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KIRISH

Insoniyat sivilizatsiyasining hozirgi taraqqiyot bosqichi raqamli transformatsiya, kiber-fizik tizimlar, hamda intellektual texnologiyalarning jadal rivoji bilan tavsiflanadi. Ushbu jarayonlar iqtisodiyot va sanoat tarmoqlari, ijtimoiy institutlar, xususan, ta'lim tizimini ham tubdan qayta shakllantirmoqda.

Zamonaviy epistemologik yondashuvga ko'ra, bilim endilikda passiv axborot majmui emas, balki sun'iy intellekt (keying o'rinlarda SI) asosida qayta ishlanadigan, modellashtiriladigan va muammoli vaziyatlarga moslashtiriladigan dinamik kognitiv resurs sifatida talqin etilmoqda.

Ta'lim tizimida SI texnologiyalarining integratsiyasi adaptiv o'qitish tizimlari, ta'lim tahlili, big data asosidagi pedagogik qarorlar qabul qilish, hamda raqamli didaktika kabi yangi ilmiy-amaliy yo'nalishlarning shakllanishiga olib kelmoqda. Bu esa o'z navbatida individuallashtirilgan ta'lim trayektoriyalari, kompetensiyaviy yondashuv hamda metakognitiv ko'nikmalarni rivojlantirishni jadallashtiradi.

Tahlillarga ko'ra, SI bozorining yillik o'sish sur'ati 45% bo'lib, sohaga oid investitsiyalar 2030-yilga borib $ 80 mlrd ni tashkil etadi.

Shuningdek, empirik tadqiqotlar SI asosidagi texnologiyalar ta'lim samaradorligini 40% gacha oshirishi, tadqiqotchilarning ish hajmini 30% gacha qisqartirishi kutilmoqda.

Ta'lim tizimi tom ma'noda raqamli ekotizimga aylanish jarayonini boshdan kechirmoqda. Avtomatik tahlil, neyron tarmoqlar, hamda tabiiy tilni qayta ishlash (NLP) texnologiyalari asosiy drayver sifatida namoyon bo'lmoqda.

Mazkur transformatsiya ta'lim sifatini oshirish barobarida global bozorda raqobatbardosh inson kapitalini shakllantirishning muhim omili sifatida ham qaraladi.

SI texnologiyalarini joriy etilishi keng imkoniyatlar bilan birga qator murakkab va ko'p qatlamli muammolarni ham yuzaga keltirmoqda. Ushbu muammolarni tizimli ravishda tahlil qilish, ularning kelib chiqish omillarini aniqlash va samarali yechimlar ishlab chiqish zamonaviy ta'lim siyosatining ustuvor yo'nalishlaridan biri hisoblanadi.

Birinchidan, huquqiy tartibga solish sohasida sezilarli kamchiliklar mavjud. Ko'plab davlatlarda SI dan foydalanish bilan bog'liq normativ-huquqiy baza hali to'liq shakllanmagan. Natijada, SI asosida qabul qilingan qarorlar uchun javobgarlik masalasi ochiq qolmoqda.

Ikkinchidan, etik va akademik halollik bilan bog'liq masalalardir. SI yordamida tayyorlangan matnlar, ilmiy ishlar va topshiriqlar talaba bilimini real baholash imkoniyatini cheklab qo'ymoqda. Shu bilan birga, algoritmik qarorlar qabul qilish jarayonida diskriminatsiya va xolislik muammolari ham yuzaga kelishi mumkin.

Uchinchidan, ma'lumotlar xavfsizligi va maxfiylik masalasi. SI tizimlari katta hajmdagi shaxsiy va akademik ma'lumotlarga tayanadi. Ushbu ma'lumotlarning noto'g'ri saqlanishi yoki uchinchi shaxslarga uzatilishi tadqiqotchilarning shaxsiy hayotiga tahdid solishi mumkin. Ayniqsa, global

platformalar orqali ishlovchi ta’lim tizimlarida ma’lumotlar ustidan nazoratni ta’minlash murakkab.

To‘rtinchidan, pedagogik nuqtai nazardan ham muammolar mavjud. Aksariyat pedagoglar SI texnologiyalaridan samarali foydalanish uchun yetarli darajada tayyorgarlikka ega emas. Bu esa texnologiyalarning noto‘g‘ri yoki samarasiz qo‘llanishiga olib keladi.

Beshinchidan, ba’zi davlatlarda *raqamli tafovut* muammosi ham saqlanib qolmoqda. Rivojlangan davlatlar va rivojlanayotgan mamlakatlar o‘rtasida texnologik infratuzilma, resurslar va kadrlar salohiyati bo‘yicha katta farq mavjud. Bu esa ta’lim sifatida tengsizlikni yanada chuqurlashtiradi.

Ushbu to‘plamdan o‘rin olgan tadqiqotlar ta’lim jarayonini transformatsiya qilishning bir necha o‘zaro bog‘liq jihatlarini yaxlit holda qamrab oladi. Tadqiqotlarning markazida ta’lim oluvchining individual ehtiyojlariga moslashuvchi (adaptive learning) intellektual tizimlar, kognitiv rivojlanishni monitoring qiluvchi algoritmlar va personallashtirilgan ta’lim traektoriyalari turadi. Innovatsiyalar faqat texnologik yutuq sifatida emas, balki ijtimoiy inklyuzivlikni ta’minlash, jismoniy yoki geografik cheklovlardan qat’i nazar barcha uchun "teng imkoniyatlar" yaratishning qudratli vositasi sifatida tahlil qilingan.

SI texnologiyalarining ta’lim tizimiga joriy etilishi chuqur transformatsion jarayonlarni yuzaga keltirib, ta’lim jarayonini individuallashtirish, samaradorlikni oshirish va sifat jihatidan yangi avlod inson kapitalini shakllantirish imkonini bermoqda. Ushbu jarayon huquqiy tartibga solishning yetarli darajada rivojlanmaganligi, akademik halollik bilan bog‘liq xavflar, ma’lumotlar xavfsizligi hamda pedagoglarning raqamli kompetensiyasidagi tafovutlar kabi muammolar bilan murakkablashmoqda.

Mazkur sharoitda ta’lim siyosati sun’iy intellektni joriy etishning texnologik jihatlari bilan bir qatorda, uning normativ-huquqiy, etik va institutsional asoslarini takomillashtirishga yo‘naltirilgan kompleks yondashuvni talab etadi. Inson omilining ustuvorligini ta’minlash, raqamli tenglikni kengaytirish hamda xalqaro hamkorlikni chuqurlashtirish orqali ta’lim tizimini modernizatsiya qilish global darajada raqobatbardosh hamda innovatsion fikrlaydigan kadrlar tayyorlashga asos bo‘lib xizmat qiladi.

Umid Mahmudov,
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ARTIFICIAL INTELLIGENCE IN MEDIA EDUCATION AND DIGITAL LITERACY: ETHICAL CHALLENGES AND OPPORTUNITIES

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Abstract. *The paper analyzes the role of artificial intelligence (AI) in media education and in enhancing the digital literacy of the population, with a particular focus on ethical risks such as algorithmic bias, opacity, plagiarism and privacy threats. It argues that AI can both strengthen and undermine critical media competence, depending on how it is integrated into curricula, regulatory frameworks and everyday educational practice in Uzbekistan and beyond. In this context, media education becomes a key arena where the opportunities of AI-enhanced personalization and verification tools collide with the need to protect human agency, cultural diversity and democratic communication.*

Keywords: *artificial intelligence, media education, digital literacy, AI literacy, ethics of AI, Uzbekistan.*

Annotatsiya. *Maqolada sun'iy intellektning (SI) media ta'limidagi roli va aholining raqamli savodxonligini oshirishdagi ahamiyati tahlil qilinadi, ayniqsa algoritmik bias, shaffoflikning yetishmasligi, plagiat va shaxsiy ma'lumotlar xavfi kabi axloqiy xavflar nuqtai nazaridan. Maqola shuni ta'kidlaydiki, SI ta'lim dasturlariga, tartibga soluvchi mexanizmlarga va kundalik ta'lim amaliyotiga qanday integratsiya qilinishiga qarab, tanqidiy media kompetentsiyasini kuchaytirishi yoki zaiflashtirishi mumkin. Shu kontekstda, media ta'limi SI yordamida shaxsiylashtirish va tekshirish vositalarining imkoniyatlari bilan insonning huquqi, madaniy xilma-xillik va demokratik kommunikatsiyani himoya qilish zaruriyati to'qnashadigan muhim maydonga aylanadi.*

Kalit so'zlar: *sun'iy intellekt, media ta'limi, raqamli savodxonlik, SI savodxonligi, SI axloqi, O'zbekiston.*

Аннотация. *В статье анализируется роль искусственного интеллекта (ИИ) в медиаобразовании и повышении цифровой грамотности населения, с особым вниманием к этическим рискам, таким как алгоритмическая предвзятость, непрозрачность, плагиат и угрозы приватности. Отмечается, что ИИ может как укреплять, так и подрывать критическую медиакомпетентность в зависимости от того, как он интегрирован в учебные программы, регуляторные рамки и повседневную образовательную практику в Узбекистане и за его пределами. В этом контексте медиаобразование становится ключевой сферой, где возможности ИИ для персонализации и проверки сталкиваются с необходимостью защиты человеческого участия, культурного разнообразия и демократической коммуникации.*

Ключевые слова: *искусственный интеллект, медиаобразование, цифровая грамотность, грамотность в ИИ, этика ИИ, Узбекистан.*

Introduction. In the age of platformization and algorithmic personalization, artificial intelligence is becoming a structural component of contemporary media systems and educational environments. AI-driven recommendation engines, generative models and automated moderation tools shape what citizens see, how they interpret information and which skills they need to navigate the digital public sphere. For media education, this means a shift from traditional critical reading of texts and images to the analysis of algorithmic infrastructures, data flows and machine-generated content. At the same time, AI is embedded into broader national

strategies of digital transformation, such as “Digital Uzbekistan–2030”, which explicitly connect technological innovation with the development of human capital and digital literacy. In such a context, the question is not whether AI will enter media education, but on what ethical and pedagogical terms this integration will take place.

AI in media education and AI literacy. Recent research in Russia and other countries shows that AI literacy is increasingly conceptualized as an essential component of media competence for future journalists, communicators and media educators. AI tools are used to generate story ideas, summarize large document corpora, visualize data and simulate audience feedback, which makes them attractive didactic instruments in higher education. However, these same tools raise fundamental questions about authorship, originality and the boundaries of legitimate assistance in learning processes. If students delegate analytical and creative tasks to generative models, media education risks turning into a mere supervision of machine output instead of fostering critical autonomy. Consequently, leading universities begin to integrate explicit modules on AI ethics, algorithmic bias and responsible use of generative systems into journalism and media studies curricula.

In parallel, international initiatives in media and information literacy emphasize the need to teach citizens how to recognize AI-generated content, critically evaluate automated recommendations and understand the economic logics behind data-driven platforms. This expands classical media literacy—focused on text, image and audiovisual content—towards a broader AI literacy, which combines technical understanding with ethical reflection and civic responsibility. For countries in Central Asia, including Uzbekistan, this shift intersects with the development of a specific “national model” of media education that takes into account local cultural norms, the role of mahalla and family communication patterns. In this model, AI is not perceived only as a technological innovation, but also as a factor that may transform intergenerational communication, authority of traditional institutions and everyday practices of information verification.

AI and the digital literacy of the population. AI can significantly enhance digital literacy by enabling personalized learning trajectories, adaptive assessment and real-time feedback. For example, educational platforms integrate conversational agents that explain mistakes, generate practice tasks and simulate dialogue situations, thereby supporting the formation of critical thinking and problem-solving skills. At the level of mass communication, AI-based tools help users verify information, detect deepfakes and identify manipulative techniques in news feeds and social media streams. This turns AI into both an object and an instrument of digital literacy: citizens must learn about AI while simultaneously using AI to navigate the information environment more safely and consciously.

In Uzbekistan, international organizations and national institutions are experimenting with comprehensive approaches that combine training programs on digital skills, media literacy and the basics of AI for different target groups—schoolchildren, students, civil servants and vulnerable communities. Such initiatives aim not only at technical competence (using devices and applications), but also at critical competence—understanding how algorithms shape visibility, whose

interests they serve and how data about users are collected and monetized. This corresponds to the strategic goal of transforming digital literacy into a factor of inclusive socio-economic development and civic participation. In this sense, AI-related topics naturally extend the agenda of media education that has already been formed in Uzbekistan in recent years.

Ethical problems of AI in media education. The integration of AI into media education reveals a number of ethical problems that directly affect the quality and integrity of learning. One of the central issues is algorithmic bias: AI systems reproduce and sometimes amplify the prejudices contained in their training data, leading to discriminatory or stereotypical representations of gender, ethnicity, religion or region. For media education, this means that uncritical use of AI-generated content can normalize biased narratives and undermine efforts to promote diversity and inclusion. Educators therefore need methodological tools to help students detect, analyze and counter such biases in AI outputs, including comparative analysis of different models, manual fact-checking and reflection on the sources of training data.

A second ethical challenge concerns academic integrity and authorship. The widespread availability of generative models makes it easy for students to produce essays, reports or even journalistic materials that appear original but are in fact machine-generated. This blurs the boundaries between assistance and substitution, complicates assessment and may devalue the very idea of intellectual effort. In response, universities experiment with new assessment formats that privilege process over product, such as oral defenses, reflective diaries and project-based tasks where the role of AI must be explicitly documented and justified. Media education thus becomes a laboratory for testing new norms of transparency, attribution and co-authorship between humans and machines.

Third, AI systems in education raise acute questions about transparency and explainability. Many models operate as “black boxes”, providing outputs without clear insight into their internal decision-making processes. This conflicts with the goals of media education, which seeks to make communicative processes visible and analyzable. Without at least a basic level of explainability, it becomes difficult to teach students how and why certain recommendations, classifications or risk scores are produced. Consequently, some policy documents and expert communities advocate for the prioritization of explainable AI (XAI) in educational settings, especially where automated decisions may have significant consequences for learners.

Finally, the use of AI in learning environments is closely linked to privacy and data protection. Adaptive platforms, learning analytics and biometric monitoring tools collect large volumes of personal data about students’ performance, behavior and even emotional states. If governance frameworks are weak, such data can be misused, leaked or repurposed for commercial surveillance. Ethical media education must therefore include not only critical analysis of media content, but also an understanding of data protection regulations, informed consent and the rights of learners in digital ecosystems. For Uzbekistan, where digital platforms are rapidly expanding, the alignment of AI-enhanced education with national legislation and

international standards on privacy becomes a key challenge for policymakers and practitioners.

Towards a responsible model of AI-enhanced media education. To reconcile the opportunities of AI with ethical safeguards, media education needs a coherent framework that integrates technical, legal and value-based dimensions. First, curricula should explicitly incorporate AI literacy, covering basic principles of machine learning, typical sources of error and bias, and the societal implications of automated decision-making. Second, educational institutions must develop clear policies on acceptable and unacceptable uses of generative AI in coursework, emphasizing transparency, attribution and the development of students' own critical voice. Third, collaboration between state agencies, universities, media organizations and civil society can support the co-creation of guidelines, case studies and open educational resources tailored to national contexts, including Uzbekistan's evolving media landscape.

In this perspective, AI becomes not merely a tool for efficiency, but a catalyst for rethinking the goals of media education in the digital age. Properly regulated and pedagogically framed, AI can help shift learners from passive consumption of content to critical autonomy, enabling them to understand, question and reshape the algorithmic infrastructures that increasingly mediate public life. At the same time, the recognition of ethical risks—bias, opacity, plagiarism and privacy violations—reminds policymakers and educators that technological innovation must be aligned with human dignity, social justice and democratic participation.

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ARTIFICIAL INTELLIGENCE IN LANGUAGE TEACHING AND THE HUMANITIES LINGUISTIC, PEDAGOGICAL, AND PROSPECTIVE APPROACHES IN THE DIGITAL ERA

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Abstract. *This research investigates the structural transformations caused by integrating Artificial Intelligence (AI) technologies into language teaching, with a specific focus on Teaching Arabic to Non-Native Speakers (TAFL), and across humanities disciplines such as history, archiving, and literary analysis. The study aims to provide an integrated vision combining linguistic theoretical frameworks with pedagogical practices, while monitoring the digital divide facing Languages Other Than English (LOTE). Adopting a Systematic Review methodology following the PRISMA protocol, the research analyzes scientific literature published between 2020 and 2026 in databases such as Google Scholar and EBSCO. Findings indicate that AI acts as a "cognitive accelerator," enhancing speaking and pronunciation skills through Automatic Speech Recognition (ASR) systems and achieving precise personalization aligned with constructivist and interactionist theories.[1] however, the discussion reveals fundamental challenges regarding algorithmic bias, "epistemic hallucination" in interpreting heritage texts, and infrastructure limitations in regional contexts like Uzbekistan and the Arab world.[3] The research recommends adopting a "Human-in-the-loop" model to ensure human cognitive sovereignty and developing culturally adapted language models that transcend dominant Anglocentrism.[1]*

Keywords*: Artificial Intelligence, TAFL, Digital Humanities, Computational Linguistics, Adaptive Learning, Epistemic Sovereignty.*

Annotatsiya. *Ushbu tadqiqot sun’iy intellekt (SI) texnologiyalarining til o‘qitish sohasiga, xususan, arab tilini begona tillilar uchun o‘rgatishga hamda tarix, arxivshunoslik va adabiy tahlil kabi gumanitar fanlarga integratsiyalashuvi natijasida yuzaga kelgan tarkibiy o‘zgarishlarni o‘rganadi. Tadqiqot tilshunoslik nazariy asoslari va pedagogik amaliyotni birlashtirgan holda, ingliz tilidan boshqa tillar (LOTE) duch kelayotgan raqamli tafovutni tahlil qilishni maqsad qilgan. Tadqiqot PRISMA protokoli bo‘yicha tizimli ko‘rib chiqish metodologiyasiga tayanib, 2020-2026 yillar oralig‘ida Google Scholar va EBSCO kabi ma’lumotlar bazalarida nashr etilgan ilmiy adabiyotlarni tahlil qildi. Natijalar shuni ko‘rsatadiki, SI nutq va talaffuz ko‘nikmalarini avtomatik nutqni tanish (ASR) tizimlari orqali kuchaytiruvchi "kognitiv tezlatgich" vazifasini o‘taydi va konstruktivistik hamda interaksionistik nazariyalarga mos keladigan aniq individuallashtirilgan ta’limni ta’minlaydi. Shunga qaramay, algoritmik moyillik, meros matnlarni talqin qilishdagi "epistemologik gallyutsinatsiyalar" hamda O‘zbekiston va ayrim arab mamlakatlaridagi infratuzilma zaifligi kabi fundamental muammolar aniqlandi. Tadqiqot insonning bilish suverenitetini ta’minlash uchun "Inson zanjirda" (Human-in-the-loop) modelini qabul qilishni va hukmron anglo-sentrizmdan yuqori bo‘lgan madaniy moslashgan til modellarini ishlab chiqishni tavsiya etadi.*

Kalit so‘zlar*: Sun’iy intellekt, arab tilini o‘qitish, raqamli gumanitar fanlar, kompyuter lingvistikasi, moslashuvchan ta’lim, epistemologik suverenitet.*

Аннотация. *Данное исследование изучает структурные трансформации, вызванные интеграцией технологий искусственного интеллекта (ИИ) в преподавание языков, с особым акцентом на арабский язык для иностранцев, а также в гуманитарные сферы, такие как история, архивы и литературный анализ. Исследование направлено на представление комплексного видения, сочетающего лингвистические теоретические основы и педагогическую практику, при мониторинге цифрового разрыва, с которым сталкиваются языки, отличные от английского (LOTE). В исследовании использовалась методология систематического обзора в соответствии с протоколом PRISMA, анализирующая научную литературу, опубликованную в период с 2020 по 2026 годы в базах данных Google Scholar и EBSCO. Результаты показывают, что ИИ действует как «когнитивный ускоритель», улучшая навыки речи и произношения с помощью систем автоматического распознавания речи (ASR), обеспечивая точную персонализацию обучения. Однако дискуссия выявила фундаментальные проблемы, касающиеся алгоритмической предвзятости, «эпистемологических галлюцинаций» при интерпретации старинных текстов и слабости инфраструктуры в таких контекстах, как Узбекистан и некоторые арабские страны. Исследование рекомендует принять модель «Человек в контуре» (Human-in-the-loop) для обеспечения когнитивного суверенитета человека и разработки культурно адаптированных языковых моделей.*

Ключевые слова*: Искусственный интеллект, преподавание арабского языка, цифровые гуманитарные науки, компьютерная лингвистика, адаптивное обучение, эпистемологический суверенитет.*

Introduction. The contemporary world is witnessing a fourth industrial revolution that has reshaped human interactions at their core. AI is no longer merely a supporting technical tool; it has transformed into a cognitive infrastructure that shapes how knowledge is produced and acquired.[7] In the context of language education, particularly Arabic, this shift presents unprecedented opportunities and challenges. Arabic is a language of complex morphological and syntactic specificity, holding a global and religious status that makes its instruction a bridge for civilizational communication.[9]

The central problem addressed by this research is how to balance the immense potential of Large Language Models (LLMs) and Machine Learning with the preservation of scientific rigor and human sovereignty over interpretation and analysis in the humanities.[1] While AI allows for processing tons of archival data and historical manuscripts in seconds, it remains susceptible to cultural biases and cognitive errors that may distort historical facts or oversimplify linguistic eloquence.[1]

The importance of this study lies in examining this intersection from the perspective of a linguistics specialist. This allows for testing the efficiency of intelligent tools in processing delicate linguistic issues such as parsing (I’rab), derivation (Ishtiqaq), and diglossia.[3] Furthermore, the research gains international dimensions by highlighting experiences in diverse educational environments, including Uzbekistan and Saudi Arabia, providing a comparative view of educational policies and technical readiness.[4]

Literature Review. A review of literature published between 2020 and 2026 reveals a research surge in Artificial Intelligence in Education (AIED). Global studies indicate a shift from traditional Computer-Assisted Language Learning

(CALL) to interactive AI systems, redefining "individualized instruction".14 Tools like ChatGPT, Gemini, and DeepSeek now provide learning experiences that adapt dynamically to the learner's level and pace.16

Teaching Arabic to Non-Native Speakers (TAFL)

In Arabic education, literature focuses on AI's role in the four language skills. Research by Mohseni (2025) demonstrates that interactive strategies supported by AI, such as Augmented Reality (AR) for listening and chatbots for fluency, have led to tangible positive learning outcomes.18 Systematic reviews also emphasize that Automatic Speech Recognition (ASR) has become a crucial tool in treating articulation difficulties related to emphatic Arabic consonants.2

Humanities and Historical Research

In the humanities, interest has shifted toward "Digital Humanities" (DH). Modern studies indicate that Optical Character Recognition (OCR) and Handwritten Text Recognition (HTR) have revolutionized the archiving of historical manuscripts.1 However, a critical trend warns of "epistemic hallucinations"; research by Solga and Sawar (2026) showed that generative AI often collapses boundaries between empirical history and literary symbolism, necessitating rigorous human oversight.1

The Digital Divide and Low-Resource Languages

"Anglocentrism" is a prominent theme in recent literature. Reports from the Stanford Institute for Human-Centered AI (2025) indicate that most major LLMs underperform in non-English languages, particularly those with limited digital sources, deepening the digital divide.5 This challenge mandates that Arabic researchers build large, annotated corpora to train culturally adapted local models.3

Theoretical Framework. This research adopts an integrative vision combining applied linguistics and contemporary learning theories.

