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AI IN MULTIDISCIPLINARY EDUCATIONAL MANAGEMENT DESIGN

Annotation. *The question of AI in multidisciplinary Educational Management design has been raised. The integration of AI into education as modern scientific approach, trend with leading characteristics, advantages and disadvantages has been delighted. Practical examples and recommendations: how to provide AI in multidisciplinary Educational Management design, were given.*

Key words: *AI in educational space, Educational Management Design, multidisciplinary, Medical Psychoogy.*

Анотація. *Порушено питання штучного інтелекту в міждисциплінарному дизайні менеджменту освіти. Висвітлена інтеграція ШІ в освіту як сучасний науковий підхід, тенденція з провідними характеристиками, перевагами та недоліками. Наведено практичні приклади та рекомендації: як забезпечити коректне використання ШІ в мультидисциплінарному дизайні управління освітою.*

Ключові слова: *ШІ в освітньому просторі, дизайн управління освітою, мультидисциплінарність, медична психологія.*

Introduction. AI in multidisciplinary Educational Management design is rich and complex topic. We need to think about AI In Education: Balancing The Human

Connection In the rapidly evolving Educational Management design, as integration AI in performing by business, economic, social, educational leaders and presenting them with a paradox of potential – a promise for unprecedented accessibility to learning juxtaposed against the risk of deepening human isolation. Let's unpack it a bit: what is Educational Management Design? It's about structuring how education systems, institutions, or programs are organized, governed, operated, and improved – from curriculum development to administrative operations to student experience. «Multidisciplinary» means it draws from education, management, psychology, sociology, medicine, data science, technology etc. [3, p. 170; 9, p. 323].

The aim of the article is to reveal the integration of providing AI in education and give practical examples and recommendations: how to provide AI in multidisciplinary Educational Management design.

Presentation of the research material. AI can transform multidisciplinary educational management design by:

Personalizing learning: AI analyzes diverse student data such as academic performance, learning style, socio-economic background to suggest personalized pathways.

Optimizing administration: predictive models can allocate resources (staff, classrooms, budgets) efficiently.

Supporting decision-making: AI systems synthesize information from education, management, psychology, medicine and technology fields to guide strategic planning [9, p. 175].

Of course, *curriculum design:* AI models can recommend updates by analyzing global trends and student performance metrics across different and varied disciplines.

Student support systems: chatbots, virtual counselors, early warning systems for at-risk students.

Faculty development: tailoring professional development plans by analyzing instructional data and pedagogical needs [10, p. 248].

Multidisciplinary and cross-disciplinary collaboration: AI can provide bridge gaps between fields (like psychology, medicine, tech, business, education) by identifying synergies and suggesting integrative projects.

Let's think why is the «multidisciplinary» part so important? Because education design today isn't just about traditional pedagogy; managing a school, university, or even online learning platform now requires. It is about mix of next aspects: analyzing educational data (Data Science); understanding motivation and learning styles (Psychology); running efficient institutions (Business Management); e-learning platforms, AI tools (Technology); addressing diversity and inclusion (Sociology) etc [10, p. 220]. AI, trained across these fields, can connect the dots in ways humans alone may struggle with. We can also sketch out a sample framework for how an AI-powered multidisciplinary educational management system could be designed. Course of Medical Psychology as a model shows all the components and how they interact [5].

Multidisciplinary courses need comprehensive framework for designing an AI-powered cross disciplinary educational management system, integrating insights from recent research and best practices: AI-Driven Multidisciplinary Educational Management Framework encompasses six interconnected layers, each leveraging AI to enhance educational management across various disciplines. The first, *data integration & analytics* layer purpose: aggregate and analyze diverse data sources to inform decision-making. Key components here: *data sources* such as student performance metrics, attendance records, behavioral data, and socio-economic backgrounds; *AI techniques*: machine learning algorithms for predictive analytics, identifying at-risk students, and forecasting resource needs; *outcome*: Informed strategic planning and personalized interventions and recommend personalized learning paths [2, p. 55]. The second, *Personalized Learning & Instructional Design Layer*. Its *purpose*: tailor educational content and teaching strategies to individual learner needs. Key components here: *adaptive learning systems*; *instructional design*: frameworks ensure human-centered, transparent, and collaborative AI-assisted instructional design; *outcome*: enhanced student

engagement and improved learning outcomes. The third, *Administrative & Operational Efficiency Layer Purpose* [2, p. 59]. Key components: *automation tools*; *predictive maintenance*: forecasting infrastructure needs and maintenance schedules; *outcome*: reduced administrative burden and improved operational efficiency. The fourth, *Faculty Development & Support Layer* with purpose: empower educators with AI tools and training for effective teaching. Key Components: *professional development* with collaborative platforms; *outcome*: enhanced teaching quality and educator satisfaction. The fifth, *Ethical Governance & Policy Layer Purpose*. Key Components: *ethical frameworks* (guidelines addressing data privacy, bias mitigation, and transparency); *compliance monitoring* with regular audits to ensure adherence to ethical standards; *outcome*: trustworthy AI integration that respects stakeholder rights. The sixth, *Community & Stakeholder Engagement Layer Purpose*. Key Components: *feedback mechanisms*: AI-analyzed surveys and forums to gather stakeholder input; *transparent communication*; *continuous evaluation*: regularly assess AI tools for effectiveness and fairness; *stakeholder training* to maximize benefits; *outcome*: inclusive decision-making and strengthened community trust.

