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LEVERAGING KOTTER'S 8-STEP CHANGE MODEL FOR EFFECTIVE AI INTEGRATION IN EDUCATION

ЗАСТОСУВАННЯ 8-КРОКОВОЇ МОДЕЛІ ЗМІН КОТТЕРА ДЛЯ ЕФЕКТИВНОЇ ІНТЕГРАЦІЇ ШТУЧНОГО ІНТЕЛЕКТУ В ОСВІТУ

The integration of artificial intelligence (AI) in education is a key direction for modernizing the learning process, enabling its adaptation to the needs of modern society and enhancing learning effectiveness. However, implementing AI in education is a complex process that requires careful planning and change management. John Kotter's 8-Step Change Model offers an effective strategy for successful integration of innovation, taking into account human factors and organizational aspects. This article explores the applicability of Kotter's 8-Step Change Model for the effective integration of AI into the educational process. Each step of the model is analyzed within the context of the educational environment, and recommendations for practical implementation are provided. The research objectives include analyzing Kotter's 8-Step Change Model and its key principles, examining the specifics of AI integration in education and the associated challenges, adapting the steps of Kotter's model to the process of AI implementation in educational institutions, and developing practical recommendations for administrators and educators on effective change management during AI integration. The article employs a comprehensive set of research methods, including analysis of scientific literature, modeling, generalization, and systematization of practical experience. The application of Kotter's 8-Step Change Model can significantly enhance the effectiveness of AI integration in education. The model helps administrators and educators plan and implement changes, taking into account human factors and minimizing resistance. Implementing AI in education opens up new opportunities for improving the learning process and preparing students for the challenges of the modern world.

Keywords: artificial intelligence, education, innovation, change management, Kotter's model.

Інтеграція штучного інтелекту (ШІ) в освіту є одним із ключових напрямків модернізації навчального процесу, що дозволяє адаптувати його до потреб сучасного суспільства та підвищити ефективність навчання. Проте, впровадження ШІ в освіту – це складний процес, який вимагає ретельного планування та управління змінами. 8-крокова модель змін Джона Коттера пропонує ефективну стратегію для успішної інтеграції інновацій, враховуючи людський фактор та організаційні аспекти. Метою статті є дослідження можливостей застосування 8-крокової моделі змін Коттера для ефективного інтеграції ШІ в освітній процес. В статті проаналізовано кожен крок моделі з урахуванням специфіки освітнього середовища та запропоновано рекомендації щодо їх практичного впровадження. Проаналізовано 8-крокову модель змін Коттера та її ключові принципи. Досліджено особливості інтеграції ШІ в освіту та пов'язані з цим виклики, адаптовано кроки моделі Коттера до процесу впровадження ШІ в освітніх установах, розроблено практичні рекомендації для керівників та педагогів щодо ефективного управління змінами при інтеграції ШІ. В статті використано комплекс методів наукового дослідження, включаючи аналіз наукової літератури, моделювання, узагальнення та систематизацію практичного досвіду. В статті детально розглянуто кожен крок моделі Коттера в контексті інтеграції ШІ в освіту: а саме створення відчуття невідкладності: підкреслення важливості та неминучості змін, візуалізація переваг ШІ для освіти. Також, формування команди змін через залучення лідерів та агентів змін, створення коаліції для підтримки інтеграції ШІ. Розробка бачення та стратегії, шляхом формування чіткого бачення майбутнього освіти з ШІ та розробка стратегії досягнення цілей. Четвертим кроком є комунікація бачення, шляхом донесення бачення до всіх зацікавлених сторін, забезпечення розуміння та підтримки. Розглянуто необхідність розширення повноважень співробітників, створення умов для активної участі педагогів у процесі інтеграції ШІ, надання їм необхідних ресурсів та підтримки. Забезпечення швидких перемог здійснюється шляхом планування та досягнення швидких позитивних результатів,

демонстрація успіхів та мотивація команди. Також, консолідація досягнень та продовження змін може реалізуватись через закріплення досягнутих результатів, впровадження ІІІ в постійну практику, розвиток нових ініціатив. Закріплення нових підходів в культурі здійснюється через інтеграцію ІІІ в організаційну культуру освітньої установи, забезпечення сталості змін. Застосування 8-крокової моделі змін Коттера може суттєво підвищити ефективність інтеграції ІІІ в освіту. Модель допомагає керівникам та педагогам спланувати та здійснити зміни, враховуючи людський фактор та мінімізуючи опір. Впровадження ІІІ в освіту відкриває нові можливості для покращення навчального процесу та підготовки учнів до викликів сучасного світу.

Ключові слова: штучний інтелект, освіта, інновації, управління змінами, модель Коттера.