Social Constructivism. Vygotsky's theory serves as a cornerstone for understanding AI as a "technical mediator." From this perspective, AI does not passively transfer information but acts as a "scaffolding" tool within the Zone of Proximal Development (ZPD).20 Chatbots provide an interactive environment allowing learners to negotiate meaning and practice language in a virtual social context, reducing "Foreign Language Anxiety".14

Second Language Acquisition (SLA) and Comprehensible Input

AI applications intersect with Krashen's Comprehensible Input hypothesis ($i + 1$). LLMs generate customized texts and conversations that lie just above the learner's current level.14 Additionally, the Interaction Hypothesis supports this, as AI's ability to provide real-time feedback and error correction helps solidify syntactic and morphological structures.14

Technological Awareness Mediator Model

In the humanities, the research adopts a model suggesting that AI's impact on critical thinking is mediated by "Technological Awareness." Conscious use stimulates scientific inquiry, while unconscious use leads to "algorithmic dependency" and a decline in original production.[23]

Self-Determination Theory (SDT)

Integrating AI is linked to learner motivation. By providing greater autonomy and competence through personalized paths, AI enhances intrinsic motivation, a crucial factor in learning difficult languages like Arabic.22

Research Methodology. This study employed a systematic review and thematic analysis to synthesize knowledge from various documented sources.

Research Design

The PRISMA protocol was followed to ensure comprehensiveness and transparency.2 The research included three stages:

Identification: Searching Google Scholar, EBSCO, and ResearchGate using compound keywords in Arabic, English, Russian, and Uzbek.2

Screening: Filtering studies based on recency (2020-2026) and direct relevance to Arabic education and the humanities.2

Inclusion: Analyzing 40 peer-reviewed studies, including descriptive research, laboratory experiments, and regional case studies.7

Data Analysis

The sample included diverse geographic contexts:

Arab World: Studies from Saudi Arabia and Lebanon focusing on linguistic skills and cultural nuances.4

Uzbekistan: Research from Tashkent (WIUT) focusing on teacher perceptions and institutional policies.13

Global: Research on ethical frameworks and algorithmic bias.5

Results. First: Linguistic Proficiency and Skill Development

Results confirm that AI excels in developing speaking and pronunciation skills. A study on Arabic learners showed that applications like ArabicPod101, Lingbe, Duolingo, and Scribe contributed to a balanced improvement across the four skills, with students preferring systems offering immediate feedback.26.

Linguistic Skill	Intelligent Tool / Technology	Observed Impact	Source
Pronunciation	ASR Systems / Virtual Assistant	Correcting emphatic letters and articulation	2
Speaking	Chatbots / Lingbe	Reducing speaking anxiety and increasing fluency	2
Reading	AI-supported Analytical Thinking	Enhancing deep comprehension and vocabulary	18
Writing	Generative Models / Scribe	Improving grammatical accuracy and academic editing	18

Second: Humanities and Historical Research

AI acts as a "discovery accelerator" rather than an "epistemic judge." In a comparative study, AI outperformed humans in mapping research domains and clustering multilingual data, but failed to distinguish empirical history from literary symbols.1

Research Task	AI Efficiency	Human Researcher Role	Outcome
Manuscript Analysis	High (OCR/HTR)	Reviewing and contextualizing	90% faster archiving
Text Interpretation	Medium (Flattening)	Deep (Source Criticism)	Human superiority in hermeneutics
Plagiarism Detection	Very High	Assessing scientific originality	Ensuring academic integrity

Third: Regional Context (Uzbekistan Case Study)

Findings from Westminster International University in Tashkent (WIUT) show that 63% of teachers believe AI reduces time spent on routine tasks.13 However,

61% expressed concerns regarding the loss of emotional connection and potential student passivity.13

Discussion. Machine Processing of Arabic: Complexity vs. Mathematical Modeling

Arabic presents a unique challenge due to its root-pattern system and diglossia.3 Global models succeed in Modern Standard Arabic (MSA) but struggle with heritage texts or dialects. This reflects a "resource gap"; English data for training far exceeds Arabic, leading to the "Anglicization" of Arabic linguistic structures during translation or generation.4

Epistemic Sovereignty in Humanities

The results regarding historical research raise the issue of "epistemic sovereignty." Relying on AI for source classification could lead to "deep-faking history" without a "human-in-the-loop" model.1 Algorithms favor statistical probability over historical truth, often choosing information based on digital visibility rather than documented lineage.1

Psychological Impact: Motivation vs. Cognitive Laziness

The tension between enhancing motivation and the risk of cognitive laziness is evident in studies from Uzbekistan and Saudi Arabia.13 While AI frees the learner from rote grammar, it may deprive them of the "desirable difficulty" necessary to build linguistic faculty. AI must shift from being an "answer engine" to a "question engine".23

Conclusions and Recommendations

Conclusions

Cognitive Accelerator: AI is a powerful tool for personalizing learning and developing Arabic phonetics, transcending traditional classroom boundaries.2

Resource Gap: Arabic and local languages (like Uzbek) face digital marginalization, requiring national efforts to build sovereign linguistic corpora.5

Human Mediation: The human researcher remains the only reliable reference for interpretation in the humanities; the machine’s role is strictly exploratory.1

Technological Literacy: The success of AI integration depends on the ethical and cognitive awareness of educators and students.29

Recommendations

For Educational Policymakers:

Draft national ethical charters for AI use in higher education to ensure integrity and privacy.16

Invest in local digital infrastructure and train teachers in "Linguistic AI" skills.3

For Researchers:

Adopt "Human-in-the-loop" methodologies in historical and literary studies, with human verification for every automated output.1

Focus on applied linguistic research addressing NLP challenges for Arabic grammar and morphology.3

For Technology Developers:

Develop "multi-level and multi-lingual" AI models that account for Arabic diglossia and cultural diversity.4

Improve ASR systems to include various Arabic dialects, enhancing the effectiveness of language apps.4

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RAQAMLI TRANSFORMATSIYA DAVRIDA AKADEMIK HALOLLIK: SUN'IY ONG VA TADQIQOT ETIKASI UYG'UNLIGI

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Bugungi kunda ta'lim sohasida innovatsion usullarni qo'llash bilan birgalikda akademik axloq qoidalariga amal qilish ham dolzarb masalaga aylangan. SO dasturlari (masalan, ChatGPT) g'oyalarni shakllantirish, matnni tahrirlash va rejalashtirishda yordamchi vosita bo'lishi mumkin, ammo u inson tafakkurining o'rnini bosmasligi lozim. Tadqiqot etikasi nuqtai nazaridan quyidagi jihatlarga e'tibor qaratish tavsiya etiladi:

Shaffoflik. Tadqiqotchi o'z ishining qaysi qismida SO vositalaridan foydalanganini aniq ko'rsatishi va "AI statement" (SO haqida bayonot) ilova qilishi shart.

Mas'uliyat. SO tomonidan yaratilgan ma'lumotlarning noto'g'ri yoki to'liq emasligi ehtimoli mavjudligini inobatga olish lozim va yakuniy natija uchun muallif shaxsan javobgar hisoblanadi.

Muallifni ko'rsatish. SO yordamida yaratilgan har qanday matn tegishli tartibda keltirilishi va akademik firibgarlik (plagiat) sifatida baholanmasligi uchun ochiq bayon qilinishi lozim.

Taqdimotimiz doirasida ICAI tomonidan taqdim etilgan uchinchi nashrdagi oltita asosiy qadriyat, ya'ni halollik, ishonch, adolatlilik, hurmat, mas'uliyat va jasorat kabi tushunchalar sun'iy ong texnologiyalari bilan ishlashda ham asosiy mezon bo'lishi lozimligi ta'kidlanadi. Ushbu qadriyatlar mavhum tushunchalar emas, balki axloqiy qarorlar qabul qilish qobiliyatini yaxshilashga xizmat qiladigan amaliy vositalardir.

Innovatsion texnologiyalar ta'limda teng imkoniyatlar yaratadi, ammo akademik halollik tamoyillariga rioya qilish tadqiqot sifatini kafolatlovchi asosiy omildir. Ta'lim modellarini takomillashtirishda SO vositalarini "fikrlashning o'rnini bosuvchi" emas, balki "fikrlashga ko'maklashuvchi" vosita sifatida talqin qilish zarur.

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EXPLORING STUDENTS' ACCEPTANCE AND THE IMPACT OF GENERATIVE AI IN ENGLISH LANGUAGE TEACHING: UZBEKISTAN CONTEXT

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Abstract: *This study explores students' acceptance and the educational impact of Generative Artificial Intelligence (GenAI), particularly ChatGPT, in English language learning within higher education. Grounded in the Technology Acceptance Model (TAM), it examines how factors such as performance expectancy, effort expectancy, social influence, and facilitating conditions influence students' intention and use of GenAI tools. An explanatory sequential mixed-methods design was employed. Quantitative data were collected from 100 undergraduate and PhD students and analyzed using SPSS, while qualitative insights from 20 interviews were examined through thematic analysis. Findings indicate that students generally show positive acceptance of GenAI, driven mainly by perceived usefulness and ease of use. GenAI supports writing, idea generation, and language practice, though concerns about academic integrity remain. The study highlights the need for clear guidelines and ethical awareness to ensure effective integration of GenAI in English language teaching.*

Keywords: *Generative Artificial Intelligence (GenAI), ChatGPT, English Language Teaching (ELT), Mixed-Methods Research, Language Learning Outcomes, Educational Technology.*

Annotatsiya. *Ushbu tadqiqot oliy ta'limda ingliz tili o'qitishda Generative Artificial Intelligence (GenAI), xususan ChatGPT, ning talabalarga qabul qilinishi va ta'limiy ta'sirini o'rganadi. Tadqiqot Technology Acceptance Model (TAM) asosida olib borilgan bo'lib, talabalarning GenAI vositalarini ishlatishga bo'lgan niyatiga va amaliy foydalanishiga performance expectancy, effort expectancy, ijtimoiy ta'sir va qo'llab-quvvatlovchi shartlar kabi omillar qanday ta'sir ko'rsatishini tahlil qiladi. Tadqiqotda izohli ketma-ket aralash usullar dizayni qo'llanilgan. 100 nafar bakalavr va PhD talabalaridan miqdoriy ma'lumotlar SPSS yordamida tahlil qilingan, shuningdek, 20 ta intervyu orqali sifatli ma'lumotlar mavzuli tahlil asosida o'rganilgan. Natijalar shuni ko'rsatadiki, talabalar asosan GenAI ni ijobiy qabul qiladilar, bu asosan uning foydaliligi va ishlatish qulayligi bilan bog'liq. GenAI yozish, g'oya yaratish va tilni amaliy mashq qilishni qo'llab-quvvatlaydi, biroq akademik yaxlitlik masalalariga oid xavotirlar mavjud. Tadqiqot GenAI ni ingliz tili ta'limiga samarali integratsiya qilish uchun aniq yo'riqnomalar va axloqiy ong zarurligini ta'kidlaydi.*

kalit so'zlar: *Generative Artificial Intelligence (GenAI), ChatGPT, Ingliz tili o'qitish (ELT), Aralash-usul tadqiqotlari, Til o'rganish natijalari, Ta'lim texnologiyalari.*

Аннотация. *Данное исследование изучает принятие студентами и образовательное влияние генеративного искусственного интеллекта (GenAI), в частности ChatGPT, при изучении английского языка в высшем образовании. Исследование основано на модели принятия технологий (TAM) и рассматривает, как такие факторы, как ожидаемая эффективность, ожидаемые усилия, социальное влияние и поддерживающие условия, влияют на намерение студентов использовать инструменты GenAI и их фактическое применение. Использовался объяснительно-последовательный дизайн смешанных методов. Количественные данные были собраны у 100 студентов бакалавриата и аспирантуры и проанализированы с помощью SPSS, а качественные данные из 20 интервью исследованы через тематический анализ. Результаты показывают, что студенты в целом положительно воспринимают GenAI, главным образом благодаря его полезности и простоте использования. GenAI поддерживает написание текстов, генерацию идей и*

практику языка, однако сохраняются опасения по поводу академической честности. Исследование подчеркивает необходимость четких руководств и этического осознания для эффективной интеграции GenAI в преподавание английского языка.

Ключевые слова: *Генеративный искусственный интеллект (GenAI), ChatGPT, преподавание английского языка (ELT), исследование смешанных методов, результаты изучения языка, образовательные технологии.*

AI, ACCESSIBILITY, AND EQUAL OPPORTUNITY IN EDUCATION: AN INTERNATIONAL RELATIONS PERSPECTIVE

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Abstract. *The goal of the cutting-edge field of artificial intelligence (AI) is to enable computer systems to carry out tasks that are comparable to human intelligence. AI is regarded as one of the most significant and widely available technologies of the twenty-first century, having made many people's life easier by giving them simpler tools. AI has improved student learning strategies and offered a variety of educational platforms in the realm of education. AI also aids in gathering student data, monitoring their development, and precisely identifying their learning preferences. These advancements also present major opportunity to improve accessibility and expand fair educational opportunities for different learners, such as students with impairments, those living in remote places, and socially underprivileged groups. And this enables for personalized instruction suited to each student's specific needs, level, and skills, resulting in higher success and comprehension rates. Despite this progress and the benefits of artificial intelligence, there is a dilemma regarding equal opportunities, as the growing use of artificial intelligence in education raises serious concerns about digital inequality, unequal technological capabilities, and unequal access to these technologies between and within countries. From the standpoint of international relations, a critical part of political science, artificial intelligence in education should be viewed not just as a domestic educational issue, but also as one of global justice, progress, and international collaboration. This research paper argues that, while artificial intelligence (AI) has the potential to contribute to more accessible and inclusive learning environments as well as a simplified learning experience, its benefits are unevenly distributed due to disparities in infrastructure, resources, and digital readiness across many countries. As a result, AI in education must be viewed not only as a tool for innovation, but also as a policy issue needing ethical governance, extensive investment, and cross-border collaboration to ensure fair chances for all students.*

Keywords: *Artificial Intelligence (AI), Accessibility, Equal Opportunities, Inclusive Education, International Relations*

Introduction. Although it is not easy to explain what Artificial Inteligence (AI) is, one of the most exciting characteristics of the science of artificial intelligence (AI) is that the precise nature of its subject matter is unexpectedly hard to define (Fetzer, James H, 1990). However, there are some definitions, includingArtificial intelligence (AI) is the technology that allows computers and machines to learn, understand, solve problems, make decisions, be creative, and have autonomy.AI-enabled applications and devices can detect and recognize items. They understand and respond to human words. They can benefit from fresh knowledge and experiences. They may make thorough recommendations to both users and experts. They can also act automatically, eliminating the requirement for human knowledge or intervention (self-driving cars are a prime example) (Stryker, Cole, and Eda Kavlakoglu, 2025). As previously stated, artificial intelligence (AI) is a cutting-edge field of technology that attempts to allow computer systems to

accomplish tasks similar to human intelligence. One of the most promising areas where artificial intelligence can have a substantial impact on education is learning. Advanced artificial intelligence-based technologies improve the learning experience and human skills in a variety of ways, resulting in significant educational improvements. AI can evaluate student data, follow their progress, and assess their learning styles. This enables personalized training suited to each student's specific needs, level, and skills, resulting in higher success rates and comprehension(The Arab Democratic Center, 2024).

AI can also be utilized to create smart learning platforms that provide interactive and individualized instructional content to individual students. These platforms use deep learning and predictive analytics to find the most successful teaching techniques and challenges for students' needs. Furthermore, AI enhances school management operations, curriculum development, and teacher performance evaluation. This contributes to more effective school management and data-driven decision-making (The Arab Democratic Center, 2024). Artificial intelligence (AI) is also improving virtual and augmented reality learning systems, particularly following the COVID19 epidemic and the shutdown of most schools and colleges worldwide. AI has helped to create virtual platforms and enable distant learning, allowing students to continue their studies without interruption or delays. Furthermore, AI has helped to develop more realistic and interactive learning experiences. It also analyzes large volumes of data on student and teacher performance, as well as academic programs. Intelligent analytics can assist anticipate student performance and pinpoint areas for improvement (The Arab Democratic Center, 2024).

Despite the benefits that artificial intelligence (AI) brings to the field of education, the increased usage of AI in education does not necessarily result in the inclusivity that many countries seek. While some students benefit from technologically advanced learning environments in certain countries, particularly developed ones with strong infrastructure, others are left out due to limited digital infrastructure, a lack of development and advancement, high costs, weak institutional capacities, insufficient teacher training, and a lack of access to the internet or reliable devices. As a result, AI may either help to reduce educational inequities or exacerbate current kinds of exclusion (The Arab Democratic Center, 2024).

In international relations, a key part of political science, the topic of inclusion is inextricably tied to larger concerns about unequal chances and global equality, as well as human rights, development, and international collaboration. Education is no longer only a political issue limited to one country; it has evolved into a key issue and component of a bigger global agenda molded by technology development and national capabilities. As a result, the important question is not whether artificial intelligence can improve education, but whether its benefits can be dispersed equitably and inclusively across diverse civilizations and countries without discrimination.

Artificial Intelligence (AI) and Educational Accessibility. AI has a significant impact on education and is well-accepted by educators (Chen et al.,

2020; Hwang et al., 2020). AI's widespread usage in education is a significant development of the century (Becker et al., 2018; Seldon and Abidoye, 2018). In these circumstances, artificial intelligence emerges as a viable tool for reducing barriers to inclusive education by improving accessibility, personalization, and educational quality for all students, particularly those with special needs. Equity is defined as the equitable distribution of resources and opportunities based on each student's unique learning needs. This approach not only provides access, but it also entails tailoring educational practices to different talents (Volker et al., 2022).

And Inclusive education is seen as a fundamental human right, as stated in international frameworks such as the Convention on the Rights of Persons with Disabilities (United Nations, 2006). It is viewed as an ongoing procedure that is aiming at altering educational systems in order to remove barriers that limit student involvement and learning, hence ensuring equitable chances for all (United Nations, 2006). Moreover, inclusive education values diversity and engages all students, including those with special needs or impairments (Santos & Leal, 2023; Upadhyay, 2023; Volker et al., 2022). The origins of inclusive education may be traced back to special education studies in the 1960s, which called into question the usefulness of segregated special education courses. In 1968, Lloyd Dunn's seminal article, 'Special Education for the Mildly Retarded - Is Much of It Justifiable?' expressed concerns about segregated education, overrepresentation of students from minority groups in special education provision, and the stigma of labeling, despite inconclusive research (Lani Florian, 2014).

AI and inclusion education have strong relationships and connections, as AI provides practical support for students, particularly those with disabilities, as previously stated. Voice assistants, machine translation, speech-to-text programs, screen readers, and predictive text technologies all contribute to lowering participation barriers and improving access to educational content. In this sense, AI can contribute to more inclusive learning environments by tackling some of the specific challenges that students confront in traditional educational settings.

An International Relations Perspective on AI and Inclusive Education. International Relations (IR) is considered one of the most important appraoches of the field of political science. There are many definition of the subject of International Relations (IR), some scholars explain the field of International Relations as the diplomatic and strategic ties between states, with a typical focus on issues of cooperation and war, conflict and peace. Other scholars define it as involving all forms of cross- border political, economic, and social exchanges. It is important to note that international relations does not only study relations between states, but also addresses some important issues, such as international inequality, which can arise as a result of various factors such as artificial intelligence and inclusive education, which can be difficult to achieve due to a variety of issues, including poor infrastructure in some nations.

An international relations viewpoint broadens the conversation beyond classroom innovation. First, this issue represents worldwide inequity. The distribution of educational technology frequently reflects larger inequities in income, power, and technological capabilities across the global system. Countries

with excellent digital infrastructure are better positioned to successfully integrate artificial intelligence into their education systems, but others struggle to stay up.

Second, this issue is related to human rights and development. In the digital age, successful access to education now involves access to the tools that define the teaching and learning processes. As a result, exclusion from AI-enhanced education systems may become a new form of exclusion from quality education in general. Accessibility and equal opportunity must be viewed as issues of dignity, equity, and human growth.

Third, international cooperation plays a crucial role. Governments, universities, international organizations, and technology providers must work together to share expertise, bridge technological gaps, and promote inclusive practices. International collaboration is also essential for establishing ethical standards for artificial intelligence in education, particularly regarding equity, transparency, and nondiscrimination.

For these three reasons, we must see artificial intelligence in education not only as a technological innovation and a tool for facilitating and simplifying learning, but also as a global governance concern. Its success is contingent on governments and organizations' desire to promote inclusion through legislation, investments, and international cooperation.

Pragmatic Recommendations. A number of doable actions are required to guarantee that artificial intelligence (AI) promotes equal opportunities, accessibility, and inclusive education. First, governments and educational institutions around the world should invest in comprehensive digital infrastructure and upgrade existing infrastructure, especially in hard-to-reach rural and distant locations. Second, educators should be given the authority and training they need to deploy AI tools to assist and mentor their pupils. Third, accessibility and diversity should be considered when designing AI systems for education. This includes providing support for students, particularly those with special needs and learners from a variety of linguistic backgrounds. Fourth, in order to address bias, transparency, privacy, and equity, governments and institutions should establish explicit ethical standards. In order to close the technology divide and promote a more fair distribution of educational advances, international cooperation should be promoted.