Interdisciplinary Integration Education (Pedagogical theories and curriculum development) – Data Science (Analytics and machine learning applications) — Psychology (Understanding learner behavior and motivation) – Sociology (Addressing equity and inclusion) – Ethics & Policy (Ensuring responsible AI use) [5]. By integrating these fields, the framework ensures a holistic approach to educational management aims to revolutionize educational management by enhancing personalization, efficiency, and inclusivity.

Implementing AI in multidisciplinary educational management requires a strategic, ethical, and inclusive approach. Drawing from recent research and best practices, here are key strategies to guide institutions in integrating AI effectively:

1. Establish a Multidisciplinary AI Governance Framework Develop a governance structure that brings together educators, administrators, technologists, ethicists, and students.

2. Invest in AI Literacy and Professional Development Equip faculty, staff, and students with the knowledge and skills to interact effectively with AI tools. A multidisciplinary approach ensures that individuals from various fields understand AI's capabilities and limitations.

3. Pilot AI Tools in Targeted Areas Begin with small-scale implementations to assess AI's impact and gather insights before broader deployment. Select appropriate AI tools or platforms that align with institutional needs [5].

4. Ensure Ethical and Inclusive AI Integration [6, p. 44].

5. Leverage AI for Interdisciplinary Collaboration (as a catalyst to foster collaboration across different academic disciplines, enhancing problem-solving and innovation) [11, p. 55].

6. Monitor and Evaluate AI Impact Continuously. By following these strategies, educational institutions can integrate AI thoughtfully and effectively, enhancing multidisciplinary educational management while upholding ethical standards and promoting inclusivity [8, p. 253]. Thus we have specific areas we'd like to delve deeper into with implementation strategies, and have specific examples tailored to our institution's context. One of these courses is Artificial Intelligence (AI) in Medical Psychology [5; 9].

A brief summary of the course «Medical Psychology and Artificial Intelligence (AI)», examining how modern technologies affect the diagnosis, treatment and understanding of mental health. Medical psychology studies the psychological aspects of health and illness, focusing on the diagnosis and treatment of mental disorders. Artificial intelligence, in turn, involves the creation of systems capable of performing tasks that usually require human intelligence, such as learning, language recognition and decision-making. The integration of AI into medical psychology opens up new opportunities for improving the quality of psychological care [1, p. 255]. Goal: To familiarize students with the possibilities of using AI in the field of medical psychology, consider practical examples and discuss the ethical aspects of using AI in psychological practice. Tasks:

1. Reveal the concept and main directions of using AI in medical psychology.

2. Demonstrate practical cases of using AI in the diagnosis and therapy of mental disorders.

3. Discuss the ethical and legal aspects of using AI in psychological practice.

We can present one example Lecture plan on the course «Medical Psychology and Artificial Intelligence»:

1. The role of AI in the diagnosis of mental disorders [8, p. 205].

Modern AI algorithms are able to analyze large volumes of behavioral data, which allows you to detect early signs of mental disorders. For example, analyzing speech and behavior patterns can help detect depression or anxiety disorders in the early stages. Such systems can become a valuable tool for doctors, complementing traditional diagnostic methods [4, p. 305].

2. AI in therapeutic interventions.

The development of AI-based chatbots and virtual assistants provides the opportunity to provide psychological support in real time. These tools can conduct cognitive behavioral therapy sessions, helping patients manage symptoms and provide recommendations for improving mental health. The use of virtual reality in combination with AI also allows for the creation of controlled environments for the treatment of phobias and post-traumatic stress disorder [5;12, p.48].

3. Personalizing treatment with AI.

AI allows for the analysis of individual patient characteristics, such as genetic data, medical history and behavioral patterns, to develop personalized treatment plans. This helps to increase the effectiveness of therapy and reduce the risk of side effects. For example, in the field of endocrinology, AI helps personalize diabetes treatment by analyzing the patient's lifestyle and suggesting individualized medication plans [5].

4. Ethical and legal aspects of AI in Medical Psychology.

The use of AI in mental health raises important questions about the confidentiality and security of patient data. It is necessary to ensure that the data collected is used ethically and in a manner that respects human rights. It is also

important to understand the limits of AI and to ensure that decisions made based on its analysis are controlled by qualified professionals [5; 11].

5. Future prospects and challenges.

The integration of AI into clinical psychology has great potential, but also faces challenges. Further research is needed to assess the effectiveness and safety of AI tools, as well as to develop regulations governing their use. Interdisciplinary collaboration between engineers, psychologists, and lawyers is key to the successful integration of AI into the field of mental health [5; 7, p. 32].

