprehensive data specifically concerning management students are not yet available.

In this context, it is important to highlight that the implementation of AI is reshaping the functions and roles of researchers. The key transformations in research methodology principles for training future managers under AI integration are summarized in Table 1.

Specifically, the principle of scientific rigor is being transformed by the need for critical evaluation of results obtained through AI systems; the principle of systematic approach evolves due to the possibility of automated analysis of complex, multifactorial processes; the principle of objectivity is complicated by the risks of algorithmic bias; and reproducibility of results now requires transparency of algorithms and accessibility of the data used in the research. Meanwhile, the principle of personal responsibility takes on a new meaning, encompassing not only authorship of the research outcomes but also the

conscious oversight of the appropriateness and accuracy of AI tool usage.

In light of these transformations, the use of artificial intelligence tools impacts every stage of research conducted by future managers—from defining the research problem and reviewing relevant literature to analyzing data and preparing scholarly outputs. Specifically, machine learning algorithms and intelligent search systems greatly expand the capacity to handle large datasets, enable faster organization of scientific sources, and enhance the efficiency of analytical tasks, such as automated identification of market trends, detection of correlations between management indicators, or classification of academic publications by thematic focus.

This shift in focus places greater emphasis on interpretative and critical skills rather than routine tasks such as data collection and preliminary processing [4; 6]. Future managers increasingly concentrate on justifying research problems, formulating hypotheses, selecting appropriate methods, critically analyzing results, and making managerial decisions, while automated tools provide support in data retrieval, organization, and computational analysis. Consequently, methodological training is gradually evolving from mastering technical procedures to cultivating a research-oriented mindset, reflecting changes in the core functions of the researcher, including problem formulation, source management, data analysis, scholarly writing, and result interpretation. These functions now also encompass assessing data reliability, recognizing limitations of AI applications, and defining responsibility for interpreting results within a professional managerial context. Table 2 illustrates how the researcher's functions and the role of AI are evolving across the stages of research conducted by future managers.

It is also important to note that the widespread use of AI is reshaping notions of authorship, scientific originality,

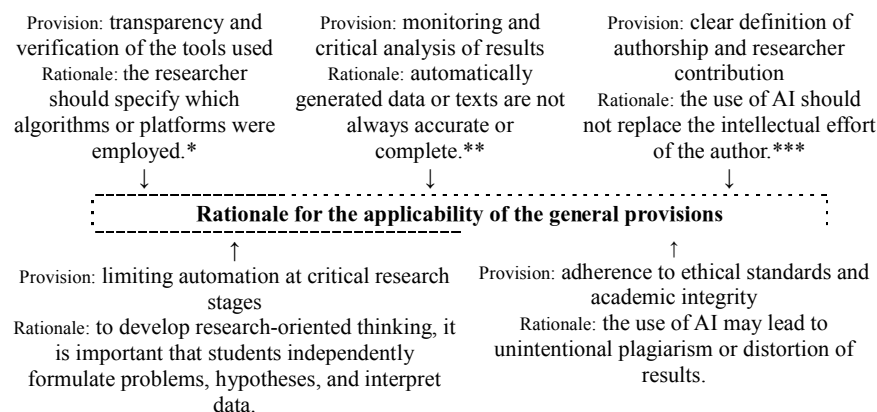


Figure 1. Justification of general provisions for standardizing the appropriateness, scope, and conditions of AI use in research methodology

Note:

* Researchers must ensure that their results can be independently verified by other scholars.

** Researchers should evaluate the reliability and significance of their findings.

*** Academic integrity requires a clear distinction between the contributions of the human researcher and those of the AI system.

Source: created by the authors based on [3; 6—7].

and research independence. For future managers, who are expected to cultivate skills in making responsible managerial decisions, there is a risk that automated outputs may supplant analytical thinking, potentially resulting in a superficial grasp of research methods. For example, a student might rely on AI to automatically generate a report on market trends without independently analyzing the data sources or verifying their accuracy, thereby reducing the quality of scientific conclusions and encouraging a passive approach to research.

Thus, research methodology should be supplemented with guidelines that define the appropriateness, scope, and conditions for using AI systems in the research activities of future managers. These guidelines may include [7]:

1. Transparency and verification of AI tools — documenting data sources, algorithm parameters, and processing procedures.
2. Monitoring and critical analysis of results — including stages of critical interpretation and comparison with alternative sources or methods.
3. Clear definition of authorship and researcher contribution — specifying AI's role in material creation in footnotes or the "Methodology" section.
4. Limiting automation at critical research stages — restricting AI to supportive tasks, such as literature retrieval and data processing, while ensuring researcher involvement in the conclusion.
5. Adherence to ethical standards and academic integrity — through proper citation, plagiarism checks, and compliance with institutional AI policies governing its use in teaching and research.

A systematic justification of the general provisions for standardizing the appropriateness, scope, and conditions of AI use in research methodology (see Figure 1) underscores the vital importance of academic integrity. According to Myrhorod-Karpova V.V., Rudenko L.D., and Shlapko T.V., academic integrity entails that research outcomes and student work are produced conscientiously, adhere to ethical standards, and are free from misconduct [7]. We concur that this is essential, as violations of

academic integrity "lead to delays in the scientific development of students and, consequently, to the provision of low-quality higher education, which in turn results in broader systemic problems" [7, p. 138].

In our view, these broader issues primarily involve a significant decline in managers' competence in making informed decisions, which directly impacts organizational and enterprise efficiency. For example, a manager lacking adequate analytical and research skills may misinterpret market trends or financial risks, or make decisions regarding employee recruitment or motivation based on incomplete or inaccurate information, potentially reducing team productivity and increasing staff turnover. Similarly, a manager who lacks critical thinking and the ability to assess evidence-based data may misjudge the appropriateness of implementing new technologies, leading to a loss of competitive advantage.

In this context, the use of artificial intelligence technologies in the training of future managers requires a systematic update of research methodology through the clear definition of ethical standards and principles of academic integrity, which will create conditions for the verification of research results obtained with the use of AI.

CONCLUSIONS

Within the scope of this study, it has been established that the use of artificial intelligence technologies in the training of future managers necessitates a systematic update of research methodology through the clear definition of ethical standards and principles of academic integrity. It has been logically demonstrated that among the key norms and principles of academic integrity contributing to high-quality higher education are:

1. Prohibition of academic plagiarism, which may arise from automatically generated texts by AI systems without proper source citation.
2. Prohibition of non-transparent authorship, where it is difficult to clearly distinguish the contributions of AI and the student in creating a scholarly product.

3. Prohibition of low research autonomy, which contradicts the principles of developing research competence in future managers.

Implementing these norms fosters a culture of responsible AI use, which is essential for ensuring high-quality education. Such an approach promotes the development of critical thinking, research skills, and professional responsibility among future managers.

Practically, it also enables systematic verification of AI-generated research results: all data and conclusions must be checked for accuracy, cross-referenced with existing sources, algorithms, and research methods, and only then integrated into scholarly work.

Future research prospects lie in exploring effective methods for integrating AI technologies into the educational process and developing practical tools to monitor academic integrity and enhance the autonomy of research outcomes among future managers.

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