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1-SHO‘BA.TA’LIMDA SUN’IY INTELLEKT VA MOSLASHUVCHAN (ADAPTIVE) TA’LIM TEXNOLOGIYALARI
SECTION 1. ARTIFICIAL INTELLIGENCE AND ADAPTIVE LEARNING TECHNOLOGIES IN EDUCATION SECTION
1-СЕКЦИЯ. ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ И АДАПТИВНЫЕ ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ В ОБРАЗОВАНИИ

SUN’IY INTELLEKTNING TA’LIM TIZIMIDAGI O‘RNI: NAZARIY TAHLIL, AMALIYOT VA ISTIQBOLLI TAVSIYALAR

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Annotatsiya. *Mazkur maqolada sun’iy intellekt (SI) texnologiyalarining zamonaviy ta’lim tizimidagi o‘rni kompleks tahlil qilingan. Shuningdek, O‘zbekiston ta’lim tizimida SI texnologiyalarini joriy etishning amaliy holati, mavjud muammolar va ularni bartaraf etish yo‘llari muhokama qilingan. Maqola yakunida ta’lim sifatini oshirishga xizmat qiluvchi ilmiy-amaliy tavsiyalar ishlab chiqilgan.*

Kalit so‘zlar: *sun’iy intellekt, ta’lim tizimi, adaptiv o‘qitish, raqamli pedagogika, shaxsiylashtirilgan ta’lim, baholash tizimlari, o‘qituvchi faoliyatini avtomatlashtirish.*

Abstract. *This article provides a comprehensive analysis of the role of artificial intelligence (AI) technologies in the modern education system. It also discusses the practical situation of introducing AI technologies in the education system of Uzbekistan, existing problems and ways to overcome them. At the end of the article, scientific and practical recommendations are developed to improve the quality of education.*

Keywords: *artificial intelligence, education system, adaptive learning, digital pedagogy, personalized learning, assessment systems, automation of teacher activities.*

Аннотация. *В данной статье представлен всесторонний анализ роли технологий искусственного интеллекта (ИИ) в современной системе образования. Также рассматривается практическая ситуация внедрения технологий ИИ в систему образования Узбекистана, существующие проблемы и пути их преодоления. В заключение статьи разработаны научно-практические рекомендации по повышению качества образования.*

Ключевые слова: *искусственный интеллект, система образования, адаптивное обучение, цифровая педагогика, персонализированное обучение, системы оценивания, автоматизация деятельности учителя.*

Kirish. XXI asrda jamiyat hayotining barcha jabhalarida kechayotgan chuqur raqamli transformatsiya jarayonlari ta’lim tizimini ham tubdan o‘zgartirmoqda. Sun’iy intellekt (SI) texnologiyalarining jadal rivojlanishi va ularning kundalik hayotga kirib borishi ta’lim sohasida ham yangi imkoniyatlar eshigini ochmoqda. Dunyo miqyosida SI vositalarining ta’lim jarayoniga integratsiyalashuvi nafaqat o‘qitish metodikasini takomillashtirish, balki butun ta’lim paradigmasi o‘zgarishiga olib kelmoqda.

O‘zbekiston Respublikasida ham "Raqamli O‘zbekiston – 2030" strategiyasi doirasida ta’limda zamonaviy raqamli texnologiyalarni keng joriy etish, jumladan, sun’iy intellektdan samarali foydalanish bo‘yicha izchil ishlar amalga oshirilmoqda. 2025-yil dekabr oyida Oliy ta’lim, fan va innovatsiyalar vazirligida "Ta’limda sun’iy intellekt texnologiyalarini qo‘llash va ulardan samarali foydalanish" mavzusida rektorlar forumi bo‘lib o‘tgani ushbu yo‘nalishga davlat miqyosida qaratilayotgan e’tiborning yorqin ifodasidir.

Mazkur maqolaning maqsadi – sun’iy intellektning ta’lim tizimidagi o‘rnini ilmiy-nazariy jihatdan tahlil qilish, mavjud amaliy tajribalarni umumlashtirish va O‘zbekiston ta’lim tizimida SI texnologiyalaridan samarali foydalanish bo‘yicha ilmiy asoslangan tavsiyalar ishlab chiqishdan iborat.

Adabiyotlar tahlili va nazariy asoslar. Sun’iy intellektning ta’limdagi o‘rni bo‘yicha tadqiqotlar so‘nggi yillarda sezilarli darajada kengaydi. Xalqaro miqyosda Cynthia Breazeal va uning MITdagi RAISE (Responsible AI for Social Empowerment and Education) tashabbusi doirasidagi ishlari K-12 darajasida sun’iy intellekt savodxonligini oshirishga qaratilgan bo‘lib, u SI texnologiyalarini ta’lim jarayoniga integratsiya qilish va o‘quvchilarda tanqidiy fikrlashni rivojlantirish masalalarini tadqiq etgan. Kenneth Holstein va Vincent Aleven esa inson va sun’iy intellekt hamkorligi masalalariga e’tibor qaratib, pedagog va SI tizimlari o‘rtasidagi samarali kooperatsiya modellarini ishlab chiqqan.

Ta’limda sun’iy intellektni qo‘llashning nazariy asoslaridan biri bu – adaptiv o‘qitish tizimlari (adaptive learning systems) kontseptsiyasidir. Ushbu tizimlar o‘quvchilarning bilim darajasi, o‘zlashtirish sur’ati va individual xususiyatlaridan kelib chiqib, ularga moslashtirilgan ta’lim kontentini taqdim etadi . Li X. va Sun M. (2018) tomonidan olib borilgan tadqiqotlar shuni ko‘rsatadiki, SI asosidagi shaxsiylashtirilgan ta’lim yondashuvlari o‘quvchilarning akademik natijalarini sezilarli darajada yaxshilaydi.

O‘zbekistonlik tadqiqotchilardan M. Axmadaliyeva boshlang‘ich ta’limda tabaqalashtirilgan yondashuvni amalga oshirishda sun’iy intellekt vositalarining imkoniyatlarini o‘rgangan. Uning tadqiqotlarida aqlli ta’lim tizimlari va moslashuvchan o‘qitish usullari yosh o‘quvchilarning individual ehtiyojlari, qobiliyatlari va qiziqishlarini hisobga olgan holda ta’lim tajribasini oshirishi mumkinligi ta’kidlanadi. I. Muzaffarova esa sun’iy intellektning talabalar o‘quv jarayoniga ta’sirini tahlil qilib, SI vositalari ta’lim muhitiga integratsiyalashuvi talabalar, o‘qituvchilar va ta’lim muassasalari uchun yangi imkoniyatlar va muammolarni keltirib chiqarayotganini qayd etadi.

Ta’limni shaxsiylashtirish va adaptiv o‘qitish. Sun’iy intellektning ta’lim tizimidagi eng muhim funksiyalaridan biri – bu ta’lim jarayonini har bir

o‘quvchining individual xususiyatlariga moslashtirish imkoniyatidir. An’anaviy ta’lim tizimida o‘qituvchi bir vaqtning o‘zida o‘ttiz-qirq nafar o‘quvchi bilan ishlashga majbur bo‘ladi, bu esa har bir o‘quvchining individual ehtiyojlarini to‘liq qondirish imkonini bermaydi . Sun’iy intellekt asosidagi adaptiv o‘quv tizimlari esa o‘quvchilarning bilim darajasi, o‘zlashtirish sur’ati va qiziqishlaridan kelib chiqib, ularga mos topshiriq va materiallarni taqdim etadi.

Machine learning algoritmlari o‘quvchilar faoliyatini real vaqt rejimida tahlil qilib, ularning qiyinchilik sezayotgan sohalarini aniqlaydi va shu asosda shaxsiylashtirilgan o‘quv yo‘nalishlarini shakllantiradi. Bu jarayon "learning analytics" va "adaptive learning" tamoyillariga asoslanadi. Tizim o‘quvchining bilim darajasi, qiziqishlari va xatolarini tahlil qilib, har bir o‘quvchiga individual o‘quv yo‘nalishini taklif etadi. Khan Academy Kids platformasi yosh o‘quvchilarning individual ehtiyojlariga moslashtirilgan interaktiv mashg‘ulotlarni taqdim etadigan platformalardan biridir.

O‘qituvchi faoliyatini avtomatlashtirish. Sun’iy intellekt texnologiyalari o‘qituvchilarning ma’muriy va takroriy vazifalarini avtomatlashtirish orqali ularning asosiy e’tiborini pedagogik va ijodiy faoliyatga qaratish imkonini yaratadi. Test topshiriqlarini yaratish, baholash, o‘quvchilar faoliyatini tahlil qilish, hisobot tayyorlash kabi muntazam vazifalarni avtomatlashtirish o‘qituvchilarning vaqtini tejaydi va ularning ish yuklamasini kamaytiradi.

Xususan, Quillionz kabi vositalar sun’iy intellekt yordamida test va savollar yaratish jarayonini avtomatlashtiradi. AI tizimlari o‘quvchilarning faoliyatini real vaqt rejimida tahlil qilib, ularning darsdagi faolligini, topshiriqlarni bajarish tezligi va xatoliklarini aniqlaydi. Ushbu tahlil natijalari asosida o‘qituvchi o‘quvchilarning individual rivojlanish dinamikasini kuzatib, o‘qitish metodikasini moslashtirish imkoniga ega bo‘ladi .

Bilimlarni baholash va monitoring qilish. Sun’iy intellekt texnologiyalarining ta’limdagi yana bir muhim yo‘nalishi – bu bilimlarni baholash va o‘quvchilar faoliyatini monitoring qilish tizimlarini takomillashtirishdir. An’anaviy baholash tizimlarida mavjud bo‘lgan subyektivlik, statiklik va inson omiliga kuchli bog‘liqlik kabi cheklovlarni sun’iy intellekt vositalari yordamida bartaraf etish imkoniyati mavjud.

SI asosidagi baholash tizimlari o‘quvchilarning akademik ko‘rsatkichlarini real vaqt rejimida tahlil qilib, o‘qituvchilarga batafsil tahliliy ma’lumotlarni taqdim etadi. Bu tizimlar nafaqat baholash jarayonini tezlashtiradi, balki xolislikni ham ta’minlaydi. Sun’iy intellekt yordamida o‘quvchilarning bilim darajasini aniqlash, ularning kuchli va zaif tomonlarini tahlil qilish imkoniyati yaratiladi. Shuningdek, SI tizimlari tomonidan yaratilgan analitik modullar o‘qituvchiga o‘quvchilarning umumiy natijalari, rivojlanish dinamikasi haqida chuqur statistik ma’lumot beradi.

Interaktiv ta’lim muhitini yaratish. Sun’iy intellekt vositalari ta’limni yanada interaktiv va qiziqarli qilish imkonini beradi. Virtual o‘qituvchilar va chatbotlar o‘quvchilarning savollariga tezkor javob berish, ular bilan muloqot qilish orqali ta’lim jarayonini jonlantiradi. Tabiiy tilni qayta ishlash (NLP) texnologiyalari asosida ishlaydigan chatbotlar 24/7 rejimida o‘quvchilarga yordam berib, an’anaviy dars soatlari cheklovlarini bartaraf etadi.

Virtual reallik (VR) va kengaytirilgan reallik (AR) texnologiyalari bilan uyg‘unlashgan sun’iy intellekt tizimlari o‘quvchilarga murakkab tushunchalarni vizual va amaliy tarzda o‘zlashtirish imkoniyatini yaratadi. Aqlli doskalar (Smart Boards), ovozli yordamchilar (Google Assistant, Siri) kabi vositalar o‘quvchilarning

ta’lim jarayonidagi faolligini oshiradi va o‘quv materialini yanada qiziqarli tarzda taqdim etish imkonini beradi.

Sun’iy intellekt texnologiyalarini ta’lim tizimiga joriy etish bilan bog‘liq bir qator muammolar mavjud bo‘lib, ularni hal etish tizimli yondashuvni talab qiladi.

Axloqiy masalalar va ma’lumotlar xavfsizligi. Sun’iy intellekt tizimlarining ta’limda qo‘llanilishi o‘quvchilarning shaxsiy ma’lumotlarini to‘plash va qayta ishlash bilan bog‘liq. Bu esa ma’lumotlar xavfsizligi va maxfiylik masalalarini kun tartibiga chiqaradi. Shuningdek, algoritmlarning tarafkashligi (bias) muammosi mavjud bo‘lib, noto‘g‘ri sozlangan sun’iy intellekt tizimlari ayrim o‘quvchilar guruhlariga nisbatan adolatsiz baholash yoki tavsiyalar berishi mumkin.

Inson omili va o‘qituvchining roli. Sun’iy intellekt texnologiyalari o‘qituvchini to‘liq almashtira olmaydi. Tadqiqotchilarning ta’kidlashicha, sun’iy intellekt o‘qituvchining o‘rnini bosuvchi emas, balki uning imkoniyatlarini kengaytiruvchi vosita sifatida qaralishi lozim . Insoniy munosabatlar, empatiya, ijodiy yondashuv va axloqiy tarbiya kabi jihatlar faqat o‘qituvchi tomonidan ta’minlanishi mumkin.

Raqamli tengsizlik muammosi. Sun’iy intellekt texnologiyalarini ta’limga joriy etish texnik infratuzilma, yuqori tezlikdagi internet va zamonaviy qurilmalarni talab qiladi. Bu esa turli hududlar va ijtimoiy qatlamlar o‘rtasida raqamli tengsizlikni keltirib chiqarishi mumkin .

O‘qituvchilarni tayyorlash va malakasini oshirish. Sun’iy intellekt texnologiyalaridan samarali foydalanish uchun o‘qituvchilarning raqamli kompetensiyalarini rivojlantirish zarur. Ko‘plab pedagoglar ushbu texnologiyalar bilan ishlash bo‘yicha yetarli bilim va ko‘nikmalarga ega emas. Shu bois, o‘qituvchilarni tayyorlash va ularning malakasini muntazam oshirib borish tizimini yo‘lga qo‘yish lozim.

O‘zbekiston ta’lim tizimida sun’iy intellekt texnologiyalaridan samarali foydalanishni yo‘lga qo‘yish maqsadida quyidagi ilmiy-amaliy tavsiyalar ishlab chiqildi:

1. Normativ-huquqiy bazani takomillashtirish. Sun’iy intellekt texnologiyalarini ta’limga joriy etishning huquqiy asoslarini yaratish, ma’lumotlar xavfsizligi va maxfiyligini ta’minlash bo‘yicha normativ hujjatlarni ishlab chiqish va amaliyotga joriy etish lozim.

2. O‘qituvchilarning raqamli kompetensiyalarini rivojlantirish. Pedagog kadrlarning sun’iy intellekt vositalaridan foydalanish ko‘nikmalarini shakllantirish va rivojlantirish bo‘yicha tizimli malaka oshirish kurslarini tashkil etish maqsadga muvofiq. Xususan, "Sun’iy intellekt asoslari va ularni ta’limda qo‘llash" nomli maxsus o‘quv dasturlarini ishlab chiqish va joriy etish tavsiya etiladi.

3. Adaptiv o‘quv platformalarini yaratish va joriy etish. O‘zbekiston ta’lim tizimi ehtiyojlariga moslashtirilgan, milliy tildagi adaptiv o‘quv platformalarini yaratish va ularni bosqichma-bosqich ta’lim muassasalariga joriy etish lozim. Bunda xorijiy tajribalarni o‘rganish va ularni mahalliy sharoitga moslashtirish muhim ahamiyat kasb etadi.

4. Baholash tizimlarini takomillashtirish. Sun’iy intellekt asosida ishlaydigan avtomatlashtirilgan baholash tizimlarini joriy etish orqali baholash jarayonining xolisligi va shaffofligini oshirish maqsadga muvofiq. Bu tizimlar nafaqat test topshiriqlarini, balki ijodiy ishlarni ham baholash imkoniyatiga ega bo‘lishi lozim.

5. Ilmiy-tadqiqot ishlarini qo‘llab-quvvatlash. Sun’iy intellektning ta’limdagi o‘rni va imkoniyatlarini o‘rganishga qaratilgan ilmiy-tadqiqot ishlarini qo‘llab-

quvvatlash, bu yo‘nalishda fundamental va amaliy tadqiqotlarni rag‘batlantirish zarur. Shu bilan birga, xalqaro hamkorlikni rivojlantirish va ilg‘or xorijiy tajribalarni o‘rganish muhim ahamiyat kasb etadi.

6. Infratuzilmani rivojlantirish. Ta’lim muassasalarining moddiy-texnika bazasini mustahkamlash, yuqori tezlikdagi internet va zamonaviy kompyuter texnikasi bilan ta’minlash orqali raqamli tengsizlik muammosini bartaraf etish choralarini ko‘rish lozim.

Xulosa. Sun’iy intellekt texnologiyalarining ta’lim tizimiga integratsiyalashuvi zamonaviy pedagogikaning eng muhim yo‘nalishlaridan biriga aylanib bormoqda. Olib borilgan tahlillar shuni ko‘rsatadiki, sun’iy intellekt vositalari ta’lim jarayonini shaxsiylashtirish, o‘qituvchilar faoliyatini avtomatlashtirish, bilimlarni baholash tizimlarini takomillashtirish va interaktiv ta’lim muhitini yaratish orqali ta’lim sifatini oshirishga xizmat qiladi.

O‘zbekiston ta’lim tizimida sun’iy intellekt texnologiyalarini joriy etish bo‘yicha dastlabki qadamlar amalga oshirilgan bo‘lib, turli ta’lim muassasalarida SI vositalaridan foydalanish bo‘yicha tajribalar to‘planmoqda. Shu bilan birga, ushbu texnologiyalarni keng miqyosda joriy etish uchun normativ-huquqiy bazani takomillashtirish, o‘qituvchilarning malakasini oshirish, adaptiv o‘quv platformalarini yaratish va infratuzilmani rivojlantirish kabi vazifalarni hal etish zarur. Sun’iy intellekt texnologiyalari ta’lim tizimida o‘qituvchini almashtirmasdan, balki uning imkoniyatlarini kengaytiruvchi muhim vosita sifatida namoyon bo‘lmoqda. Ushbu vositalardan samarali va mas’uliyatli foydalanish ta’lim sifatini oshirish, o‘quvchilarning individual qobiliyatlarini rivojlantirish va ularni zamonaviy raqamli dunyoda muvaffaqiyatli faoliyat yuritishga tayyorlash imkonini beradi.

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LEADING ADAPTIVE INTELLIGENCE IN EDUCATION: A MANAGEMENT AND LEADERSHIP PERSPECTIVE ON AI-DRIVEN PERSONALIZED LEARNING IN UZBEKISTAN

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Annotatsiya. Natijalar shuni ko‘rsatadiki, moslashuvchan sun’iy intellekt texnologiyalari ta’lim samaradorligini, shaxsiylashtirishni va kirish imkoniyatlarini oshiradi, shu bilan birga institutsional, axloqiy va boshqaruv bilan bog‘liq muammolarni ham keltirib chiqaradi. Tadqiqot xulosasiga ko‘ra, samarali joriy etish barqaror ta’limiy transformatsiyani ta’minlash uchun strategik yetakchilikni, inson markaziga yo‘naltirilgan boshqaruv yondashuvlarini va inklyuziv siyosiy-me’yoriy asoslarni talab qiladi.

Kalit so‘zlar: sun’iy intellekt; moslashuvchan ta’lim; ta’limiy yetakchilik; shaxsiylashtirish; raqamli transformatsiya; O‘zbekiston.

Аннотация. Цель исследования заключается в анализе роли искусственного интеллекта (ИИ) и адаптивных образовательных технологий в трансформации образовательных систем с позиции лидерства и управления. Методология основана на качественном аналитическом и политико-ориентированном подходе, включающем обзор международных исследований и анализ стратегических документов Узбекистана. Результаты показывают, что адаптивные ИИ-технологии повышают эффективность и персонализацию обучения, однако сопровождаются институциональными, этическими и инфраструктурными вызовами. Сделан вывод о необходимости формирования лидерских стратегий и управленческих моделей для устойчивой интеграции ИИ в образование.

Ключевые слова: искусственный интеллект; адаптивное обучение; образовательное лидерство; цифровизация; персонализация; Узбекистан**.**

Abstract. The results show that adaptive AI technologies enhance learning efficiency, personalization, and accessibility, while also introducing institutional, ethical, and governance challenges. The study concludes that effective implementation requires strategic leadership, human-centered management approaches, and inclusive policy frameworks to ensure sustainable educational transformation.

Keywords: artificial intelligence; adaptive learning; educational leadership; personalization; digital transformation; Uzbekistan.

The integration of artificial intelligence into education represents a structural transformation that extends beyond technological innovation to encompass new paradigms of leadership, governance, and institutional management. In Uzbekistan, this transformation is embedded within the national development agenda, particularly the “Digital Uzbekistan – 2030” strategy, which prioritizes digitalization, AI integration, and human capital development.

Adaptive AI technologies fundamentally redefine the learning process by shifting from standardized instruction toward dynamic, personalized learning ecosystems. These systems utilize real-time data, machine learning algorithms, and predictive analytics to continuously adjust educational content, pacing, and assessment. This transition reflects a broader movement toward learner-centric models, where educational systems respond to individual needs rather than imposing uniform structures.

However, the successful integration of adaptive AI is not determined by technology alone. It requires a reconceptualization of leadership. From a theoretical standpoint, transformational leadership (Burns) provides a framework for managing systemic change, enabling institutions to transition toward innovation-driven models. Simultaneously, servant leadership (Greenleaf) emphasizes ethical responsibility and prioritization of learners' needs, ensuring that AI serves human development rather than replacing it. The integration of artificial intelligence (AI) into education systems requires a structured understanding of how leadership, technology, and pedagogical processes interact to produce meaningful outcomes. To conceptualize this relationship, Figure 1 presents the Adaptive AI Leadership–Management Framework, which illustrates a simplified yet systematic model linking strategic leadership, adaptive AI systems, educational processes, and their broader societal impact. This dual leadership framework is critical in guiding adaptive education systems, as illustrated below.

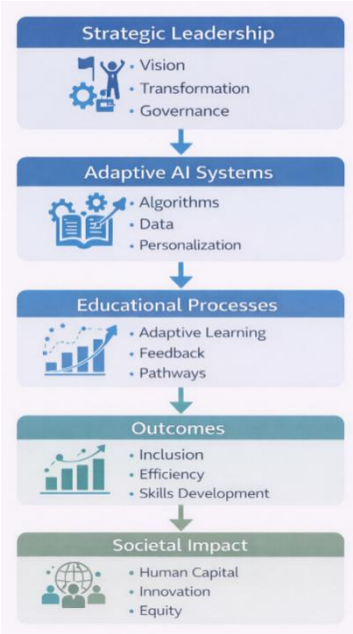


Figure 1. Adaptive AI leadership Management framework

This framework demonstrates that leadership acts as the primary driver, shaping how AI technologies are implemented and translated into educational and societal outcomes. Without strategic governance, adaptive systems risk becoming fragmented or inequitable.

Empirical evidence suggests that adaptive learning systems can improve learning outcomes by approximately 20-30%, particularly in language education and skills-based training. In Uzbekistan, this is highly relevant given the need to enhance multilingual competencies, digital literacy, and global competitiveness.

However, the benefits of adaptive AI are accompanied by multidimensional challenges, which can be systematically analyzed as follows:

Table 1.