Conclusions. Artificial intelligence offers new opportunities in multidisciplinary Educational Management design. However, it is important to approach its implementation with caution, taking into account ethical and legal aspects, as well as ensuring that technology complements, rather than replaces, the human factor in the provision of psychological care. But the future of AI in education holds great promise. As technology continues to advance, AI is expected to play an increasingly significant role in the classroom.

Some predictions for AI in the classroom include the development of intelligent tutoring systems that can provide even more personalized and adaptive instruction to students. Furthermore, AI is expected to revolutionize online education and powered virtual classrooms and collaborative platforms can enhance the overall online studies experience by fostering engagement and interaction among students and instructors.

We need remember that AI can't substitute professionals, but it can perfect educators' skills and education process. AI in education offers transformative potential, enhancing personalized learning, administrative efficiency, and access to quality education. As technology advances, integrating AI thoughtfully will be crucial to maximizing benefits while addressing ethical and practical challenges. Embracing AI can pave the way for a more adaptive, inclusive, and effective educational system. The integral goal of the synergy of education knowledge and AI practice is the formation of a single path of introduction into society of the newly created paradigm of providing AI in educational management design. By following abovementioned strategies, educational institutions can integrate AI thoughtfully and

effectively, enhancing multidisciplinary educational management while upholding ethical standards.

References

1. Budd M. Hough S., Wegener S., Stiers W. (2017) Practical Psychology in Medical Rehabilitation. Springer, 550 p.
2. Grihan, G. & Varetska, O. (2020). Formation of the Primary School Teachers' Information Competency in Postgraduate Education. *Postmodern Openings*, 11(3), 41-72. <https://doi.org/10.18662/po/11.3/199>.
3. Grihan, G., Nikulochkina, O. & Okhrimenko, I. (2021). Formation of psychophysical readiness of cadets for future professional activity. *The Open Sports Sciences Journal*, 14, 1–8. <https://doi.org/10.2174/1875399X02114010001>
4. Hryhorenko, T., Nesterova, M., Okhrimenko, I., & Dushka, A. (2023). Motivation development of mental health preservation of specialists in the field of special and inclusive education: European practices. *Pol Merkur Lekarski*, 51(1), 30–34. <https://doi.org/10.36740/Merkur202301104>
5. Iatsyshyn, A., Atamanyuk, S. (2024). Knowledge Management in the Context of Digital Transformation of Education and Science in Ukraine: Challenges in Professional Training Digital Technologies in Education Selected Cases Springer Cham, Switzerland AG 2024 28 April 2024 pp 165–184 https://doi.org/10.1007/978-3-031-57422-1_12 URL: <https://link.springer.com/book/10.1007/978-3-031-57422-1> (last accessed: 2025/05/12).
6. Okhrimenko, I. & Sprynchuk, S. (2021). Future psychologists' readiness to work in conditions of social cohesion in education. *International Journal of Applied Exercise Physiology*, 9(9), 40-48. URL: <http://www.ijaep.com/index.php/IJAE/article/view/1137> (last accessed: 2025/05/12).
7. Sheremet, M. (2023) Motivation development of mental health preservation of specialists in the field of special and inclusive education: european practices *Pol Merkur Lek*, ALUNA Publishing House 1, (JAN-FEB), 30-34 <https://doi.org/10.36740/Merkur202301104>

8. Sopivnyk, R. I. Sopivnyk, (2023). *Social leadership and team building*. Kyiv: NULES. URL: <https://dglip.nubip.edu.ua/server/api/core/bitstreams/bc90a611-0bce-472e-8d46-017892b1f745/content> (last accessed: 2025/05/12)
9. Suprun, D., & Fedorenko, M. (2019). Psychological linguodidactics of speech development activity of senior school age children with autistic abnormalities. *Psycholinguistics*, 25(1), 281–299. <https://doi.org/10.31470/2309-1797-2019-25-1-281-299>
10. Suprun, D. (2019). *Modernization of the content of psychologists' professional training in the field of special education*. Kyiv: Drahomanov NPU. URL: <http://enpuir.npu.edu.ua/handle/123456789/30565> (in Ukr.) (last accessed: 2025/05/12).
11. D. Suprun, M.-A. Launer, I. Sopivnyk, R. Sopivnyk, T.Hryhorenko (2024) Foreign Language Communication in the Social Sphere (for Social Managers). Kyiv: 2024. 553 p. URL: <https://dglip.nubip.edu.ua/items/e59e32a7-b679-494d-8b5e-22b6200ee697> (last accessed: 2025/05/12).
12. Tamozhska, I. & Lehan, I.(2023) Functioning and development of national and european adult education systems: a comparative aspect *Conhecimento & Diversidade*, 15(40), 45-61. <https://doi.org/10.18316/rcd.v15i40.11275>