Statement of the problem. Integrating artificial intelligence (AI) into education presents a unique set of challenges for institutions. While AI offers immense potential to personalize learning, automate tasks, and enhance accessibility, its effective implementation requires careful planning and a structured approach to change management. This is where Kotter's 8-Step Change Model can provide valuable guidance.

Kotter's model, developed by organizational change expert John Kotter, outlines eight crucial steps for successfully implementing change within any organization, including educational institutions. Adapting this model to the specific context of AI integration in education, we can identify the following key stages: establish a Sense of Urgency, form a Powerful Guiding Coalition, create a Vision for Change, communicate the Vision, remove Obstacles, generate Short-Term Wins, consolidate Gains and Produce More Change, anchor New Approaches in the Culture. By following these steps, educational institutions can effectively manage the change process associated with AI integration, minimizing resistance, maximizing buy-in, and ultimately realizing the full transformative potential of AI in education.

Analysis of recent research and publications. Researchers from Ukraine and around the world, such as Celik I. [1], Chen X. [2], Devi J. S. [3], Alam A., Mohanty A. [4]. An interesting idea is that of R. Carpenter, who says that we will remain the owners of the technologies we create for a long time and they will help us solve many world problems [5].

Formulation of the research task. The main goal of the article is to provide a comprehensive guide for educational leaders on how to effectively leverage Kotter's 8-Step Change Model to successfully integrate AI into their institutions. This includes analyzing each step of Kotter's model within the specific context of AI implementation in education, identifying key challenges and barriers to AI adoption in educational settings, providing practical recommendations and strategies for overcoming these challenges and facilitating a smooth transition.

Summary of the main research material. The integration of artificial intelligence (AI) in education presents both profound opportunities and complex challenges for institutions seeking to prepare students for the future. To effectively manage this transformative process, educational leaders can draw upon Kotter's 8-Step Change Model, a robust framework for guiding organizational change. Adapting this model to the unique context of AI in education, we can delineate the following key stages:

1. Ignite a Sense of Urgency. Begin by cultivating a shared understanding of the transformative potential of AI in education and the imperative for proactive adaptation. Emphasize how AI is reshaping industries and redefining the nature of work, underscoring the necessity for students

to develop AI literacy and acquire the skills to thrive in this evolving landscape. Articulate the risks of inaction, stressing that institutions failing to embrace AI may inadvertently limit their students' future competitiveness and career prospects. This sense of urgency must be effectively conveyed to all stakeholders, including educators, administrators, policymakers, parents, and students.

2. Forge a Collaborative Coalition. Establish a diverse and influential coalition of change agents dedicated to spearheading AI integration. This coalition should encompass educators with pedagogical expertise, administrators empowered to enact change, technology specialists possessing a deep understanding of AI, and student representatives who can offer valuable insights into the student experience. Empower this coalition to lead the change process by providing them with the autonomy, resources, and support necessary to make informed decisions and implement initiatives effectively. Cultivate a collaborative environment where all members feel a sense of ownership and shared responsibility for the success of AI integration.

3. Craft a Vision and Strategic Roadmap. Develop a clear and inspiring vision that articulates how AI will be seamlessly integrated into the educational process. This vision should delineate the desired outcomes, such as personalized learning experiences, enhanced student achievement, and the cultivation of essential AI literacy. Furthermore, craft a comprehensive strategic roadmap that translates this vision into actionable steps, outlining specific goals, initiatives, timelines, and resource allocation. Ensure that this roadmap aligns with the institution's overarching mission and values. Effectively communicate this vision and strategic roadmap to all stakeholders, ensuring transparency and fostering a shared understanding of the goals and objectives.

4. Disseminate the Vision for Change. Utilize diverse communication channels to effectively disseminate the vision and strategic roadmap for AI integration. This may encompass town hall meetings, presentations to faculty and staff, online platforms, newsletters, and social media campaigns. Address any concerns and questions transparently, fostering open dialogue and actively engaging with stakeholders who may express resistance to change. Continuously reinforce the vision and reiterate the benefits of AI integration through ongoing communication, ensuring that all stakeholders remain informed and engaged throughout the process.

5. Catalyze Action and Remove Barriers. Begin by proactively identifying and dismantling any obstacles that hinder the adoption of AI in education. This may involve revisiting and revising outdated policies, providing access to essential resources and infrastructure, offering comprehensive professional development opportunities for educators, and addressing concerns about job security or the evolving role of educators in an AI-enhanced

learning environment. Empower educators with the necessary skills, knowledge, and support to confidently integrate AI tools into their teaching practices. Cultivate a culture of experimentation and innovation with AI, where educators feel empowered to explore new technologies and pedagogical approaches.

6. Recognize and Amplify Early Successes. Identify and celebrate early wins in AI integration. Showcase the positive impact of AI on student learning, engagement, and achievement through compelling narratives, data-driven evidence, and testimonials. Disseminate these success stories and best practices across the institution to inspire and motivate others, building momentum for continued progress. Recognize and reward individuals and teams who contribute to the successful implementation of AI initiatives, fostering a sense of accomplishment and encouraging further innovation.