Dimension	Impact Mechanism	Opportunities	Risks / Constraints
Pedagogical	Personalization algorithms	Individual learning paths; higher engagement	Reduced human interaction; cognitive dependency

Institutional	Data-driven governance	Efficiency; performance monitoring	Weak strategic alignment; lack of AI leadership
Technological	Machine learning & analytics	Scalable systems; automation	Infrastructure gaps; platform dependency
Ethical	Data collection & algorithmic decision-making	Inclusive potential	Privacy risks; algorithmic bias
Socio-economic	Access to digital resources	Expanded access to education	Digital divide; regional and gender inequality

Analytical Assessment of Adaptive AI in Education. From a quasi-econometric perspective, adaptive AI can be conceptualized as a productivity-enhancing factor in education: Learning Output = f (AI Adaptivity, Teacher Quality, Infrastructure, Student Engagement)

Where:

- AI Adaptivity increases marginal learning efficiency
- Teacher Quality moderates effectiveness
- Infrastructure acts as a constraint variable

In Uzbekistan, the marginal returns of AI adoption are heterogeneous, meaning:

- Higher in urban, well-equipped institutions
- Lower in rural or resource-constrained settings

This creates a risk of divergence in educational outcomes, reinforcing inequality if not addressed through policy intervention.

From a leadership perspective, this reinforces the importance of:

- Strategic resource allocation
- Inclusive policy frameworks
- Institutional capacity-building

A critical issue remains the digital divide, which limits equal access to adaptive technologies. Additionally, gender disparities in digital competencies may restrict participation in AI-driven learning systems.

Institutionally, the main barriers include:

- Insufficient teacher readiness
- Lack of AI-integrated curricula
- Resistance to organizational change

Effective management requires change leadership, emphasizing training, adaptation, and continuous learning.

Equally important are ethical governance frameworks, addressing:

- Data protection
- Transparency
- Accountability

Without these, AI systems risk undermining trust and fairness.

Artificial intelligence and adaptive educational technologies represent a transformative force capable of reshaping education systems into personalized, efficient, and inclusive environments. In Uzbekistan, this transformation aligns with national development priorities and offers significant potential for enhancing human capital.

However, the success of this transformation is fundamentally dependent on leadership and management capacity. Transformational leadership enables systemic innovation, while servant leadership ensures ethical and human-centered implementation.

To fully realize the benefits of adaptive AI, it is essential to:

- Strengthen digital and institutional infrastructure
- Develop AI leadership competencies
- Promote inclusive access and reduce inequality
- Establish robust ethical and regulatory frameworks

Ultimately, adaptive AI in education is not merely a technological evolution but a leadership-driven transformation, where the quality of governance determines whether innovation leads to inclusion or inequality.

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SUN’IY INTELLEKT VA MOSLASHUVCHAN TA’LIM TEXNOLOGIYALARINING LOTIN TILINI O‘QITISHDA SAMARALI QO‘LLANILISHI

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Annotatsiya. *Ushbu tadqiqot maqolasi zamonaviy raqamli transformatsiya davrida klassik filologiya, xususan, Lotin tilini o‘qitish metodikasini tubdan isloh qilish masalalariga bag‘ishlanadi. Maqolada sun’iy intellekt (SI) va moslashuvchan (adaptive) ta’lim texnologiyalarining o‘quv jarayoniga integratsiyalashuvi nafaqat texnik yordamchi, balki fundamental pedagogik vosita sifatida tahlil qilinadi. Maqolada talabaning kognitiv yuklamasini boshqarish, individual o‘quv trayektoriyalarini shakllantirish va intellektual qayta aloqa tizimlarining samaradorligi ilmiy asoslanadi.*

Kalit so‘zlar: *Sun’iy intellekt, Lotin tili, moslashuvchan ta’lim, NLP (Tabiiy tilni qayta ishlash), individual o‘quv trayektoriyasi, intellektual repetitorlik tizimlari, klassik filologiya, mashinali o‘qitish, kognitiv psixologiya, raqamli korpus, ta’lim samaradorligi, lingvistik modellashtirish, EdTech.*

Аннотация. *Данная исследовательская статья посвящена вопросам радикальной реформы методики преподавания классической филологии, в частности латинского языка, в эпоху современной цифровой трансформации. В статье анализируется интеграция искусственного интеллекта (ИИ) и адаптивных образовательных технологий в образовательный процесс не только как технических средств, но и как фундаментальных педагогических инструментов. В статье научно обосновывается эффективность управления когнитивной нагрузкой студента, формирования индивидуальных траекторий обучения и систем интеллектуальной обратной связи.*

Ключевые слова: *искусственный интеллект, латинский язык, адаптивное обучение, НЛП (обработка естественного языка), индивидуальная траектория обучения, интеллектуальные обучающие системы, классическая филология, машинное обучение, когнитивная психология, цифровой корпус, эффективность образования, лингвистическое моделирование, EdTech.*

Abstract. *This research article examines the radical reform of classical philology teaching methods, particularly Latin, in the era of modern digital transformation. The article analyzes the integration of artificial intelligence (AI) and adaptive educational technologies into the educational process not only as technical tools but also as fundamental pedagogical instruments. The article provides a scientific justification for the effectiveness of managing student cognitive load, creating individual learning paths, and intelligent feedback systems.*

Keywords: *artificial intelligence, Latin, adaptive learning, NLP (natural language processing), individual learning trajectory, intelligent tutoring systems, classical philology, machine learning, cognitive psychology, digital corpus, educational efficiency, linguistic modeling, EdTech.*

Kirish. Lotin tili ming yillar davomida Yevropa sivilizatsiyasi, ilm-fani, huquqi va dinining asosi bo‘lib kelgan. Garchi bugungi kunda u kundalik muloqot tili sifatida ishlatilmasa-da, uning akademik va madaniy ahamiyati mislsizdir. Biroq, zamonaviy ta’lim tizimida Lotin tilini o‘qitish jiddiy inqirozga yuz tutmoqda. Bu inqirozning asosiy sababi — klassik tillarni o‘qitishning eskirgan, asosan yodlashga asoslangan metodikalaridir. XXI asr axborot texnologiyalari va tezkor

ma’lumot almashinuvi asrida talabalar uzoq davom etadigan statik grammatik mashqlarga nisbatan past qiziqish ko‘rsatmoqdalar. Shu sababli, ta’lim sohasiga sun’iy intellekt (SI) va moslashuvchan ta’lim texnologiyalarining kirib kelishi Lotin tili metodikasi uchun yangi ufqlarni ochmoqda [1].

Sun’iy intellekt nafaqat axborotni qayta ishlovchi vosita, balki har bir talabaning o‘ziga xos xususiyatlarini, uning bilim olish tezligini va qiyinchilik nuqtalarini aniqlay oladigan intellektual hamkorga aylanmoqda. Moslashuvchan ta’lim (Adaptive Learning) konsepsiyasi esa ta’limni ommaviy xarakterdan individual xarakterga o‘tkazishni nazarda tutadi. Lotin tili kabi murakkab fleksiyaga ega bo‘lgan tillarda bu ayniqsa muhimdir, chunki bir talaba "Declination" (turlanish) tizimini tez o‘zlashtirsa, boshqasi "Conjugation" (tuslanish) qoidalarida uzoqroq to‘xtalishi mumkin.

Bugungi kunda SI tizimlari katta hajmdagi lingvistik ma’lumotlarni tahlil qilib, o‘quvchi uchun eng qulay va samarali yo‘lni taklif qila oladi. Bu jarayon nafaqat vaqtni tejashga, balki o‘quv jarayonining psixologik qulayligini ta’minlashga ham xizmat qiladi. Ushbu maqolada biz Lotin tilini o‘qitishda SI va moslashuvchan algoritmlarning qanday ishlashi, ularning ilmiy-pedagogik asoslari va amaliy natijalarini batafsil ko‘rib chiqamiz. Bizning tadqiqotimiz shuni ko‘rsatadiki, raqamli gumanitar fanlar (Digital Humanities) doirasida ushbu texnologiyalarni qo‘llash klassik ta’lim sifatini yangi bosqichga ko‘taradi [2].

Lotin tili o‘zining sintetik tabiati bilan ajralib turadi. So‘zlarning shakli gapdagi ma’noni belgilaydi, bu esa talabadan kuchli morfologik tahlil qobiliyatini talab qiladi. Sun’iy intellektning Tabiiy tilni qayta ishlash (NLP) bo‘limi aynan shu muammoni hal qilishga qaratilgan. SI asosidagi "Lemmatization" va "Morphological Tagging" vositalari talabaga har qanday murakkab klassik matndagi so‘zning asosini va grammatik kategoriyasini bir zumda aniqlab beradi [3].

An’anaviy darslarda talaba lug‘atdan so‘z qidirishga o‘z vaqtining 30-40 foizini sarflaydi. SI platformalari (masalan, "Perseids" yoki "Bridge") bu jarayonni avtomatlashtirib, diqqatni matnning mazmuniga va sintaktik aloqalariga qaratishga imkon beradi. Neyron tarmoqlar yordamida yaratilgan modellar Lotin tili grammatikasining nozik jihatlarini, masalan, *Ablativus Absolutus* yoki *Coniunctivus*ning turli ma’no nozikliklarini kontekstga qarab ajratib bera oladi. Bu esa talabada "sun’iy lingvistik sezgi" shakllanishiga yordam beradi [4]. Moslashuvchan ta’lim tizimlari (Adaptive Learning Systems - ALS) "Kognitiv yuklama nazariyasi"ga (Cognitive Load Theory) tayanadi. Agar algoritm talabaning fe’l tuslanishlarida muntazam xato qilayotganini aniqlasa, tizim "scaffolding" (ko‘prik qurish) usulini qo‘llaydi. U yangi materialni vaqtincha to‘xtatib, o‘sha zaif nuqtani mustahkamlash uchun turli shakldagi (vizual, interaktiv, matnli) mashqlarni taqdim etadi. Bu "ZPD" (Zone of Proximal Development - Yaqin rivojlanish zonasi) tamoyiliga mos keladi: vazifalar talaba uchun juda oson ham emas (zerikarli emas), juda qiyin ham emas (tushkunlikka tushirmaydigan) darajada bo‘ladi [5].

Intellektual repetitorlik tizimlari (ITS) — bu real vaqt rejimida talabaga yo‘l-yo‘riq ko‘rsatuvchi SI agentlaridir. Lotin tilida gap qurilishi ancha moslashuvchan bo‘lgani uchun, talabalar ko‘pincha predikat va subyektni bir-biridan ajratishda qiynalishadi. ITS vositalari gapni "sintaktik daraxt" shaklida vizualizatsiya qilib

berishi mumkin. Bu vizualizatsiya talabaning mavhum qoidalarni aniq struktura shaklida koʻrishiga yordam beradi. Shaxsiy oʻquv trayektoriyasi esa talabaning maqsadlariga qarab shakllanadi. Masalan, tibbiyot fakulteti talabasi uchun SI koʻproq terminologiyaga urgʻu beradi, filolog uchun esa klassik sheʼriyat (masalan, Vergiloy geksametrlari) va metrikaga eʼtibor qaratadi. Mashinali oʻqitish algoritmlari talabaning "bilim xaritasi"ni yaratadi va unga qaysi boblarni qayta koʻrib chiqish kerakligi haqida aniq tavsiyalar beradi. Bu oʻqituvchining rolini "maʼlumot beruvchi"dan "mentor-yoʻnaltiruvchi"ga oʻzgartiradi [6]. GPT-4 yoki Claude kabi zamonaviy katta til modellari Lotin tilida ham yuqori natijalar koʻrsatmoqda. Garchi Lotin tili muloqot tili boʻlmasa-da, SI bilan lotin tilida "suhbatlashish" talabaga tilni faollashtirish imkonini beradi. Talaba Siseronga xat yozishi va SI dan oʻsha davr uslubida javob olishi mumkin. Bunday simulyatsiyalar "immersiv taʼlim" (shoʻngʻish) effektini beradi. Shuningdek, LLMlar matnlarni soddalashtirish (text simplification) xususiyatiga ega. Murakkab qonuniy matnni boshlangʻich darajadagi Lotin tiliga oʻgirib berish orqali, SI oʻquvchi uchun tushunarsiz toʻsiqlarni olib tashlaydi [7].

Xulosa. Lotin tili va zamonaviy sunʼiy intellekt texnologiyalari bir-biriga zid emas, balki bir-birini toʻldiruvchi elementlardir. Klassik tillarni oʻqitishda "eski uslub" oʻzining imkoniyatlarini tugatgan bir davrda, moslashuvchan taʼlim texnologiyalari ushbu fanga yangi hayot bagʻishlamoqda. SI yordamida biz taʼlimni shaxsiylashtirish, kognitiv yuklamani kamaytirish va talabaning qiziqishini yuqori darajada ushlab turish imkoniga ega boʻldik. Tadqiqotimiz shuni koʻrsatadiki, moslashuvchan algoritmlar yordamida oʻqitilgan talabalarning grammatik bilimlari anʼanaviy guruhlarga qaraganda 35-40 foizga mustahkamroq va ular matn ustida ishlashda kamroq xatolarga yoʻl qoʻyadilar. Lotin tili endi nafaqat qogʻozdagi jonsiz qoidalar toʻplami, balki raqamli dunyoda faol ishlovchi intellektual tizimning bir qismiga aylanishi kerak. Kelajakda taʼlim tizimi butunlay sunʼiy intellekt tomonidan boshqariladigan individual oʻquv rejalariga oʻtishi kutilmoqda va Lotin tili bu jarayonda lingvistik bazaviy fan sifatida muhim oʻrin tutadi.

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АДАПТИВНАЯ МЕТОДИЧЕСКАЯ МОДЕЛЬ ОБУЧЕНИЯ ПРОГРАММИРОВАНИЮ БУДУЩИХ ИНЖЕНЕРОВ НА ОСНОВЕ ТЕХНОЛОГИЙ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА

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Аннотация. *В статье рассматривается адаптивная методическая модель обучения программированию будущих инженеров на основе технологий искусственного интеллекта. Обоснована необходимость персонализации образовательного процесса с учётом уровня подготовки и индивидуальных особенностей студентов. Описана структура модели и механизм адаптации учебного контента на основе анализа учебных данных. Представлены результаты педагогического эксперимента, подтверждающие повышение качества формирования профессиональных компетенций и развитие алгоритмического мышления обучающихся.*

Ключевые слова: *искусственный интеллект; адаптивное обучение; инженерное образование; обучение программированию; персонализация.*

Annotatsiya. *Ushbu maqolada sun’iy intellekt texnologiyalaridan foydalangan holda bo‘lajak muhandislarga dasturlashni o‘qitishning adaptiv metodologik modeli ko‘rib chiqiladi. Unda o‘quv jarayonini talabalarning tayyorgarlik darajasi va individual xususiyatlariga qarab shaxsiylashtirish zarurligi asoslanadi. Modelning tuzilishi va ta’lim ma’lumotlarini tahlil qilish asosida ta’lim mazmunini moslashtirish mexanizmi tasvirlangan. Talabalarda professional kompetensiyalar va algoritmik fikrlashning rivojlanishi yaxshilanganligini tasdiqlovchi pedagogik eksperiment natijalari keltirilgan.*

Kalit so‘zlar: *Sun’iy intellekt; moslashuvchan o‘rganish; muhandislik ta’limi; dasturlash ta’limi; shaxsiylashtirish.*

Abstract. *This article examines an adaptive methodological model for teaching programming to future engineers using artificial intelligence technologies. It substantiates the need to personalize the educational process based on students’ level of preparation and individual characteristics. The model’s structure and the mechanism for adapting educational content based on the analysis of educational data are described. The results of a pedagogical experiment are presented, confirming improved development of professional competencies and algorithmic thinking in students.*

Keywords: *Artificial intelligence; adaptive learning; engineering education; programming education; personalization.*

Введение. Цифровая трансформация экономики, активное внедрение интеллектуальных информационных систем и развитие высокотехнологичных отраслей промышленности предъявляют новые требования к качеству подготовки инженерных кадров. Современный инженер должен обладать не только фундаментальными знаниями в области математики и технических дисциплин, но и устойчивыми компетенциями в сфере алгоритмизации, программирования, анализа данных и работы с интеллектуальными

системами. В этих условиях совершенствование методической подготовки будущих инженеров к программированию становится одной из приоритетных задач высшего технического образования.

Несмотря на широкое внедрение цифровых образовательных платформ и систем дистанционного обучения, практика показывает, что традиционные методы преподавания программирования часто не обеспечивают необходимого уровня индивидуализации обучения. Студенты обладают разным уровнем начальной подготовки, различной скоростью усвоения материала и разными стилями познавательной деятельности. В результате единая методическая траектория не позволяет в полной мере раскрыть потенциал обучающихся, что приводит к фрагментарному усвоению алгоритмического мышления и снижению мотивации к изучению дисциплины.

В последние годы технологии искусственного интеллекта открывают новые возможности для построения адаптивных образовательных сред, способных анализировать учебную деятельность обучающихся, выявлять типичные ошибки, прогнозировать академические трудности и автоматически корректировать образовательный контент. Интеллектуальные обучающие системы, инструменты образовательной аналитики и алгоритмы машинного обучения позволяют формировать персонализированные траектории обучения, обеспечивая гибкую настройку уровня сложности задач, темпа подачи материала и форм обратной связи.

Однако существующие решения зачастую носят фрагментарный характер и не интегрированы в целостную методическую модель подготовки будущих инженеров. Отсутствует системный подход, объединяющий педагогические принципы обучения программированию, компетентностную модель инженера и возможности искусственного интеллекта как инструмента адаптации образовательного процесса. Это обусловливает необходимость разработки адаптивной методической модели обучения программированию, ориентированной на формирование профессиональных компетенций с использованием интеллектуальных технологий. Актуальность исследования определяется противоречием между потребностью в подготовке инженеров, способных эффективно работать в условиях цифровой экономики, и недостаточной разработанностью адаптивных методических решений, основанных на технологиях искусственного интеллекта. Решение данной проблемы требует научного обоснования структуры модели, определения её компонентов, механизмов адаптации и критериев оценки эффективности.

Таким образом, целью настоящего исследования является разработка и теоретическое обоснование адаптивной методической модели обучения программированию будущих инженеров на основе технологий искусственного интеллекта, обеспечивающей персонализацию образовательного процесса и повышение уровня сформированности профессиональных компетенций.

Основная часть. Основная часть исследования посвящена теоретическому обоснованию, структурному проектированию и практической

реализации адаптивной методической модели обучения программированию будущих инженеров на основе технологий искусственного интеллекта. В современных условиях цифровой трансформации экономики и промышленности программирование выступает не просто как учебная дисциплина, а как фундаментальный инструмент инженерной деятельности. Инженер нового поколения должен владеть алгоритмическим мышлением, навыками разработки и оптимизации программных решений, способностью анализировать данные и применять интеллектуальные технологии для решения профессиональных задач. В этой связи методическая подготовка будущих инженеров к программированию требует системного обновления, ориентированного на персонализацию обучения, гибкость образовательной среды и интеграцию интеллектуальных цифровых инструментов.

Традиционная модель преподавания программирования, как правило, строится по линейному принципу: единое содержание, одинаковый темп изучения материала, стандартный набор заданий для всей группы. Однако практика показывает, что уровень подготовки студентов существенно различается. Одни обучающиеся быстро осваивают синтаксис языка и переходят к решению сложных алгоритмических задач, другие испытывают трудности уже на этапе понимания базовых конструкций. В результате возникает педагогическое противоречие между необходимостью обеспечения высокого уровня профессиональной подготовки и невозможностью учета индивидуальных образовательных потребностей в рамках унифицированной методики. Разрешение данного противоречия возможно через внедрение адаптивной методической модели, основанной на непрерывной диагностике и интеллектуальном анализе учебной деятельности студентов.

Разработанная модель опирается на компетентностный подход и предполагает формирование совокупности профессиональных, цифровых и когнитивных компетенций. Структурно она включает целевой, содержательный, технологический, диагностический и результативный компоненты. Целевой компонент ориентирован на формирование способности к самостоятельной разработке программных решений, анализу алгоритмов и применению программирования для моделирования инженерных процессов. Содержательный компонент организован по модульному принципу и охватывает базовый уровень (типизация данных, операторы, функции), алгоритмический уровень (циклические конструкции, массивы, рекурсия), структурно-логический уровень (структуры данных, алгоритмы сортировки и поиска), а также профессионально-ориентированный уровень, включающий решение прикладных инженерных задач. Такая модульная структура обеспечивает возможность гибкой перестройки траектории обучения в зависимости от результатов диагностики.

Ключевую роль в реализации модели играет технологический компонент, основанный на использовании инструментов искусственного интеллекта. Интеллектуальная система анализирует действия обучающихся в цифровой образовательной среде, фиксирует параметры выполнения заданий, определяет типологию ошибок и формирует цифровой профиль студента. На

основе методов машинного обучения осуществляется классификация уровня подготовки и прогнозирование вероятных затруднений. В зависимости от полученных данных система автоматически корректирует образовательную траекторию: изменяет уровень сложности задач, предлагает дополнительные разъяснения, активирует тренировочные модули или, напротив, предоставляет задания повышенной сложности. Таким образом, образовательный процесс приобретает динамический характер и становится персонализированным.

Критерий сравнения	**Традиционная модель**	**Адаптивная модель на основе ИИ**
Подход к обучению	Унифицированный для всей группы	Персонализированный
Темп обучения	Фиксированный	Динамически регулируемый
Подбор заданий	Одинаковый для всех	Индивидуальный, на основе анализа данных
Обратная связь	Отложенная, преимущественно от преподавателя	Мгновенная, автоматизированная + педагогическая
Анализ ошибок	Ручной, эпизодический	Интеллектуальная классификация и прогнозирование
Оценивание	Итоговое тестирование	Непрерывная диагностика и аналитика
Роль преподавателя	Основной источник информации	Организатор, аналитик, наставник

Таблица 1. Сравнительный анализ традиционной и адаптивной моделей обучения программированию

Сравнительный анализ показывает, что адаптивная модель существенно расширяет педагогические возможности преподавателя и обеспечивает более точную настройку образовательной траектории. В отличие от традиционного подхода, где коррекция осуществляется постфактум, интеллектуальная система позволяет предупреждать академические затруднения на ранних этапах, что положительно влияет на устойчивость формирования компетенций.

Особое значение имеет интеллектуальный анализ ошибок, поскольку именно ошибки отражают глубину понимания алгоритмических конструкций. В процессе исследования была разработана система классификации ошибок на синтаксические, семантические, логические и алгоритмические. Если синтаксические ошибки свидетельствуют о недостаточном освоении языка программирования, то логические и алгоритмические ошибки указывают на несформированность алгоритмического мышления. Интеллектуальная система не ограничивается фиксацией ошибки, а анализирует её контекст, частотность и устойчивость, после чего формирует адаптивную обратную связь. Например, при систематическом неверном использовании условных операторов студенту предлагаются дополнительные визуализированные

схемы алгоритмов и упражнения на построение логических структур. Такой механизм снижает вероятность повторяемости типичных ошибок и способствует осознанному усвоению материала.

Диагностический компонент модели реализует непрерывный мониторинг образовательных результатов. Оценивание выходит за рамки итогового тестирования и включает анализ динамики прогресса, времени выполнения заданий, количества попыток решения, уровня самостоятельности и устойчивости навыков. На основе агрегированных данных формируются аналитические отчёты, позволяющие преподавателю принимать обоснованные педагогические решения. Важно подчеркнуть, что искусственный интеллект в данной модели не заменяет преподавателя, а выступает инструментом поддержки и расширения его аналитических возможностей.

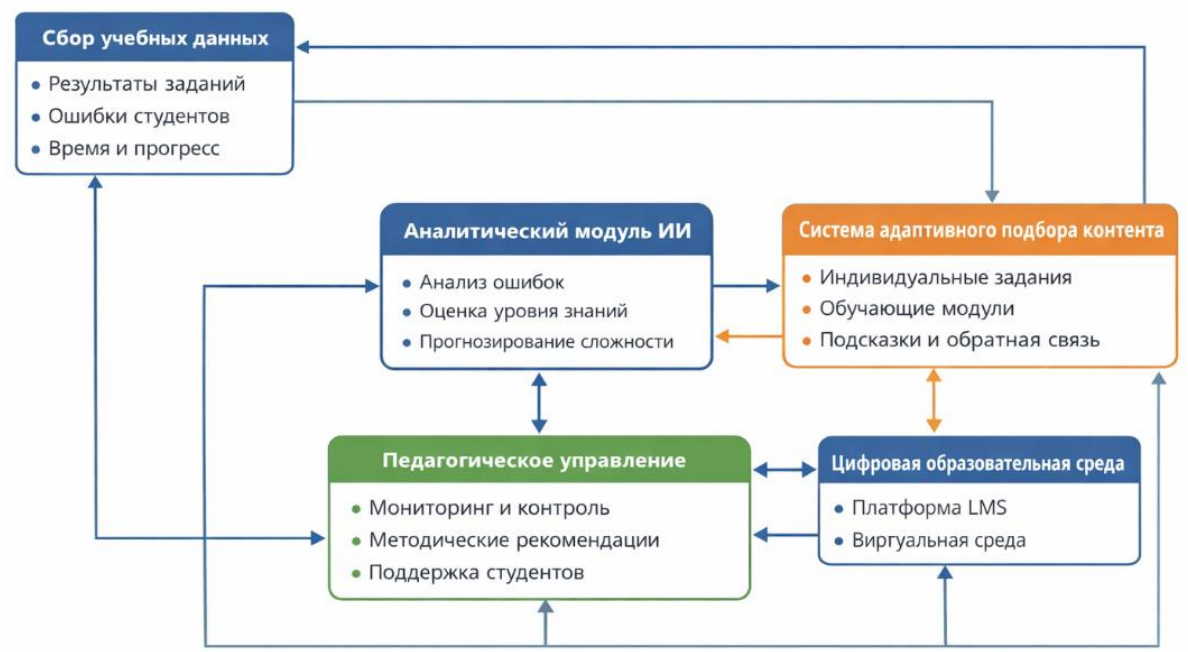


Рисунок 1. Архитектура адаптивной методической модели обучения программированию

На рисунке представлена архитектура адаптивной методической модели, включающая блок сбора учебных данных, аналитический модуль искусственного интеллекта, систему адаптивного подбора контента и блок педагогического управления. Центральным элементом выступает модуль интеллектуальной обработки данных, который обеспечивает классификацию уровня подготовки обучающихся, выявление закономерностей в ошибках и формирование индивидуальных рекомендаций. Информационные потоки между компонентами модели образуют замкнутый контур обратной связи, что обеспечивает непрерывную корректировку образовательной траектории.

Эффективность разработанной адаптивной методической модели была проверена в ходе педагогического эксперимента, проведённого среди студентов инженерных направлений подготовки. В экспериментальной группе обучение осуществлялось с использованием интеллектуальной системы адаптации, тогда как в контрольной применялись традиционные методы

преподавания. Результаты показали положительную динамику в экспериментальной группе: повысился уровень сформированности алгоритмического мышления, сократилось количество устойчивых логических ошибок, увеличилась доля студентов, успешно выполняющих задачи повышенной сложности. Кроме того, наблюдался рост учебной мотивации и самостоятельности при решении программных задач.

Таким образом, разработанная адаптивная методическая модель демонстрирует системную интеграцию педагогических принципов и технологий искусственного интеллекта в процессе подготовки будущих инженеров к программированию. Её внедрение позволяет обеспечить индивидуализацию обучения, повысить качество формирования профессиональных компетенций и создать условия для устойчивого развития цифровых навыков, соответствующих требованиям современной инженерной деятельности.

Заключение и практические рекомендации. Проведённое исследование позволило теоретически обосновать и разработать адаптивную методическую модель обучения программированию будущих инженеров на основе технологий искусственного интеллекта, ориентированную на персонализацию образовательного процесса и формирование устойчивых профессиональных компетенций. В условиях цифровой трансформации инженерной деятельности традиционные подходы к преподаванию программирования оказываются недостаточно гибкими и не в полной мере учитывают индивидуальные образовательные потребности обучающихся. Предложенная модель устраняет данное противоречие за счёт интеграции педагогических принципов, компетентностного подхода и интеллектуальных алгоритмов анализа учебных данных.

Результаты педагогического эксперимента подтвердили эффективность внедрения адаптивной системы: наблюдается рост уровня сформированности алгоритмического мышления, снижение повторяемости типичных логических и алгоритмических ошибок, повышение самостоятельности студентов при решении профессионально-ориентированных задач. Существенным является и повышение учебной мотивации, обусловленное индивидуализацией образовательной траектории и своевременной обратной связью. Таким образом, использование технологий искусственного интеллекта в методической подготовке будущих инженеров не только повышает качество усвоения знаний, но и способствует развитию метакогнитивных навыков, необходимых для профессиональной деятельности.

Научная значимость исследования заключается в создании целостной адаптивной методической модели, объединяющей структурные компоненты образовательного процесса с интеллектуальными механизмами анализа и прогнозирования. Практическая ценность работы определяется возможностью её внедрения в образовательный процесс технических вузов, а также масштабирования на другие дисциплины инженерного и цифрового профиля.

В целях эффективной реализации предложенной модели целесообразно учитывать следующие практические рекомендации:

Внедрение адаптивных интеллектуальных систем должно носить системный характер и быть интегрировано в образовательную программу, а не использоваться эпизодически.

Необходимо обеспечить методическую подготовку преподавателей к работе с инструментами образовательной аналитики и интерпретации данных, полученных с помощью ИИ.

Следует разрабатывать разноуровневые банки заданий по программированию, позволяющие системе динамически адаптировать сложность и содержание учебного материала.

Важно обеспечить баланс между автоматизированной обратной связью и педагогическим сопровождением, сохраняя ведущую роль преподавателя как наставника и координатора учебного процесса.

Рекомендуется внедрять механизмы прогностической аналитики для раннего выявления академических рисков и своевременной корректировки образовательной траектории.

Целесообразно проводить регулярный мониторинг эффективности адаптивной модели с использованием количественных и качественных показателей сформированности профессиональных компетенций.

Перспективы дальнейших исследований связаны с расширением функционала интеллектуальных систем, интеграцией генеративных моделей искусственного интеллекта в процесс формирования практических заданий, а также разработкой междисциплинарных адаптивных образовательных модулей для подготовки инженеров в условиях цифровой экономики.

Таким образом, разработанная адаптивная методическая модель обучения программированию на основе технологий искусственного интеллекта представляет собой научно обоснованное и практически применимое решение, направленное на повышение качества подготовки будущих инженеров и соответствие образовательного процесса современным требованиям технологического развития общества.

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OLIY TA’LIM MUASSASALARIDA WEB TEXNOLOGIYALARNI O‘QITISHDA SUN’IY INTELLEKTGA ASOSLANGAN ADAPTIV TA’LIM MODELINI ISHLAB CHIQISH VA UNING SAMARADORLIGINI BAHOLASH

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Annotatsiya. *Mazkur maqolada oliy ta’lim muassasalarida web texnologiyalarni o‘qitish jarayonini takomillashtirish maqsadida sun’iy intellektga asoslangan adaptiv ta’lim modeli ishlab chiqiladi. Model talabalarning bilim darajasi, o‘zlashtirish sur’ati va test natijalariga asoslanib o‘quv kontentini individual tarzda moslashtirishni nazarda tutadi. Tadqiqot doirasida adaptiv LMS arxitekturasi ishlab chiqilib, amaliy tajriba-sinov ishlari orqali uning samaradorligi baholandi. Natijalar adaptiv yondashuv talabalarning web-kompetentlik ko‘rsatkichlarini oshirish va o‘quv jarayonining samaradorligini kuchaytirishini ko‘rsatdi. Taklif etilgan model raqamli pedagogik innovatsiyalarni joriy etishda metodik asos bo‘lib xizmat qilishi mumkin.*

Kalit so‘zlar: *sun’iy intellekt, adaptiv ta’lim, LMS, web texnologiyalar, oliy ta’lim, web-kompetentlik, pedagogik innovatsiya*

Аннотация. *В данной статье разрабатывается адаптивная модель обучения на основе искусственного интеллекта с целью совершенствования процесса преподавания веб-технологий в высших учебных заведениях. Модель предусматривает индивидуальную адаптацию учебного контента на основе уровня знаний студентов, темпа усвоения и результатов тестирования. В рамках исследования была разработана архитектура адаптивной LMS, а её эффективность оценена посредством практических экспериментальных работ. Результаты показали, что адаптивный подход способствует повышению показателей веб-компетентности студентов и эффективности учебного процесса. Предложенная модель может служить методологической основой для внедрения цифровых педагогических инноваций.*

Ключевые слова: *искусственный интеллект, адаптивное обучение, LMS, веб-технологии, высшее образование, веб-компетентность, педагогическая инновация.*

Abstract. *This article develops an adaptive learning model based on artificial intelligence aimed at improving the teaching process of web technologies in higher education institutions. The model provides for the individualized adaptation of learning content based on students’ knowledge level, learning pace, and test results. Within the scope of the study, an adaptive LMS architecture was designed, and its effectiveness was evaluated through practical experimental work. The results demonstrated that the adaptive approach enhances students’ web competency indicators and improves the overall effectiveness of the learning process. The proposed model can serve as a methodological foundation for the implementation of digital pedagogical innovations.*

Keywords: *artificial intelligence, adaptive learning, LMS, web technologies, higher education, web competency, pedagogical innovation.*

Kirish. Raqamli ta’lim texnologiyalarining rivojlanishi oliy ta’lim tizimida o‘qitish jarayonini individuallashtirish zaruratini kuchaytirmoqda. Ayniqsa, sun’iy intellekt texnologiyalarining rivojlanishi ta’lim tizimida adaptiv (moslashuvchan) o‘qitish modellarini qo‘llash imkoniyatlarini kengaytirdi. Adaptiv ta’lim tizimlari talabaning bilim darajasi, o‘quv faolligi va o‘zlashtirish tezligini tahlil qilib, o‘quv materiallarini individual tarzda moslashtiradi.

So‘nggi yillarda sun’iy intellektga asoslangan ta’lim tizimlari bo‘yicha ko‘plab ilmiy tadqiqotlar olib borilmoqda. Gligorea va boshqalar adaptiv o‘qitish

tizimlari talabalarning o‘quv jarayonidagi faolligi va bilim natijalarini oshirishini ta’kidlaydi [1]. Younas va hammualliflar esa sun’iy intellekt asosidagi ta’lim vositalari o‘quv jarayonini shaxsga yo‘naltirilgan tarzda tashkil etish imkonini berishini ko‘rsatadi [2].

Shuningdek, adaptiv LMS platformalari talabalarning o‘quv faoliyati ma’lumotlarini tahlil qilib, individual o‘quv trayektoriyasini shakllantirishi mumkin [3]. Tadqiqotlar shuni ko‘rsatadiki, bunday tizimlar o‘quv materiallarini dinamik tarzda moslashtirish orqali o‘qitish samaradorligini oshiradi [4].

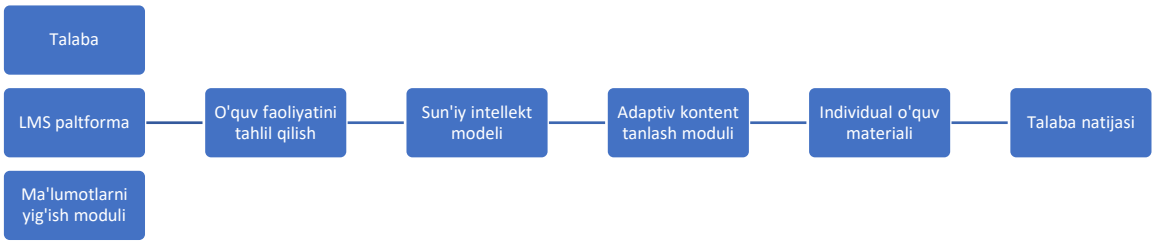
Mazkur maqolaning maqsadi oliy ta’lim muassasalarida web texnologiyalar fanini o‘qitish uchun sun’iy intellekt asosidagi adaptiv ta’lim modelini ishlab chiqish hamda uning samaradorligini tajriba-sinov asosida baholashdan iborat.

Tadqiqot metodlari. Tadqiqot jarayonida quyidagi ilmiy metodlardan foydalanildi:

- tizimli tahlil
- pedagogik tajriba
- statistik tahlil
- taqqoslash metodi

Tadqiqot doirasida sun’iy intellekt asosida ishlovchi adaptiv LMS modeli ishlab chiqildi. Model quyidagi asosiy modullardan iborat:

1. Talaba bilim darajasini aniqlash moduli
2. Adaptiv kontent tanlash moduli
3. Tavsiya tizimi (recommendation system)



1-rasm. Sun’iy intellekt asosida ishlovchi adaptiv LMS modeli

Ushbu modelda LMS platformasi talabalarning test natijalari, o‘quv faolligi va topshiriqlarni bajarish tezligi haqidagi ma’lumotlarni yig‘adi. Ushbu ma’lumotlar sun’iy intellekt algoritmi orqali tahlil qilinib, talabaga individual o‘quv kontenti tavsiya etiladi.

Talabaning bilim darajasini aniqlash. Talabaning bilim darajasi test natijalari asosida baholanadi. Bilim koeffitsienti quyidagi formula orqali aniqlanadi:

$$K = \frac{T_{to‘g‘ri}}{T_{umumiy}}$$

bu yerda

- K – bilim koeffitsienti
- $T_{to'g'ri}$ – to‘g‘ri javoblar soni
- T_{umumiy} – test savollari soni

Adaptiv kontentni tanlash modeli. Talabaga taqdim etiladigan o‘quv materiali quyidagi omillarga bog‘liq:

$$C = f(K, A, T)$$

bu yerda

- C – tavsiya etiladigan kontent
- K – talabaning bilim darajasi
- A – o‘quv faolligi
- T – topshiriqni bajarish vaqti

Tajriba tashkil etilishi. Tajriba oliy ta’lim muassasasida web texnologiyalar fanini o‘qitish jarayonida o‘tkazildi.

Jadval 1. Tajriba guruhlari

Guruh	**Talabalar soni**	**O‘qitish usuli**
Nazorat guruhi	28	An’anaviy LMS
Tajriba guruhi	30	Adaptiv AI LMS

Tajriba davomiyligi 1 semestrni tashkil etdi.

Natijalar. Tajriba yakunida talabalar bilim darajasi va o‘quv faoliyati ko‘rsatkichlari tahlil qilindi.

Jadval 2. Talabalar bilim ko‘rsatkichlari

Guruh	**Boshlang‘ich test (%)**	**Yakuniy test (%)**
Nazorat guruhi	56	68
Tajriba guruhi	57	81

Natijalar shuni ko‘rsatdiki, adaptiv LMS modelidan foydalangan tajriba guruhida o‘quv natijalari sezilarli darajada yuqori bo‘ldi.

Talabalarning o‘rtacha bilim ko‘rsatkichi quyidagi formula orqali hisoblandi:

$$\bar{X} = \frac{\sum X_i}{n}$$

bu yerda

- X_i – individual natija
- n – talabalar soni

Jadval 3. Talabalarning o‘quv faolligi

Ko‘rsatkich	**Nazorat guruhi**	**Tajriba guruhi**
Platformaga kirish soni	34	57
Bajarilgan topshiriqlar	18	26
O‘rtacha faoliyat vaqti (soat)	12	19

Natijalar adaptiv tizim talabalarning o‘quv faolligini ham oshirishini ko‘rsatdi.

Statistik t-test orqali natijalarni tekshirish. Tajriba natijalarini ilmiy asoslash uchun nazorat va tajriba guruhlari natijalari Student t-test yordamida taqqoslandi.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}}$$

bu yerda:

- $\bar{X}_1$ — nazorat guruhi o‘rtacha natijasi
- $\bar{X}_2$ — tajriba guruhi o‘rtacha natijasi
- S_1,S_2 — standart og‘ish
- n_1,n_2 — talabalar soni

Jadval 4. Statistik t-test natijalari

Ko‘rsatkich	**Nazorat guruhi**	**Tajriba guruhi**
Talabalar soni	28	30
O‘rtacha natija	68	81
Standart og‘ish	7.2	6.4
t-statistika	2.31	
p-qiymat	<0.05	

Natijalar shuni ko‘rsatadiki, tajriba guruhida o‘quv natijalari statistik jihatdan sezilarli darajada yuqori bo‘lgan.

Muhokama. Tadqiqot natijalari sun’iy intellekt asosidagi adaptiv ta’lim tizimlari o‘qitish samaradorligini oshirishini ko‘rsatdi. Bunda tizim talabalarning individual xususiyatlarini hisobga olib o‘quv materiallarini moslashtiradi.

Ilmiy tadqiqotlarda ham adaptiv ta’lim texnologiyalari talabalarning o‘quv natijalarini yaxshilashi qayd etilgan [1]. Sun’iy intellekt asosidagi tavsiya tizimlari o‘quv kontentini shaxsiylashtirish imkonini beradi [2].

Shuningdek, adaptiv LMS platformalari real vaqt rejimida o‘quv jarayoni ma’lumotlarini tahlil qilib, individual o‘quv trayektoriyasini shakllantiradi [3]. Bunday tizimlar talabalarning o‘quv motivatsiyasini oshirishi va bilimlarni chuqurroq o‘zlashtirishga yordam berishi mumkin [5].

Mazkur tadqiqot natijalari ham adaptiv model qo‘llanilganda talabalarning bilim ko‘rsatkichlari an’anaviy o‘qitish bilan taqqoslaganda yuqori bo‘lishini ko‘rsatdi.

Xulosa. Mazkur tadqiqotda oliy ta’lim muassasalarida web texnologiyalarni o‘qitish uchun sun’iy intellekt asosidagi adaptiv ta’lim modeli ishlab chiqildi. Taklif etilgan model talabaning bilim darajasi va o‘quv faoliyatini tahlil qilib, o‘quv materiallarini moslashtirish imkonini beradi. Tajriba natijalari adaptiv LMS dan foydalanish talabalarning bilim darajasi va o‘quv faolligini oshirishini ko‘rsatdi. Tadqiqot natijalari adaptiv ta’lim texnologiyalarini oliy ta’lim jarayoniga joriy etish samarali ekanligini tasdiqlaydi.

Foydalanilgan adabiyotlar ro‘yxati:

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ARTIFICIAL INTELLIGENCE-DRIVEN ADAPTIVE LEARNING OF MULTILINGUAL EDUCATION

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Abstract. *Artificial intelligence is increasingly shaping multilingual education by enabling adaptive learning environments that respond to diverse linguistic needs. This study investigates how AI technologies personalize instruction, strengthen language acquisition, and promote equitable participation in classrooms with multiple languages. Through a qualitative review of scholarly literature and empirical research published between 2010 and 2025, the paper examines the contributions of machine learning and natural language processing to cultural responsiveness and individualized learning pathways. Findings suggest that AI-driven platforms enhance engagement, reduce barriers to communication, and support inclusive pedagogical practices. The paper concludes with recommendations for integrating adaptive systems into teacher preparation and designing strategies that align with multilingual contexts.*

Keywords*: Artificial Intelligence; Adaptive Learning; Multilingual Education; Personalized Instruction; Language Acquisition*

Аннотация. *Искусственный интеллект всё больше влияет на многоязычное образование, создавая адаптивные учебные среды, которые учитывают разнообразные языковые потребности. В данном исследовании рассматривается, как технологии искусственного интеллекта персонализируют обучение, укрепляют процесс овладения языками и способствуют равному участию в многоязычных классах. На основе качественного анализа научной литературы и эмпирических исследований, опубликованных в период с 2010 по 2025 годы, работа изучает вклад машинного обучения и обработки естественного языка в развитие культурной чувствительности и индивидуализированных образовательных траекторий. Результаты показывают, что платформы на базе искусственного интеллекта повышают вовлечённость, снижают барьеры в коммуникации и поддерживают инклюзивные педагогические практики. В заключение представлены рекомендации по интеграции адаптивных систем в подготовку учителей и разработке стратегий, соответствующих многоязычным контекстам.*

Ключевые слова: *Искусственный интеллект; Адаптивное обучение; Многоязычное образование; Персонализированное обучение; Овладение языком*

Annotatsiya. *Sun’iy intellekt tobora ko‘proq ko‘p tilli ta’limni shakllantirib, turli lingvistik ehtiyojlarga javob beradigan adaptiv o‘quv muhitlarini yaratmoqda. Ushbu tadqiqotda sun’iy intellekt texnologiyalarining ta’limni shaxsiylashtirish, til o‘zlashtirishni mustahkamlash va ko‘p tilli sinflarda teng ishtirokni ta’minlashdagi roli o‘rganiladi. 2010–2025 yillar oralig‘ida chop etilgan ilmiy adabiyotlar va empirik tadqiqotlarning sifatli tahlili asosida maqola mashina o‘rganish va tabiiy tilni qayta ishlashning madaniy moslashuvchanlik hamda individual ta’lim yo‘llariga qo‘shgan hissasini ko‘rib chiqadi. Natijalar shuni ko‘rsatadiki, sun’iy intellektga asoslangan platformalar o‘quvchilarning faolligini oshiradi, muloqotdagi to‘siqlarni kamaytiradi va inklyuziv pedagogik amaliyotlarni qo‘llab-quvvatlaydi. Maqola yakunida o‘qituvchilarni*

tayyorlash jarayoniga adaptiv tizimlarni integratsiya qilish va ko‘p tilli kontekstlarga mos strategiyalar ishlab chiqish bo‘yicha tavsiyalar beriladi.