7. Sustain Momentum and Drive Continuous Improvement. Build upon early successes to propel further AI integration, expanding initiatives and refining strategies based on lessons learned. Continuously evaluate the impact of AI on learning outcomes, using data and feedback to inform adjustments and improvements. Adapt approaches as needed to ensure that AI is effectively enhancing the educational experience and meeting the evolving needs of students. Foster a culture of ongoing learning and improvement, encouraging educators to stay abreast of advancements in AI and explore new applications in education.

8. Embed AI in the Institutional Fabric. Integrate AI into the core of the educational institution, making it an integral part of policies, practices, and the overall culture of learning. Celebrate and recognize the value of AI in education, promoting its role in preparing students for the future and empowering them to become responsible and ethical users of AI. Continuously adapt and evolve AI integration strategies to ensure they remain relevant and effective in the ever-changing technological landscape.

By adhering to these steps, educational institutions can effectively navigate the complexities of AI integration, ensuring that this transformative technology serves to enhance the learning experience and prepare students for the challenges and opportunities of an AI-driven world.

The adage "well begun is half done" holds particular relevance when implementing significant transformations within organizations, especially in the dynamic landscape of education. The initial phase of any change initiative is often fraught with challenges, as it necessitates overcoming inertia, addressing anxieties, and fostering a shared understanding of the need for transformation. This is especially pertinent when integrating artificial intelligence (AI) into education, where apprehension about new technologies and pedagogical approaches can generate resistance.

Kotter's first step, "Establish a Sense of Urgency," underscores the critical importance of building a compelling case for change. In the context of AI integration in education, this involves (Fig. 1):

1. Fostering Open Dialogue and Shared Understanding:

- Initiate open forums for discussion. Encourage active participation from all stakeholders, including faculty, administrators, students, and technology experts, to engage in transparent discussions about the implications of AI in education.

- Facilitate workshops and training sessions. Provide opportunities for educators to explore AI tools, understand

their potential benefits, and address any anxieties or misconceptions about their impact on teaching and learning.

- Conduct surveys and focus groups. Gather feedback and insights from various stakeholders to understand their perspectives, concerns, and expectations regarding AI integration.

- Establish clear communication channels. Ensure transparent and ongoing communication throughout the change process, providing regular updates, addressing concerns, and fostering a sense of shared purpose and collective ownership.

2. Incentivizing Growth and Development:

- Offer competitive compensation and benefits. Recognize and reward educators who embrace AI integration and actively contribute to the development of new pedagogical approaches.

- Provide professional development opportunities. Invest in comprehensive training programs that equip educators with the skills and knowledge to effectively utilize AI tools in their teaching practices.

- Create opportunities for collaboration and networking. Facilitate connections between educators, AI experts, and industry professionals to foster knowledge sharing, mentorship, and collaborative innovation.

- Recognize and celebrate achievements. Acknowledge and reward educators who demonstrate exemplary use of AI in education, showcasing their achievements to inspire others and promote a culture of innovation.

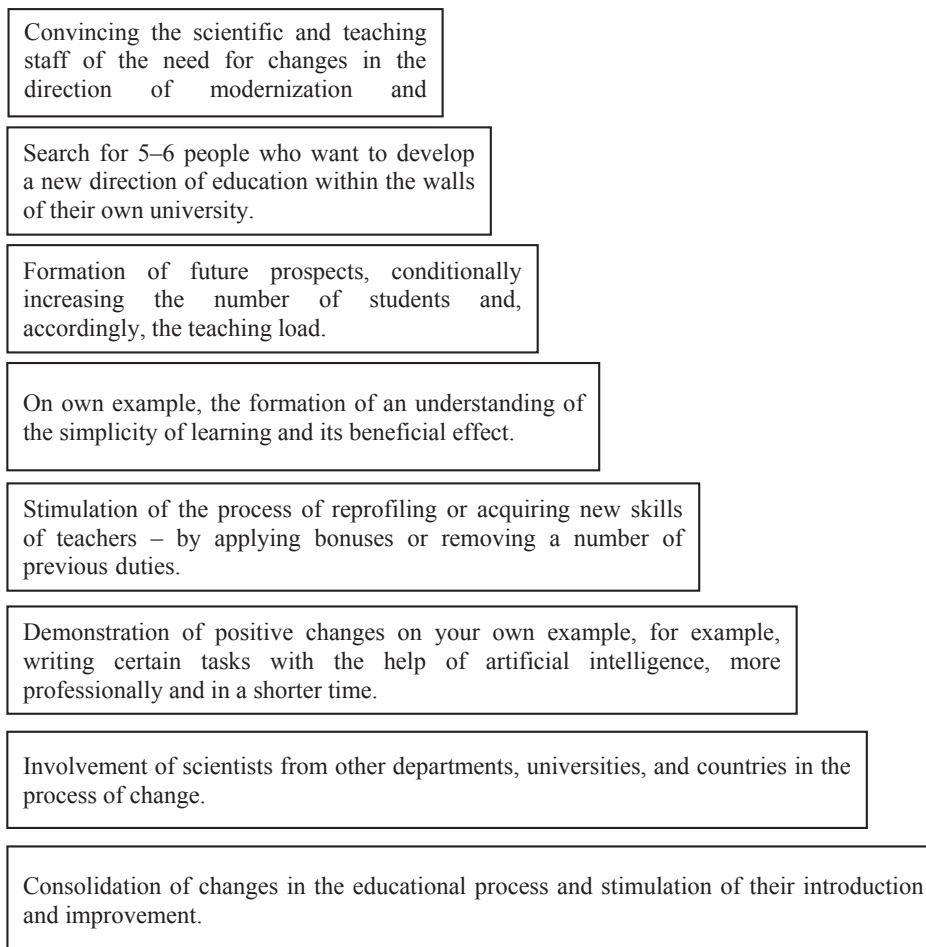
By prioritizing open communication, providing necessary support, and fostering a culture of continuous learning, educational institutions can effectively navigate the initial stages of AI integration, laying a solid foundation for successful and sustainable transformation.