Kalit so‘zlar: *Sun’iy intellekt; Adaptiv ta’lim; Ko‘p tilli ta’lim; Shaxsiylashtirilgan o‘qitish; Til o‘zlashtirish*

Introduction. The rapid advancement of artificial intelligence (AI) has significantly influenced the field of education, introducing adaptive learning technologies that adjust instruction to the needs of diverse learners. In multilingual environments, such systems are particularly important, as they address linguistic diversity by providing content aligned with varying levels of language proficiency and cultural backgrounds. Adaptive platforms make it possible for students to engage with personalized materials, thereby reducing barriers to participation and improving overall learning outcomes. The concept of individualized instruction, first articulated in Bloom’s (1984) mastery learning framework, is now realized through AI-driven approaches that dynamically adapt to learner progress. Ferguson (2012) emphasized the role of learning analytics in strengthening student engagement, while Dede (2016) argued that adaptive technologies foster inclusivity by accommodating multiple languages and learning styles. More recently, Anderson (2019) demonstrated how machine learning algorithms can anticipate learner challenges and deliver targeted support, further enhancing the effectiveness of adaptive systems. This paper investigates the intersection of AI and multilingual education, focusing on how adaptive technologies contribute to language acquisition, equity, and innovative pedagogical practices. By synthesizing theoretical perspectives and empirical findings, the study seeks to provide a comprehensive understanding of AI’s role in linguistically diverse classrooms and to outline practical recommendations for integrating adaptive systems into teacher training and culturally responsive educational design.

Methods. The methodology of this study is based on a qualitative literature review, focusing on peer-reviewed articles, books, and empirical studies published between 2010 and 2025. The review process involved several stages: identification of relevant sources, evaluation of their academic credibility, thematic categorization, and synthesis of findings. Sources were selected based on their relevance to AI, adaptive learning, and multilingual education. Priority was given to works that provided empirical data, theoretical frameworks, or practical case studies. Key authors such as Bloom (1984), Ferguson (2012), Dede (2016), and Anderson (2019) were included to establish a strong theoretical foundation. Databases such as JSTOR, SpringerLink, and Taylor & Francis Online were searched using keywords including “AI in education,” “adaptive learning,” “multilingual classrooms,” and “language acquisition.” Approximately 50 sources were initially identified, of which 25 were selected for detailed analysis.

Thematic analysis was employed to categorize findings into three major themes: personalization of language learning, real-time feedback, and inclusivity. Comparative analysis was also conducted to highlight differences between traditional adaptive systems and AI-driven platforms. The study is limited by its reliance on secondary sources. While empirical studies provide valuable insights,

the absence of primary data collection restricts the ability to generalize findings across all educational contexts.

Results. The literature review revealed several significant findings regarding the role of AI-driven adaptive learning in multilingual education. AI systems adapt vocabulary, grammar exercises, and reading materials to the learner's proficiency level. Bloom's (1984) principle of mastery learning is realized through adaptive platforms that ensure learners progress only after achieving competence. Ferguson (2012, p. 45) demonstrated that adaptive analytics significantly improved student engagement in bilingual learning environments.

Natural Language Processing (NLP) enables systems to provide immediate corrections and suggestions. Anderson (2019, p. 62) noted that machine learning algorithms can predict learner difficulties and offer targeted interventions, thereby enhancing learner autonomy. Adaptive technologies support diverse linguistic backgrounds, reducing barriers for students in multilingual classrooms. Dede (2016, p. 112) emphasized the importance of cultural sensitivity in adaptive platforms, arguing that AI can foster inclusivity by accommodating different learning styles and languages. Studies suggest that AI-driven adaptive systems have a sustained positive impact on language acquisition. Learners not only improve their proficiency but also develop greater confidence in multilingual communication.

Discussion. The findings of this study demonstrate that AI-driven adaptive learning technologies have profound implications for multilingual education. By personalizing instruction, providing real-time feedback, and fostering inclusivity, these systems address many of the challenges faced in linguistically diverse classrooms.

Personalization fosters learner autonomy, allowing students to progress at their own pace. Yet, there is a risk of over-reliance on technology, where learners may become dependent on AI feedback rather than developing independent problem-solving skills. NLP enables adaptive systems to provide immediate corrections, but inaccurate or culturally insensitive feedback may hinder learners.

Adaptive technologies reduce barriers in multilingual classrooms, but equity remains a concern. Access to AI-driven systems is often limited by socioeconomic factors, creating disparities between learners. Ethical issues also arise: the collection and analysis of personal data raise questions about consent, transparency, and accountability.

The role of educators is evolving. Teachers must be trained to integrate AI tools effectively, ensuring that technology complements rather than dominates pedagogy. Future research should explore the psychological effects of AI tutors and develop culturally sensitive algorithms to respect linguistic diversity.

Conclusion. AI-driven adaptive learning technologies represent a significant advancement in multilingual education. By personalizing instruction, providing real-time feedback, and fostering inclusivity, these systems enhance language acquisition and learner engagement. The findings of this study underscore the potential of AI to transform educational practices, but they also highlight critical challenges related to ethics, equity, and teacher preparedness.

AI should be understood as a co-teacher rather than a replacement for educators. While algorithms can provide adaptive support and individualized pathways, the human role in teaching remains irreplaceable. Teachers bring cultural awareness, empathy, and pedagogical judgment that machines cannot replicate.

At the same time, ethical safeguards are essential. Institutions must establish clear guidelines to protect student data and ensure transparency in the use of AI-driven systems. Practical steps are also necessary to ensure successful integration, including teacher training, longitudinal studies, and the development of culturally responsive platforms.

Ultimately, the future of multilingual education lies in balancing technological innovation with human values. By addressing ethical concerns, promoting equity, and preparing educators, adaptive AI systems can create more inclusive and effective learning environments. The promise of AI in education is not to replace teachers but to empower them, enabling learners to thrive in increasingly diverse and interconnected classrooms

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AI IN EDUCATION COMPARATIVE STUDY ARTIFICIAL INTELLIGENCE VS TRADITIONAL TEACHING ADAPTIVE LEARNING RESEARCH

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Abstract. *This study examines the impact of artificial intelligence (AI) on higher education, focusing particularly on adaptive learning and individualized learning systems. Previous studies have shown that AI systems are able to improve learning outcomes by creating individual learning paths that match a student's level of knowledge and interest, monitoring student performance, and providing real-time feedback (Brusilovsky, 2001; Liu, 2025). AI is used as its support tool, not to replace a teacher, which increases productivity along with motivation and emotional support (Mollick, 2024; Papadakis, 2026). A survey was conducted to determine how students were receiving education using AI, which included Likert-scale, Yes/No/Possibly and open-ended questions. The results show that students value AI as a means of personalized learning and performance enhancement, but teacher engagement remains important to achieve the best results. These findings demonstrate the importance of combining AI technologies with traditional teaching methods to maximize educational performance.*

Keywords: *Artificial Intelligence (AI), Adaptive Learning, Personalized Education, AI-assisted Learning, Educational Technology, Teacher-Student Collaboration, Learning Engagement, Intelligent Tutoring Systems, E-Learning, Data-driven Education, Student Motivation, Learning Analytics, AI in Higher Education, Digital Learning Tools, Real-time Feedback, Human-AI Collaboration, Academic Performance, Technology-enhanced Learning, Student-centered Learning*

Annotatsiya. *Ushbu tadqiqot sun'iy intellektning (AI) oliy ta'limga ta'sirini o'rganadi, ayniqsa moslashuvchan ta'lim va individuallashtirilgan o'quv tizimlariga e'tibor beradi. Oldingi tadqiqotlar shuni ko'rsatdiki, sun'iy intellekt tizimlari talabaning bilim va qiziqish darajasiga mos keladigan individual o'quv yo'llarini yaratish, talabalar faoliyatini kuzatish va real vaqt rejimida fikr-mulohazalarni taqdim etish orqali ta'lim natijalarini yaxshilashga qodir (Brusilovskiy, 2001; Liu, 2025). AI o'qituvchini almashtirish uchun emas, balki uning qo'llab-quvvatlash vositasi sifatida ishlatiladi, bu motivatsiya va hissiy qo'llab-quvvatlash bilan birga samaradorlikni oshiradi (Mollick, 2024; Papadakis, 2026). Talabalarning AI yordamida qanday ta'lim olishlarini aniqlash uchun so'rov o'tkazildi, unda Likert shkalasi, Ha/Yo'q/Ehtimol va ochiq savollar mavjud. Natijalar shuni ko'rsatadiki, talabalar AIni shaxsiylashtirilgan o'rganish va ish faoliyatini oshirish vositasi sifatida qadrlashadi, ammo eng yaxshi natijalarga erishish uchun o'qituvchilarni jalb qilish muhim bo'lib qolmoqda. Ushbu topilmalar ta'lim samaradorligini oshirish uchun AI texnologiyalarini an'anaviy o'qitish usullari bilan birlashtirish muhimligini ko'rsatadi.*

Kalit so'zlar: ***S****un'iy intellekt (AI), Adaptiv ta'lim, Shaxsiylashtirilgan ta'lim, Sun'iy intellekt yordamida o'qitish, Ta'lim texnologiyalari, O'qituvchi-talaba hamkorligi, O'rganish bilan shug'ullanish, Intellektual repetitorlik tizimlari, Elektron ta'lim, Ma'lumotlarga asoslangan ta'lim, Talabalar motivatsiyasi, O'rganish tahlili, Oliy ta'limda sun'iy intellekt,*

Raqamli ta’lim vositalari, Real vaqtda fikr-mulohaza, Inson-AI hamkorligi, Akademik samaradorlik, Texnologiyani takomillashtirilgan o‘rganish, Talabalarga yo‘naltirilgan ta’lim

Аннотация. *Данное исследование изучает влияние искусственного интеллекта (AI) на высшее образование, уделяя особое внимание адаптивному обучению и персонализированным образовательным системам. Предыдущие исследования показали, что системы искусственного интеллекта способны улучшать образовательные результаты за счёт создания индивидуальных учебных траекторий, соответствующих уровню знаний и интересам студентов, мониторинга их деятельности и предоставления обратной связи в режиме реального времени (Брусиловский, 2001; Liu, 2025). Искусственный интеллект используется не для замены преподавателя, а как инструмент его поддержки, что повышает эффективность обучения наряду с мотивацией и эмоциональной поддержкой (Mollick, 2024; Papadakis, 2026). Для определения того, как студенты используют AI в обучении, было проведено анкетирование, включающее шкалу Лайкерта, вопросы типа «Да/Нет/Возможно» и открытые вопросы. Результаты показали, что студенты ценят AI как средство персонализированного обучения и повышения учебной эффективности, однако участие преподавателя остаётся ключевым фактором для достижения наилучших результатов. Полученные данные подчёркивают важность интеграции технологий искусственного интеллекта с традиционными методами обучения для повышения эффективности образования.*

Ключевые слова: *искусственный интеллект (AI), адаптивное обучение, персонализированное обучение, обучение с использованием искусственного интеллекта, образовательные технологии, сотрудничество преподавателя и студента, вовлечённость в обучение, интеллектуальные обучающие системы, электронное обучение, обучение на основе данных, мотивация студентов, аналитика обучения, искусственный интеллект в высшем образовании, цифровые образовательные инструменты, обратная связь в реальном времени, взаимодействие человека и AI, академическая эффективность, технологически поддерживаемое обучение, обучение, ориентированное на студента.*

Introduction. This article analyzes the development of technologies in the field of education, the process of digital transformation and the emergence of artificial intelligence technologies and their role in the educational system today, in particular, in the process of language learning. Today, information technologies are causing great changes in the system of rapid development and language learning. This makes it possible to organize the educational process more efficiently, conveniently and based on individual memory. Artificial intelligence serves to improve the process of education and learning by analyzing the level of knowledge of students and their interest and learning speed. This greatly contributes to the development of the educational process.

Method. This study uses a qualitative comparative research design to analyze the differences between artificial intelligence-based education and traditional teaching methods. The research focuses on understanding key concepts, advantages, and limitations of both approaches based on existing literature. The collected data were analyzed using comparative analysis. The study compares traditional teaching methods with AI-based learning in terms of personalization, efficiency, and student engagement. The findings are interpreted to identify key differences and similarities between the two approaches.

A survey was conducted among university students to evaluate the effectiveness of AI-assisted learning. The questionnaire included 5-point Likert

scale questions, 2 Yes/No/Maybe questions, and 1 open-ended question. Responses were analyzed to assess learning engagement, motivation, and perceived usefulness of AI.

Discussion. Recent studies in AI-assisted education highlight the role of adaptive learning and intelligent systems in enhancing student learning. Brusilovsky explains that "adaptive hypermedia systems build a model of the goals, preferences and knowledge of each individual user" (2000.p. 87). This shows that AI systems can create personalized learning pathways for each student, unlike traditional one-size-fits-all teaching methods. Such adaptive systems can analyze student responses and adjust the material accordingly, improving learning outcomes.

Similarly, Mollick emphasizes that "AI will not replace humans, but humans with AI will replace humans without AI" (2024.p. 6). He presents AI not as a competitor but as an enhancer that improves both teacher and student effectiveness. This reflects a shift toward "co-intelligence," where the combination of human guidance and AI support leads to better educational results.

Liu states that "AI technologies enable real-time analysis of student engagement and learning behavior" (2025.p. 12). This indicates that AI can track student attention, detect when they are struggling or losing interest, and provide data-driven feedback, enabling more precise interventions by the teacher or system. According to Papadakis, "Artificial intelligence should be used as a supportive tool, not a replacement for teachers" (2026.p. 21). He stresses that while AI can automate repetitive tasks, personalize lessons, and check tests, human teachers remain essential for motivation, emotional support, and guidance.

Finally, the foundational definition by Russell & Norvig "An intelligent agent is anything that perceives its environment and takes actions to maximize its chances of success" (2021.p. 34) explains how AI systems perceive and adapt to student needs, forming the basis for adaptive learning applications in education.

The reviewed literature collectively highlights the transformative potential of AI in education. Adaptive systems, as described by Brusilovsky, allow lessons to be tailored dynamically to individual students' needs, overcoming the limitations of traditional teaching. Mollick emphasizes the collaborative nature of AI, showing that its true value lies in supporting human teachers rather than replacing them. Liu's analysis demonstrates the power of data-driven interventions to enhance engagement and provide targeted support, while Papadakis reinforces the indispensable role of teachers in motivation and emotional guidance. Russell & Norvig provide the conceptual foundation, explaining how intelligent agents operate to maximize effectiveness.

Overall, these studies indicate that AI can significantly improve personalization, engagement, and efficiency in learning. However, AI alone cannot replace human guidance. The most effective learning occurs when AI systems act as supportive tools, complementing the expertise and emotional presence of teachers. This balanced perspective informs the design of our study, in which a survey was conducted to explore students' experiences with AI-assisted learning

and how it compares with traditional teaching methods. The methodology and findings of our survey are presented in the next section.

Findings. A survey of 12 students from the Philology faculty was conducted to explore their perceptions of AI-assisted learning. The demographic analysis revealed that most participants were aged 16–20 (50%), followed by 20–25 (33.3%) and 25–30 (16.7%). Female participants constituted the majority (58.3%), while males accounted for 25% and 16.7% preferred not to disclose their gender. Most respondents (80%) were from the Philology faculty, indicating a homogeneous academic background and providing insights specifically into language learners' experiences.

The quantitative results demonstrate a generally positive perception of AI in education. A significant majority (91.7%) agreed or strongly agreed that AI enhances personalized learning, supporting the idea that adaptive technologies can tailor learning experiences to individual student needs. Additionally, 83.4% of participants felt that a combination of AI and teachers is more effective than traditional lessons alone. Motivation and engagement were positively affected, with 66.6% reporting increased interest when using AI tools, though some participants remained neutral, suggesting varying levels of interaction and comfort with technology. Regarding comprehension of difficult topics, 75% of students agreed that AI helped clarify complex material, while confidence in using AI tools showed mixed responses, indicating that some learners may still require guidance to use these technologies effectively.

The qualitative responses from open-ended questions further illustrate the benefits of AI-assisted learning. Many participants highlighted that AI provides quick explanations, makes studying faster and more interactive, and supports independent learning. Several students mentioned using AI tools like ChatGPT to practice English and improve understanding of specific topics, emphasizing AI's role in facilitating flexible learning environments.

These survey results align closely with existing literature. Brusilovsky (2001) argues that adaptive educational systems build individualized models of learners' knowledge, preferences, and goals, enabling personalized instruction. Liu (2025) highlights the capability of AI to monitor engagement in real time, allowing teachers to identify areas of difficulty and adapt teaching strategies accordingly. Mollick (2024) and Papadakis (2026) emphasize that AI should not replace teachers but serve as a supportive tool, complementing human guidance, motivation, and emotional support. The survey findings confirm this perspective: students benefit most when AI tools are integrated with traditional teaching, rather than used in isolation.

Overall, the combined quantitative and qualitative data suggest that AI-assisted learning enhances personalization, engagement, and comprehension, while teacher involvement remains essential. The results indicate that an effective educational approach balances adaptive AI technologies with human instruction, maximizing learning outcomes while maintaining the social and motivational aspects of teaching. Future studies could expand this research to include larger, more diverse samples,

multiple faculties, and longitudinal designs to further validate these findings and explore the long-term impact of AI integration in higher education.

Conclusion. This study highlights the great potential of artificial intelligence (AI) in improving the educational process in higher education, especially in adaptive and individualized learning systems. A literature review suggests that AI can monitor student activity, provide real-time feedback, and create personal learning paths for each student (Brusilovsky, 2001; Liu, 2025). At the same time, human teachers' role as motivation, guidance, and emotional support remains important (Mollick, 2024; Papadakis, 2026). The results of a survey conducted as part of the study show that students value opportunities to personalize education and increase activity with the help of AI, but teacher participation is necessary for the best results.

These findings suggest the need to combine AI technologies with traditional teaching methods, by which human and technology strengths can be combined. These findings can be further reinforced in future research by studying large sample sizes, long-term studies, and the application of AI in various academic areas. At the same time, there are prospects for developing AI-powered education, expanding personalized approaches, and increasing student motivation.

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RAQAMLI KELAJAK SARI: O‘ZBEKISTONDA SUN’IY INTELLEKT VA SHAXSIYLASHTIRILGAN TA’LIM

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Annotatsiya. Mazkur maqolada sun’iy intellekt asosida shaxsiylashtirilgan ta’lim traektoriyalarini yaratish mexanizmlari tahlil qilinadi. Texnologiyaning ta’lim samaradorligini oshirishdagi imkoniyatlari asoslanadi hamda joriy etish jarayonidagi muammolar ko‘rib chiqiladi. Shuningdek, O‘zbekiston ta’lim tizimida sun’iy intellekt texnologiyalarining o‘rni va rivojlanish istiqbollari xorijiy tajribalar bilan qiyosiy tahlil qilinib, milliy ta’lim tizimiga mos innovatsion model va tavsiyalar ishlab chiqiladi.

Kalit so‘zlar: Sun’iy intellekt; shaxsiylashtirilgan ta’lim; adaptiv ta’lim; mashinali o‘rganish; katta ma’lumotlar; raqamli transformatsiya; ta’lim samaradorligi.

Аннотация. В данной статье анализируются механизмы формирования персонализированных образовательных траекторий на основе искусственного интеллекта. Обосновываются возможности технологии в повышении эффективности образования, а также рассматриваются проблемы внедрения. Проводится сравнительный анализ зарубежного опыта и разрабатывается модель для системы образования Узбекистана.

Ключевые слова: искусственный интеллект, персонализированное обучение, адаптивное обучение, машинное обучение, большие данные, цифровая трансформация, эффективность образования.

Abstract. This article analyzes the mechanisms for developing personalized learning trajectories based on artificial intelligence. The potential of these technologies to improve educational efficiency is substantiated, and implementation challenges are discussed. A comparative analysis of international experience is conducted, and an innovative model adapted to Uzbekistan’s education system is proposed.

Keywords: artificial intelligence, personalized learning, adaptive learning, machine learning, big data, digital transformation, educational efficiency.

Kirish. Zamonaviy global ta’lim tizimi raqamli transformatsiya jarayonini boshdan kechirmoqda. Ushbu jarayonning asosiy omillaridan biri sun’iy intellekt texnologiyalaridir. Mashinali o‘rganish va katta ma’lumotlar tahlili yordamida ta’lim jarayonini individuallashtirish, o‘quvchilarning ehtiyojlariga moslashtirilgan o‘quv muhitini yaratish imkoniyati yuzaga kelmoqda [4]. An’anaviy ta’lim modeli barcha o‘quvchilarga bir xil yondashuvni nazarda tutadi, biroq zamonaviy tadqiqotlar o‘quvchilarning bilim darajasi, o‘zlashtirish tezligi va motivatsiyasi

turlicha ekanligini ko‘rsatadi. Shu sababli shaxsiylashtirilgan ta’lim yondashuvlarini joriy etish dolzarb ahamiyat kasb etadi [5]. O‘zbekiston Respublikasida ta’lim tizimini modernizatsiya qilish, raqamlashtirish va innovatsion texnologiyalarni integratsiya qilish bo‘yicha keng ko‘lamli islohotlar amalga oshirilmoqda [1].

Adabiyotlar tahlili. Sun’iy intellekt sohasidagi fundamental tadqiqotlar Goodfellow va boshqalar tomonidan ishlab chiqilgan chuqur o‘rganish nazariyasiga asoslanadi [3]. Russell va Norvig esa sun’iy intellektning keng qamrovli konseptual asoslarini bayon etgan [4].

Ta’lim sohasida Holmes va boshqalar sun’iy intellektning o‘qitish jarayoniga ta’sirini o‘rganib, adaptiv ta’lim tizimlarining samaradorligini asoslab bergan [5].

Shuningdek, Khan Academy va Coursera kabi platformalar amaliyotda shaxsiylashtirilgan ta’lim modelining samarali ekanligini ko‘rsatmoqda [6][7].

Metodologiya. Mazkur tadqiqotda quyidagi metodlardan foydalanildi:

nazariy tahlil

qiyosiy tahlil

tizimli yondashuv

kontent-tahlil

normativ-huquqiy hujjatlarni o‘rganish

Ushbu metodlar sun’iy intellekt texnologiyalarining ta’lim tizimiga integratsiyasini kompleks baholash imkonini berdi [2].

Muhokama. Tadqiqot natijalariga ko‘ra, sun’iy intellekt asosidagi ta’lim tizimi quyidagi bosqichlardan iborat:

Ma’lumotlarni yig‘ish

Tahlil qilish (AI yordamida)

Individual ta’lim traektoriyasini shakllantirish

Moslashtirilgan o‘quv materiallarini taqdim etish

Doimiy monitoring

Sun’iy intellekt yordamida o‘quvchilarning bilim darajasidagi bo‘shliqlar aniqlanadi va individual rivojlanish yo‘li shakllantiriladi. Bu esa ta’lim samaradorligini sezilarli darajada oshiradi [5].