Effectively integrating artificial intelligence (AI) into education requires a proactive approach that addresses potential challenges and fosters a culture of openness, collaboration, and continuous learning within educational institutions. By prioritizing these elements in the initial phases of AI adoption, institutions can pave the way for successful integration and ensure that educators are equipped and motivated to embrace this transformative technology.

In fact, this is the right choice of the moment when changes can be implemented. Along with this, it is also the presence of political will, inclusion of the project in the context of more global transformations. No less important at the start of the activity is a clear fixation of terms. After all, without this, the activity will lose its value, the final result will turn into an unattainable dream, in which even ideological supporters will eventually stop believing [6].

Of particular importance is the development and application of artificial intelligence at the Massachusetts Institute of Technology (MIT), as it is a world-renowned institution recognized for its cutting-edge research and innovation, particularly in technology. He has played an important role in shaping the landscape of artificial intelligence (AI) and machine learning, making significant contributions to the development of AI and the creation of new categories of jobs in the global economy. MIT's commitment to education and training is evident in its efforts to provide businesses and individuals with the skills they need to thrive in an AI-driven future [7].

The Massachusetts Institute of Technology (MIT) stands as a pivotal force in the advancement and application of



**Figure 1. The AI Revolution in Education:
A Kotter-Based Change Management Strategy**

artificial intelligence (AI). Renowned for its cutting-edge research and technological innovation, MIT has played a crucial role in shaping the field of AI and preparing individuals and businesses for an AI-driven future.

MIT's influence on AI is far-reaching, encompassing groundbreaking research, technological advancements, and the cultivation of future leaders in the field. The institute's contributions have led to the creation of new categories of jobs and have significantly impacted the global economy. Recognizing the growing demand for AI talent and expertise, MIT offers a diverse range of programs, courses, and resources focused on AI education and training, catering to various needs and skill levels.

As a leading institution in AI, MIT recognizes its responsibility to address ethical considerations and promote responsible AI development and use. Through its commitment to research, innovation, and education, MIT is shaping the future of AI talent and workforce development, ensuring that society is prepared for the challenges and opportunities presented by this transformative technology.

Artificial Intelligence at the University of Oxford is not just a subject, it is a multidisciplinary field that cuts across different sectors. AI research at the university ranges from practical applications to quantitative and computational principles of AI. Oxford AI initiatives are not limited to the theoretical sphere, they are actively applied to solve the biggest challenges of society. [7].

Conclusions. This study has underscored the complexities and opportunities inherent in integrating artificial intelligence (AI) into educational settings. While AI holds immense potential to personalize learning, automate tasks, and enhance accessibility, its successful implementation hinges on a well-structured approach to change management. Kotter's 8-Step Change Model provides a valuable framework for navigating this process, ensuring that AI initiatives are not only adopted but also lead to sustainable and impactful transformation. Key Findings:

1. Integrating AI in education is not merely about adopting new technologies; it requires a strategic shift in mindset, pedagogical approaches, and organizational culture.

2. Strong leadership and a committed coalition of change agents are crucial for driving AI adoption. Leaders must effectively communicate the vision for AI in education, inspire and motivate stakeholders, and foster a culture of innovation and collaboration.

3. Educational institutions must foster an environment that embraces innovation, experimentation, and continuous learning.

4. Open and transparent communication is essential throughout the AI integration process. Institutions must establish clear communication channels, actively engage stakeholders, and address concerns proactively to build trust and ensure buy-in.

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