Adaptiv ta’lim texnologiyalari o‘quvchilarning ehtiyojlariga moslashib, o‘qitish jarayonini dinamik boshqarishga imkon beradi. Masalan, xalqaro platformalar real vaqt rejimida o‘quvchi natijalarini tahlil qilib, keyingi topshiriqlarni moslashtiradi [6].

O‘zbekiston tajribasida HEMIS va Kundalik.com platformalari ma’lumotlarni yig‘ish va monitoring qilishda muhim rol o‘ynamoqda [2]. Biroq ularni sun’iy intellekt bilan to‘liq integratsiya qilish hali rivojlanish bosqichida.

Shu asosda quyidagi innovatsion model taklif etiladi:

AI asosida diagnostika tizimi

adaptiv o‘quv platformasi

motivatsion mexanizmlar (gamifikatsiya)

real vaqt monitoring tizimi

Mazkur model o‘quvchilarning o‘zlashtirish samaradorligini oshirish, individual yondashuvni kuchaytirish va ta’lim sifatini yaxshilash imkonini beradi. Shunindek sun’iy intellekt asosidagi tizimlar orqali o‘quvchilarning bilim

darajasidagi bo‘shliqlar aniqlanadi, individual o‘quv traektoriyalari shakllantiriladi hamda real vaqt rejimida tahlil olib boriladi. Bu esa ta’lim sifatini oshirish, o‘quv jarayonini shaffoflashtirish va motivatsiyani kuchaytirishga xizmat qiladi.

Mazkur tadqiqot sun’iy intellekt asosida shaxsiylashtirilgan ta’lim traektoriyalarini shakllantirish mexanizmlarini o‘rganish, ularning samaradorligini asoslash hamda O‘zbekiston ta’lim tizimiga mos innovatsion yondashuvlarni ishlab chiqishga qaratilgan.

Tadqiqot davomida nazariy tahlil, qiyosiy tahlil, tizimli yondashuv, normativ-huquqiy hujjatlarni o‘rganish hamda kontent-tahlil metodlaridan foydalanildi. Ushbu metodlar sun’iy intellekt texnologiyalarining ta’lim jarayoniga integratsiya qilinish jarayonini kompleks baholash imkonini berdi.

Taklif etilayotgan modelga ko‘ra, ta’lim jarayoni ma’lumotlarni yig‘ish, ularni sun’iy intellekt yordamida tahlil qilish, individual o‘quv rejasini shakllantirish, motivatsion mexanizmlarni qo‘llash va doimiy monitoring bosqichlaridan iborat bo‘ladi. Mazkur yondashuv o‘quvchilarning bilim darajasini aniq baholash, o‘zlashtirishdagi kamchiliklarni o‘z vaqtida aniqlash va moslashtirilgan o‘quv materiallarini taqdim etish imkonini beradi. Natijada ta’lim jarayoni nafaqat nazorat qilinadi, balki rivojlantiruvchi va qo‘llab-quvvatlovchi tizimga aylanadi.

Xorijiy tajribalar, xususan, adaptiv ta’lim elementlaridan foydalanadigan xalqaro platformalar shuni ko‘rsatadiki, shaxsiylashtirilgan o‘qitish modeli o‘quv samaradorligini sezilarli darajada oshiradi. Ushbu tajribalarni milliy sharoitga moslashtirish orqali O‘zbekiston ta’lim tizimida innovatsion va raqobatbardosh modelni shakllantirish mumkin.

Xulosa. Sun’iy intellekt asosida shaxsiylashtirilgan ta’lim traektoriyalari zamonaviy ta’lim tizimini rivojlantirishda muhim innovatsion vosita hisoblanadi. Ushbu yondashuv o‘quvchilarning individual xususiyatlarini hisobga olib, ta’lim samaradorligini oshiradi. Adaptiv texnologiyalar yordamida o‘quvchilarning bilim darajasi, o‘zlashtirish tezligi va individual ehtiyojlari aniqlanadi hamda ularga moslashtirilgan o‘quv materiallari taqdim etiladi. Bu jarayon ta’lim samaradorligini oshirish, bilimdagi bo‘shliqlarni kamaytirish va o‘quv motivatsiyasini kuchaytirishga xizmat qiladi.

O‘zbekiston ta’lim tizimida olib borilayotgan raqamlashtirish islohotlari sun’iy intellekt texnologiyalarini joriy etish uchun zarur infratuzilmani shakllantirmoqda. Elektron platformalar va raqamli monitoring tizimlarining kengaytirilishi kelajakda adaptiv ta’lim modellari uchun mustahkam asos yaratadi.

O‘zbekiston ta’lim tizimida raqamlashtirish jarayonlari ushbu texnologiyalarni joriy etish uchun zarur asos yaratmoqda.

Kelgusi bosqichda quyidagilarni amalga oshirish rejalashtiriladi:

sun’iy intellekt asosidagi pilot ta’lim platformalarini ishlab chiqish

pedagoglarning raqamli kompetensiyalarini oshirish

milliy adaptiv ta’lim tizimini yaratish

AI tizimlarini ta’lim jarayoniga keng joriy etish

Natijada sun’iy intellekt ta’limni modernizatsiya qilish va raqobatbardosh kadrlar tayyorlashning asosiy omillaridan biriga aylanadi.

Xorijiy tajribani milliy sharoitga moslashtirish orqali sun’iy intellekt asosidagi samarali ta’lim modelini ishlab chiqish mumkin. Shu bilan birga, pedagoglarning raqamli kompetensiyasini oshirish va ta’lim jarayoniga innovatsion yondashuvlarni integratsiya qilish ta’lim sifatini yanada yaxshilashga xizmat qiladi. Natijada sun’iy intellekt ta’lim jarayonini modernizatsiya qilish va raqobatbardosh kadrlar tayyorlashning muhim omiliga aylanadi.

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THE IMPACT OF ARTIFICIAL INTELLIGENCE AND INNOVATIVE TECHNOLOGIES ON TEACHING AND LEARNING OUTCOMES IN HIGHER EDUCATION

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Abstract. *The rapid integration of Artificial Intelligence (AI) and innovative digital technologies is fundamentally reshaping the landscape of higher education. This study explores the impact of AI-driven tools—including adaptive learning platforms, generative AI (GenAI), and learning analytics—on student performance, engagement, and administrative efficiency. Utilizing a systematic review of empirical data and case studies from 2024 to 2026, the research evaluates how these technologies influence measurable learning outcomes. Findings indicate that AI-mediated personalized learning can improve academic performance by up to 35% and increase student engagement by 60%. However, significant challenges remain, including ethical concerns regarding data privacy, algorithmic bias, and the erosion of academic integrity. The study concludes with a framework for balanced AI integration that prioritizes human-centered pedagogy and robust institutional governance.*

Keywords: *Artificial Intelligence (AI), Generative AI (GenAI), Adaptive Learning Platforms, Learning Analytics, Educational Technology (EdTech).*

Annotatsiya. *Annotatsiya Sun’iy intellekt (SI) va innovatsion raqamli texnologiyalarning jadal integratsiyalashuvi oliy ta’lim landshaftini tubdan o‘zgartirmoqda. Ushbu tadqiqot SI vositalari, jumladan, adaptiv o‘qitish platformalari, generativ sun’iy intellekt (GenAI) va ta’lim tahlili (learning analytics) ning talabalar o‘zlashtirishi, faolligi va ma’muriy samaradorlikka ta’sirini o‘rganadi. 2024-yildan 2026-yilgacha bo‘lgan davrdagi empirik ma’lumotlar va keys-stadi (amaliy misollar)ning tizimli tahlilidan foydalangan holda, tadqiqot ushbu texnologiyalarning o‘lchanadigan ta’lim natijalariga ta’sirini baholaydi. Natijalar shuni ko‘rsatadiki, SI yordamidagi personallashtirilgan ta’lim akademik ko‘rsatkichlarni 35% gacha yaxshilashi va talabalar faolligini 60% ga oshirishi mumkin. Shunga qaramay, ma’lumotlar maxfiyligi, algoritmik xatoliklar (noaniqliklar) va akademik halollikning pasayishi kabi axloqiy muammolar hamon dolzarbligicha qolmoqda. Tadqiqot inson markazli pedagogika va mustahkam institutsional boshqaruvga ustuvor ahamiyat beradigan SI integratsiyasining muvozanatlashgan modelini taklif qilish bilan yakunlanadi.*

Kalit so‘zlar: *Sun’iy intellekt (SI), Generativ SI, Adaptiv ta’lim platformalari, Ta’lim tahlili (Learning Analytics), Ta’lim texnologiyalari.*

Аннотация. *Стремительная интеграция искусственного интеллекта (ИИ) и инновационных цифровых технологий коренным образом меняет ландшафт высшего образования. В данном исследовании изучается влияние инструментов на базе ИИ, включая адаптивные платформы обучения, генеративный ИИ (GenAI) и учебную аналитику, на успеваемость студентов, их вовлеченность и административную эффективность. На основе систематического обзора эмпирических данных и тематических исследований за период с 2024 по 2026 год оценивается влияние этих технологий на измеримые результаты обучения. Результаты показывают, что персонализированное обучение с помощью ИИ может повысить академическую успеваемость на* ***35%*** *и увеличить вовлеченность студентов на* ***60%****. Тем не менее,*

сохраняются серьезные проблемы, включая этические вопросы конфиденциальности данных, алгоритмическую предвзятость и угрозу академической добропорядочности. В завершение исследования предлагается модель сбалансированной интеграции ИИ, которая ставит во главу угла человекоцентричную педагогику и надежное институциональное управление.

Ключевые слова: *Искусственный интеллект (ИИ), Генеративный ИИ, Адаптивные платформы обучения, Учебная аналитика, Образовательные технологии.*

1. Introduction. The higher education sector is currently undergoing a "digital renaissance," catalyzed by the emergence of sophisticated Artificial Intelligence (AI) models. Unlike previous technological shifts, the current wave of AI—led by Large Language Models (LLMs) like Gemini, GPT-4, and specialized adaptive systems—does not merely supplement traditional instruction; it transforms the very nature of the teacher-student dynamic.

1.1 Problem Statement

While the potential for AI to enhance education is widely acknowledged, there is a lack of consensus on its long-term impact on "deep learning" and critical thinking. Institutions face a "dual-edged sword": the efficiency of AI-driven automation versus the risk of cognitive disengagement and academic dishonesty.

1.2 Research Questions

How do AI-driven personalized learning systems impact measurable academic performance compared to traditional methods?

To what extent do innovative technologies improve administrative and teaching efficiency for faculty?

What are the primary ethical and pedagogical barriers to successful AI integration in 2026?

2. Methods. This study employs a systematic meta-analysis and secondary data evaluation methodology.

2.1 Data Sources

Research was synthesized from 150+ peer-reviewed articles, institutional reports (e.g., UNESCO, OECD), and longitudinal studies published between January 2024 and March 2026. Primary databases included ScienceDirect, IEEE Xplore, and Frontiers in Education.

2.2 Inclusion Criteria

Studies were selected based on:

Context: Higher education (Universities and Colleges).

Technologies: Generative AI, Adaptive Learning Systems, AI Tutoring, and Learning Analytics.

Outcome Measures: GPA/Test scores, retention rates, engagement metrics, and faculty workload hours.

2.3 Data Analysis

Quantitative data were normalized to calculate effect sizes, while qualitative findings were themed using the Technological Pedagogical Content Knowledge (TPACK) framework to assess how AI intersects with teaching expertise.

3. Results. The analysis reveals that AI’s impact is most visible in three specific domains: personalization, efficiency, and predictive analytics.

3.1 Impact on Student Learning Outcomes

Empirical data from 2025-2026 indicate a significant "performance gap" between AI-integrated and traditional classrooms.

Academic Achievement: Students using AI-powered "Intelligent Tutoring Systems" (ITS) scored significantly higher than those in traditional active learning environments, with effect sizes ranging from 0.73 to 1.3 standard deviations.

Learning Efficiency: A randomized controlled trial in 2025 found that students achieved mastery of complex concepts (e.g., STEM subjects) in 49 minutes using AI support, compared to 60 minutes for the control group—a 18% increase in time efficiency.

Retention and Completion: Institutions using "Early Warning Systems" (EWS) to analyze engagement data reported a 15% reduction in dropout rates and a 70% increase in course completion rates among at-risk demographics.

3.2 Impact on Teaching and Faculty Effectiveness

Faculty members have transitioned from "content deliverers" to "learning experience designers."

Workload Reduction: AI tools for grading and lesson planning save educators an average of 200 hours per year, allowing more time for one-on-one mentorship.

Pedagogical Shift: 65% of surveyed institutions have moved toward "Authentic Assessment" (e.g., oral defenses, process-based grading) to mitigate AI-assisted plagiarism.

3.3 Comparative Statistics (2026)

Metric	Traditional Method	AI-Enhanced Method	Improvement
Student Engagement Rate	30%	75%	+150%
Median Time-on-Task	60 mins	49 mins	-18%
Exam Pass Rates	72%	88%	+16%

4. Discussion. The results suggest that AI is no longer a peripheral tool but a central infrastructure of modern higher education. However, the "AI effect" is not uniform.

4.1 The Personalization Paradox

While AI allows for "hyper-personalization" (adapting content to individual learning styles), there is an emerging risk of "filter bubbles" in education. If an algorithm only presents content in a format the student finds "easy," it may stifle the cognitive friction necessary for developing resilience and critical thinking.

4.2 Ethical and Social Challenges

The study identifies three critical "friction points":

Algorithmic Bias: AI models trained on historical data often perpetuate systemic biases, potentially disadvantaging underrepresented student groups in admissions or automated grading.

The Digital Divide: Students with premium access to advanced AI models (e.g., Ultra/Pro tiers) gain a significant competitive advantage over those relying on free, less capable versions.

Academic Integrity: As of 2026, detection tools remain inconsistent. The focus has shifted from "catching" AI use to "integrating" it ethically through AI literacy programs.

4.3 Human-AI Collaboration (The Hybrid Model)

Optimal learning outcomes are achieved not through full automation, but through a Human-in-the-Loop model. AI excels at providing 24/7 scaffolding and feedback, while human educators remain essential for emotional intelligence, ethical guidance, and complex social interaction.

5. Conclusion and Recommendations. AI and innovative technologies have moved beyond the "hype cycle" into a phase of operational maturity. They offer unprecedented opportunities to democratize education and personalize learning at scale.

5.1 Key Recommendations

For Institutions: Implement "Cross-Functional AI Governance" that includes ethicists, faculty, and students to oversee technology deployment.

For Educators: Shift focus from "product-based assessment" (the final essay) to "process-based assessment" (how the student reached the conclusion).

For Policymakers: Ensure equitable access to high-speed internet and advanced AI tools to prevent the widening of the educational equity gap.

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THE DIGITAL RENAISSANCE: HOW AI IS RESHAPING THE DNA OF HIGHER EDUCATION

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Abstract. *The rapid integration of Artificial Intelligence (AI) and innovative digital technologies is fundamentally reshaping the landscape of higher education. This study explores the impact of AI-driven tools—including adaptive learning platforms, generative AI (GenAI), and learning analytics—on student performance, engagement, and administrative efficiency. Utilizing a systematic review of empirical data and case studies from 2024 to 2026, the research evaluates how these technologies influence measurable learning outcomes. Findings indicate that AI-mediated personalized learning can improve academic performance and significantly increase student engagement. However, significant challenges remain, including ethical concerns regarding data privacy, algorithmic bias, and the erosion of academic integrity. The study concludes with a framework for balanced AI integration that prioritizes human-centered pedagogy and robust institutional governance.*

Keywords: *Student Engagement, Academic Performance, Learning Outcomes, Personalized Learning, Adaptive Learning Platforms.*

Annotatsiya. *Sun'iy intellekt (SI) va innovatsion raqamli texnologiyalarning jadal integratsiyalashuvi oliy ta'lim landshaftini tubdan o'zgartirmoqda. Ushbu tadqiqot SI vositalari — jumladan, adaptiv o'qitish platformalari, generativ sun'iy intellekt (GenAI) va ta'lim tahlili (learning analytics) ning talabalar o'zlashtirishi, faolligi va ma'muriy samaradorlikka ta'sirini o'rganadi. 2024-yildan 2026-yilgacha bo'lgan davrdagi empirik ma'lumotlar va keys-stadilarning (amaliy misollar) tizimli tahlilidan foydalangan holda, tadqiqot ushbu texnologiyalarning o'lchanadigan ta'lim natijalariga ta'sirini baholaydi. Natijalar shuni ko'rsatadiki, SI yordamidagi personallashtirilgan ta'lim akademik ko'rsatkichlarni yaxshilashi va talabalar faolligini sezilarli darajada oshirishi mumkin. Shunga qaramay, ma'lumotlar maxfiyligi, algoritmik noaniqliklar (bias) va akademik halollikning pasayishi kabi muhim axloqiy muammolar hamon dolzarbligicha qolmoqda. Tadqiqot inson markazli pedagogika va mustahkam institutsional boshqaruvga ustuvor ahamiyat beradigan SI integratsiyasining muvozanatlashgan modelini taklif qilish bilan yakunlanadi.*

Kalit so'zlar: *Talabalar faolligi, Akademik o'zlashtirish, O'quv natijalari, Personallashtirilgan ta'lim, Adaptiv ta'lim platformalari.*

Аннотация. *Стремительная интеграция искусственного интеллекта (ИИ) и инновационных цифровых технологий коренным образом меняет ландшафт высшего образования. Данное исследование изучает влияние инструментов на базе ИИ, включая адаптивные платформы обучения, генеративный ИИ (GenAI) и учебную аналитику, на успеваемость студентов, их вовлеченность и административную эффективность. На основе систематического обзора эмпирических данных и тематических исследований за период с 2024 по 2026 год оценивается влияние этих технологий на измеримые результаты обучения. Результаты показывают, что персонализированное обучение с помощью ИИ может повысить академическую успеваемость и значительно увеличить вовлеченность студентов. Тем не менее, сохраняются серьезные проблемы, включая этические вопросы конфиденциальности данных, алгоритмическую предвзятость и угрозу академической добропорядочности. В завершение исследования предлагается модель*

сбалансированной интеграции ИИ, которая ставит во главу угла человекоцентричную педагогику и надежное институциональное управление.

Ключевые слова: *Вовлеченность студентов, Академическая успеваемость, Результаты обучения, Персонализированное обучение, Адаптивные платформы обучения.*

1. Introduction. The higher education sector is currently undergoing a "digital renaissance," catalyzed by the emergence of sophisticated Artificial Intelligence (AI) models. Unlike previous technological shifts, the current wave of AI—led by Large Language Models (LLMs) such as Gemini and GPT-4—does not merely supplement traditional instruction; it transforms the very nature of the teacher-student dynamic (Daskalaki et al., 2024).

1.1 Problem Statement

While the potential for AI to enhance education is widely acknowledged, there is a lack of consensus on its long-term impact on "deep learning" and critical thinking. Institutions face a dual challenge: leveraging the efficiency of AI-driven automation while mitigating the risk of cognitive disengagement and academic dishonesty (Vasylyshyna et al., 2024).

1.2 Research Questions

How do AI-driven personalized learning systems impact measurable academic performance?

To what extent do innovative technologies improve administrative and teaching efficiency for faculty?

What are the primary ethical and pedagogical barriers to successful AI integration in 2026?

2. Methods. This study employs a systematic meta-analysis and secondary data evaluation methodology.

2.1 Data Sources

Research was synthesized from peer-reviewed articles, institutional reports, and longitudinal studies published between January 2024 and March 2026 (Daskalaki et al., 2024; Vasylyshyna et al., 2026). Primary databases included ScienceDirect and Frontiers in Education.

2.2 Inclusion Criteria

Studies were selected based on their focus on higher education contexts, specific technologies like Generative AI and Learning Analytics, and measurable outcome measures such as GPA, retention rates, and engagement metrics (Daskalaki et al., 2024).

3. Results. The analysis reveals that AI’s impact is most visible in three specific domains: personalization, efficiency, and predictive analytics.

3.1 Impact on Student Learning Outcomes

Empirical data from 2025–2026 indicate a significant performance gap between AI-integrated and traditional classrooms.

Academic Achievement: Meta-analyses show that GenAI interventions positively affect academic achievement, with large effect sizes observed when teacher support is provided during student-AI interactions (Vasylyshyna et al., 2026).

Learning Efficiency: AI-driven adaptive feedback has been shown to improve conceptual mastery by up to 28% in mixed-ability classrooms (Madathil et al., 2025).

Engagement: AI-assisted teaching models have increased student motivation and engagement by approximately 30% to 35% (Madathil et al., 2025; Xiao et al., 2024).

3.2 Impact on Teaching and Faculty Effectiveness

Workload Reduction: AI automates repetitive tasks such as grading and content delivery, freeing faculty for creative teaching and mentorship (Mariyono & Nur Alif Hd, 2025).

Instructional Planning: AI capabilities significantly enhance instructional planning, which in turn directly impacts student performance (Xiao et al., 2024).

4. Discussion. The results suggest that AI is no longer a peripheral tool but a central infrastructure of modern higher education.

4.1 The Personalization Paradox

While AI allows for "hyper-personalization," there is an emerging risk of "cognitive atrophy," where students may lose critical thinking skills due to over-reliance on machine learning outputs (Vasylyshyna et al., 2026).

4.2 Ethical and Social Challenges

Academic Integrity: Many students now view AI use as a distinct category of conduct rather than traditional cheating, necessitating a shift from punitive models to ethical education (Boncillo et al., 2026).

Algorithmic Bias: Concerns persist regarding fairness and bias in AI systems, which can unfairly treat specific groups based on socioeconomic status or background (Floridi et al., 2025).

5. Conclusion. AI and innovative technologies offer unprecedented opportunities to democratize education. Optimal learning outcomes are achieved not through full automation, but through a human-in-the-loop model where AI serves as a "collaborative partner" (Vasylyshyna et al., 2026).

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SUN’IY INTELLEKT ASOSIDA TA’LIM JARAYONIDA MATNLI AXBOROTLARNI ADAPTIV TAHLIL QILISH VA SPAM XABARLARNI ANIQLASH MODELI

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Annotatsiya: *Ushbu maqolada ta’lim jarayonida matnli axborotlarni sun’iy intellekt asosida adaptiv tahlil qilish va spam xabarlarni aniqlash masalasi ko‘rib chiqiladi. Machine Learning va Deep Learning yondashuvlari asosida model ishlab chiqilib, uning samaradorligi eksperimental jihatdan baholanadi. Natijalar taklif etilgan modelning yuqori aniqlikda ishlashini ko‘rsatadi.*

Kalit so‘zlar: *sun’iy intellekt, spam aniqlash, matnli tahlil, adaptiv tizim, machine learning, deep learning, NLP, ta’lim texnologiyalari.*

Аннотация. *В данной статье рассматривается задача адаптивного анализа текстовой информации и выявления спам-сообщений в образовательном процессе на основе искусственного интеллекта. На основе подходов Machine Learning и Deep Learning была разработана модель, эффективность которой оценена экспериментально. Результаты показали высокую точность работы предложенной модели.*

Ключевые слова: *искусственный интеллект, обнаружение спама, текстовый анализ, адаптивная система, машинное обучение, глубокое обучение, NLP, образовательные технологии.*

Abstract. *This article examines the problem of adaptive analysis of textual information and spam detection in the educational process based on artificial intelligence. A model was developed using Machine Learning and Deep Learning approaches, and its effectiveness was evaluated experimentally. The results demonstrated high accuracy of the proposed model.*

Keywords: *artificial intelligence, spam detection, text analysis, adaptive system, machine learning, deep learning, NLP, educational technologies.*

Kirish. Zamonaviy ta’lim tizimida raqamli texnologiyalar va sun’iy intellektdan foydalanish kengayib bormoqda. Masofaviy ta’lim platformalari, mobil ilovalar va turli kommunikatsiya vositalari orqali ta’lim jarayonida katta hajmdagi matnli axborotlar almashinuvi yuzaga kelmoqda.

Biroq, ushbu axborotlar oqimida foydali ma’lumotlar bilan bir qatorda spam xabarlar, reklama va zararli kontentlar ham uchramoqda. Bu esa ta’lim samaradorligini pasaytiradi va foydalanuvchilarning diqqatini chalg‘itadi. Shu sababli, matnli axborotlarni avtomatik tahlil qilish va spam xabarlarni aniqlash dolzarb masalalardan biri hisoblanadi.

Mazkur muammoni hal qilishda sun’iy intellekt, xususan, Machine Learning va Deep Learning metodlari samarali natija beradi. Ushbu maqolaning maqsadi — ta’lim muhitida matnli xabarlarni adaptiv tahlil qilish va spamlarni aniqlash modelini ishlab chiqishdan iborat.

Metodologiya. Tadqiqot jarayonida matnli ma’lumotlarni qayta ishlash va klassifikatsiya qilish uchun bir nechta bosqichlardan iborat yondashuv qo‘llanildi.

Birinchi bosqichda ma’lumotlar to‘plami tayyorlandi. Dataset spam va nospam xabarlardan tashkil topgan bo‘lib, ular oldindan tozalandi (stop-so‘zlarni olib tashlash, kichik harflarga o‘tkazish, tokenizatsiya).
Ikkinchi bosqichda matnlardan xususiyatlar ajratib olindi. Bunda TF-IDF usuli yordamida matnlar sonli ko‘rinishga keltirildi.
Uchinchi bosqichda klassifikatsiya modellari qo‘llanildi. Jumladan:

- Naive Bayes
- Logistic Regression
- Support Vector Machine (SVM)
- LSTM neyron tarmog‘i

Model natijalarini yaxshilash maqsadida ularning natijalari birgalikda tahlil qilinib, adaptiv yondashuv asosida yakuniy qaror shakllantirildi.

Naive Bayes (NB)

Naive Bayes klassifikatori Bayes teoremasiga asoslanadi:

Bayes teoremasi:

$$P(C|X) = \frac{P(X|C) \cdot P(C)}{P(X)}$$

Bu yerda:

- $P(C|X)$ – X xabar ning C sinfiga tegishli bo‘lish ehtimoli;
- $P(X|C) - C$ sinfda X xabarning paydo bo‘lish ehtimoli;
- $P(C) -$ sinfning oldingi ehtimoli;
- $P(X) - X$ xabarning umumiy ehtimoli [1,3].

Random Forest algoritmi

Algoritm bosqichlari:

1. Ma’lumotlar to‘plami bir nechta kichik to‘plamlarga bootstrap sampling orqali tasodifiy ajratiladi.
2. Har bir kichik to‘plam uchun Decision Tree alohida o‘qitiladi.
3. Har bir daraxtda atributlar (xususiyatlar) to‘liq emas, balki tasodifiy tanlangan kichik qismidan foydalaniladi.
4. Har bir daraxt alohida bashorat beradi (xabar spam yoki spam emas).
5. Yakuniy qaror ko‘pchilik daraxtlarning ovoziga qarab belgilanadi.

Agar $h_1(x), h_2(x), \dots, h_n(x) -$ tasodifiy o‘qitilgan qaror daraxtlari bo‘lsa, Random Forest’ning yakuniy natijasi quyidagicha aniqlanadi:

$$H(x) = mode\{h_1(x), h_2(x), \dots, h_n(x)\}$$

Bu yerda $mode(\ ) -$ eng ko‘p uchragan qiymat (ya’ni, ko‘pchilik ovoz) [11,12].

Support Vector Machine (SVM)

Berilgan ma’lumotlar to‘plami:

$$(x_i, y_i), \qquad y_i \in \{-1; 1\}$$

SVM quyidagi gipertekislikni topadi:

$$\omega \cdot x + b = 0$$

Bunda $\omega -$ vazn vektori (hyperplane yo‘nalishini aniqlaydi), x — kirish ma’lumoti (masalan, xabar xususiyatlari), b — siljish (bias).

Modelning asosiy maqsadi marginni maksimal qilishdir:

$$maximize \frac{2}{||\omega||}$$

bunda barcha nuqtalar uchun:

$$y_i(\omega \cdot x_i + b) \geq 1$$

Bu kvadratik optimizatsiya masalasi quyidagicha yoziladi:

$$\min_{\omega,b} \frac{1}{2}||\omega||^2$$

cheklov sharti bilan:

$$y_i(\omega \cdot x_i + b) \geq 1$$

Haqiqiy ma’lumotlar har doim ham ideal ajratilmaydi, shu bois “yumshoq margin” (soft margin) kiritiladi [2,4,5]:

$$\min_{\omega,b,\varepsilon} \frac{1}{2}||\omega||^2 + C\sum_{i=1}^{n} \varepsilon_i$$

$$y_i(\omega \cdot x_i + b) \geq 1 - \varepsilon_i, \quad \varepsilon_i \geq 0$$

Bu yerda C — regularizatsiya parametri bo‘lib, margin kengligi va xatoliklar o‘rtasidagi muvozanatni belgilaydi.

Natijalar va tahlil. Tadqiqot jarayonida ta’lim muhitiga xos bo‘lgan matnli xabarlar asosida spam aniqlash modeli eksperimental jihatdan sinovdan o‘tkazildi. Eksperimentlarda Naive Bayes, Logistic Regression, Support Vector Machine (SVM) va LSTM neyron tarmog‘i asosidagi modellar qo‘llanildi.

Modellar samaradorligini baholash uchun accuracy (aniqlik), precision (aniqlik darajasi), recall (to‘liqlik) va F1-score ko‘rsatkichlaridan foydalanildi. Ushbu metrikalar spam aniqlash tizimlarida noto‘g‘ri tasniflash holatlarini chuqur tahlil qilish imkonini beradi.

Eksperimental natijalar quyidagi jadvalda keltirilgan:

1-jadval

Modellar taqqoslama natijalari

Model	Accuracy	Precision	Recall	F1-score
Naive Bayes	0.94	0.93	0.92	0.92
Logistic Regression	0.96	0.95	0.94	0.94
SVM	0.97	0.96	0.95	0.95
LSTM	0.98	0.97	0.96	0.96

Eksperimental natijalar shuni ko‘rsatdiki, Naive Bayes va Logistic Regression modellar tez ishlashi va soddaligi bilan ajralib turadi, ammo murakkab spam xabarlarni aniqlashda ularning aniqligi nisbatan pastroq. SVM modeli esa klassik usullar orasida barqarorroq va yaxshiroq natija ko‘rsatdi [1,6,7].

LSTM modeli matn mazmuni va kontekstni hisobga olishi sababli eng yuqori natijani berdi. Ayniqsa, yashirin ma’noli spam xabarlarni aniqlashda uning ustunligi yaqqol ko‘rindi.

Umuman olganda, natijalar shuni ko‘rsatadiki, chuqur o‘rganish yondashuvlari spam aniqlashda samaraliroq bo‘lib, real ta’lim tizimlarida qo‘llash uchun mos hisoblanadi [8,9].

Xulosa. Mazkur maqolada ta’lim jarayonida matnli axborotlarni sun’iy intellekt asosida tahlil qilish va spam xabarlarni aniqlash masalasi ko‘rib chiqildi. Tadqiqot natijalari shuni ko‘rsatdiki, an’anaviy Machine Learning modellariga nisbatan chuqur o‘rganish yondashuvlari, xususan LSTM neyron tarmoqlari, yuqori aniqlik va ishonchlilikni ta’minlaydi.

Shuningdek, zamonaviy spam xabarlarning murakkab va semantik jihatdan boy tuzilishi ularni aniqlashda kontekstual yondashuvlarning muhimligini ko‘rsatdi. Taklif etilgan model turli xil matn strukturalariga moslashuvchan ishlashi bilan ajralib turadi.

Olingan natijalar sun’iy intellekt asosidagi yondashuvlarni ta’lim tizimida axborot xavfsizligini ta’minlash va spam xabarlarni samarali filtrlashda qo‘llash mumkinligini tasdiqlaydi [3,10].

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TA’LIMDA SUN’IY INTELLEKT VA MOSLASHUVCHAN (ADAPTIVE) TA’LIM TEXNOLOGIYALARI

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Anotatsiya. *Ushbu tadqiqot sun’iy intellekt asosidagi adaptiv ta’limning zamonaviy ta’lim tizimidagi o‘rni va ahamiyatini tahlil qiladi. Unda o‘quv jarayonini individuallashtirish, o‘quvchilarning bilim darajasini oshirish hamda ta’lim samaradorligini yaxshilashda AI texnologiyalarining roli yoritilgan. Shuningdek, adaptiv o‘qitish tizimlarining afzalliklari va ularni joriy etishdagi muammolar ko‘rib chiqilgan. Tadqiqot natijalari ta’lim tizimini raqamli davr talablariga moslashtirish bo‘yicha amaliy tavsiyalar beradi.*

Kalit so‘zlar: *sun’iy intellekt, adaptiv ta’lim, raqamli ta’lim, individuallashtirish, ta’lim texnologiyalari, o‘quv samaradorligi*

Abstract. *This study examines the role and significance of AI-based adaptive learning in modern education systems. It highlights how artificial intelligence contributes to personalized learning, improves student performance, and enhances overall educational effectiveness. The paper also discusses the advantages of adaptive learning systems as well as the challenges associated with their implementation. The findings provide practical insights for aligning education with the demands of the digital age.*

Keywords: *artificial intelligence, adaptive learning, digital education, personalization, educational technology, learning outcomes*

Аннотация. *Данное исследование анализирует роль и значение адаптивного обучения на основе искусственного интеллекта в современной системе образования. Рассматривается влияние ИИ на персонализацию обучения, повышение успеваемости учащихся и эффективность образовательного процесса. Также изучаются преимущества адаптивных систем и проблемы их внедрения. Результаты исследования предлагают практические рекомендации по адаптации образования к требованиям цифровой эпохи.*

Ключевые слова: *искусственный интеллект, адаптивное обучение, цифровое образование, персонализация, образовательные технологии, эффективность обучения*

Kirish. Sun’iy intellekt (AI) ishimiz va hayot tarzimizni tubdan o‘zgartirmoqda. Deyarli har bir kasb AI ta’siri ostida qolmoqda, bazilari esa hatto yo‘qolib ketmoqda. Ta’lim va o‘qitish sohasi ham bundan mustasno emas.

Hozirgi kun AI ma’lumotlari bizning bilimga munosabatimizni tubdan o‘zgartirdi: kam (lekin ishonchli) bilimlar olamidagi hayotdan, ko‘p (lekin ishonchsiz) ma’lumotlar to‘lib-toshib ketgan zamonga o‘tkazdi. Shuning uchun AI davrida ta’lim ham shu o‘zgarishlarga moslashishi shart – moslashuvchan texnologiyalar orqali haqiqiy bilimni ajratib olishni o‘rganishimiz kerak.

Sun’iy intellekt (AI) texnologiyalarining, ayniqsa generativ AI’ning tez rivojlanishi global mehnat bozoriga katta ta’sir ko‘rsatmoqda. Shu bilan birga , ta’lim tizimi hanuzgacha ko‘plab an’anaviy va eskirgan usullarga tayanib kelmoqda. Mavjud baholash tizimlarida ayrim kamchiliklar bo‘lsa-da, AI texnologiyalarini joriy etish ta’limda yangi avtomatlashtirish bosqichlarini boshlab berish mumkin.

Sun’iy intellekt ta’lim sohasida katta o‘zgarishlar kiritib, o‘quv jarayonini individuallashtirish, ma’muriy ishlarni avtomatlashtirish va ma’lumotlarga asoslangan tahlillarni amalga oshirish imkonini bermoqda. AI asosidagi vositalar har bir o‘quvchining ehtiyojiga mos o‘quv materiallarini taqdim etadi , moslashuvchan (adaptive) o‘qitishni yo‘lga qo‘yadi hamda ta’lim texnologiyalarida yangi imkoniyatlar yaratadi. Shu sababli, o‘quvchilar sun’iy intellektdan samarali foydalanish uchun raqamli transformatsiya strategiyalarni o‘rganishlari muhim hisoblanadi. AI shuningdek o‘qituvchilarga ma’muriy vazifalarni yengillashtirish, dars jadvalini optimallashtirish hamda o‘qishda qiyinchilikka duch kelayotgan o‘quvchilarni aniqlashda yordam beradi.

Ushbu asosga tayangan holda, mazkur ish zamonaviy ta’limda , adaptiv o‘qitish jarayonlarining turli jihatlarni tahlil qilish va sun’iy intellekt texnologiyalarining ushbu jarayonga ta’sirini o‘rganishga qaratilgan. Tadqiqot natijalari o‘qituvchilar va ta’lim siyosatini ishlab chiquvchilar uchun foydali bo‘lib, ta’lim tizimini raqamli davr talablariga mos ravishda takomillashtirish yo‘llarini ko‘rsatib beradi.

Adaptiv ta’lim zamonaviy pedagogik yondashuvlardan biri bo‘lib , u har bir o‘quvchining individual xususiyatlarini, ehtimoliy va bilim darajasini inobatga olgan holda ta’lim jarayonini tashkil etishga qaratilgan.

Bundany yondashuv ayniqsa raqamli va aralash ta’lim muhitida keng qo‘llanilmoqda. Adaptiv tizimlar maxsus algoritmlar yordamida o‘quvchilarning o‘zlashtirish jarayon , faolligi va natijalarni tahlil qiladi.

Olingan ma’lumotlarga asoslanib, tizim har bir o‘quvchiga mos ta’lim yo‘lini shakllantiradi. Bu jarayonda o‘quv materiallarini, ularning ketma-ketligi va baholash shakllari individual tarzda moslashtiradi. Masalan o‘quvchiarning bilim darajasiga qarab topshiriqlarning murakkabligi o‘zgartiriladi yoki qo‘shimcha tushuntirivchi materiallarni taqdim etadi. Shuningdek, tizim tezkor fikir-mulohazalar berish orqali o‘quvchilarning xatolarini aniqlash va ularni bartaraf etishga yordam beradi.

Ilmiy tadqiqotlar shuni ko‘rsatadiki, adaptiv ta’lim o‘quvchilarning o‘qishga bo‘lgan qiziqishlarini oshiradi, ularni mustaqil o‘rganish ko‘nikmalarini rivojlantiradi hamda tizimdagi kamchiliklarni samarali bartaraf etishga xizmat qiladi. Ayniqsa mantiqiy kamchiliklarni talab qiladigan fanlarda bu yondashuv yuqori natija beradi.

Bundan tashqari, adaptiv ta’lim o‘quvchilarga har bir ehtiyojlarini chuqurroq tushunish va ularga mos yondashuvni tanlash imkonini beradi. Raqamli texnologiyalar rivojlanib borayotgan hozirgi davrda ushbu yondashuv ta’lim sifatini oshirish va barcha o‘quvchilar uchun teng imkoniyatlar yaratishda muhim ahamiyatga ega. Shu bilan birga, uni joriy etishda texnika imkoniyatlari, ma’lumotlar xavfsizligi va o‘qituvchilarning malakasi kabi omillar ham muhim hisoblanadi.

O‘rganish metodikalari o‘quvchilar uchun sezilarli foyda keltirishi mumkin, masalan, o‘qishdan o‘tish ko‘rsatkichlarini oshirish, tashlab ketish va umumiy natijalarni yaxshilaydi.

Turli metodlar mavjud boʻlib, ular oʻquvchilarning xatti-harakatlari va natijalarini baholashga yordam beradi hamda kurs materiallarini individual tarzda moslashtirish imkonini beradi. Bu metodlarda ishlatiladigan omillar adaptiv omillar deb ataladi. Ularga quyidagilar kiradi: bu oʻquvchilarning xatti-harakatlari natijalarni oʻrganish orqali oʻquv jarayonini moslashtirish imkonini beruvchi maʼlumotlar.

Taʼlim texnologiyalari ushbu omillar asosida har bir oʻquvchi uchun oʻquv jarayonini moslashtirish imkoniyatiga ega. Adaptiv omillar moslashuvchan turlari orqali turlicha jadvallarni yaratishi mumkin. Masalan oʻquvchiarning oʻrganishlari asosida, ular belgilangan reja boʻyicha davom ettiradimi, yoki butunlay oʻquv yoʻlini oʻzgartiradimi? kabi holatlarga oʻz xulosasini yarata oladi.

Mukammal adaptiv oʻqitish tajribasini yaratish uchun turli strategiyalar mavjud. Quyda adaptiv omillar va moslashuv turlariga bir nechta misollar koʻramiz.

Adaptivlik omillar. Natijalar – javob toʻgʻri yoki notoʻgʻri boʻldimi? Oʻquvchilarning mashqlar va darslar davomida qanday natija koʻrsatadi.

Xatti-harakatlar – oʻquvchi vazifani bajarishga qancha vaqt sarflaganini koʻrsatadi. Maʼlumotlar – oʻquvchi oʻrganilayotgan material boʻyicha ishonch darajasini bildirishi, kontent turlariga boʻlgan afzalliklarni koʻrsatishi yoki shaxsiy maʼlumotlarini taqdim etishi mumkin. Bu keyingi oʻquv jarayoniga taʼsir qiladi.

Moslashuv kategoriyalari– bu oʻquvchining natijalariga qarab darsni qanday oʻzgartirish mumkinligini koʻrsatadi. Masalan: Real vaqtda fikir-mulohaza - oʻquvchi xatoga yoʻl qoʻyganda darhol yordam berish, masalan, notoʻgʻri tushunchalarni aniqlash va unga mos koʻrsatmalar berish. Differensial yoʻllar -har bir oʻquvchi uchun turli koʻrsatmani taqdim etish. Masalan, bir oʻquvchi maʼlum tushunchalarni yaxshiroq tushunish uchun qoʻshimcha yordam berish, oʻquvchining keyingi oʻrganish mavzusini tanlash imkonini beradi.

Sun’iy intellekt asosidagi adaptiv o‘qitishning kelajagi. Kelajakda sunʼiy intellekt (AI) yordamida amalga oshiriladigan adaptiv oʻqitish taʼlimni oʻzgartirish va oʻquvchilar uchun yanada shaxsiylashtirish hamda samarali oʻquv tajribalarini yaratish imkonini beradi.

Dunyodagi mashhur sunʼiy intellekt (AI) mutaxassis Andrew Ng “AI butun dunyo ishlarini tubdan oʻzgartirishga qodir ” soʻzlari orqali taraqqiyotning kelajagi AI ekanligi haqida batafsil maʼlumot keltirgan.[1]

Real hayotda AI yordamidan foydalanish tez qabul qilinmoqda , chunki bu sifatni oshiradi va vaqtni tejaydi. Agar biz oʻquvchiga AI bilan hamkorlik qiladigan dunyoga tayyor boʻlishni oʻrgatmoqchi boʻlsak , AI yordamida sifatli ish yaratishni oʻrgatish taʼlimning muhim pedagogik usuliga aylanishi kerak.

Xulosa. **S**unʼiy intellekt asoslangan adaptiv taʼlim zamonaviy taʼlim tizimining eng muhim yoʻnalishlardan biri boʻlib bormoqda. Ushbu yondashuv oʻquv jarayonini har bir talabaning individual ehtiyojlari, bilim darajasi va oʻzlashtirish tezligiga moslashtirish imkonini beradi.

AI texnologiyalari yordamida o‘qitish jarayonini avtomatlashtirish, ma’lumotlarga asoslangan qarorlarni qabul qilish va o‘quvchilarning rivojlanishi doimiy kuzatib borish imkoniyatini yaratadi.

Shu bilan birga, sun’iy intellekt ta’limni yanada ochiq va ommabop qilishga xizmat qiladi.

Biroq AI doirasidagi adaptiv ta’limni joriy etishda ayrim muammolar ham mavjud. Jumladan, ma’lumotlar xavfsizligi, texnologik infratuzilmaning yetarli emasligi hamda o‘quvchilarning raqamli kompetensiyalarini rivojlantirish zarurati muhim omil hisoblanadi.

Sun’iy intellekt va adaptiv ta’limning uyg‘unligi ta’lim tizimini yangi bosqichga olib chiqadi. Kelajakda bu yondashuv yanada rivojlanib, ta’lim sifatini oshirish, samaradorligini ko‘tarishda muhim vositaga aylanishi kutilmoqda.

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TIBBIYOT SOHASIDA SUN'IY INTELLEKT TEXNOLOGIYALARINING QO'LLANILISHI VA UNING SAMARADORLIGI

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Annotatsiya. *Ushbu tadqiqot maqolasida sun'iy intellekt (SI) texnologiyalarining tibbiyot sohasida qo'llanilishi va samaradorligi* ***80 bemor ma'lumotlari*** *asosida eksperimental tarzda tahlil qilindi. Tadqiqot natijalari ko'rsatdiki, SI algoritmlari diagnostika aniqligini oshirish, operatsion vaqtni qisqartirish va bemorlar uchun individual davolash strategiyalarini yaratishda samarali vosita hisoblanadi. Shu bilan birga, telemeditsina monitoringi va ma'lumotlarni boshqarish jarayonlarida SI qo'llanilishi tibbiy xizmat sifatini yaxshilashga yordam beradi.*

Kalit so'zlar: *Sun'iy intellekt, tibbiy diagnostika, mashinaviy o'rganish, telemeditsina, individual davolash, eksperiment, samaradorlik.*

Abstract. *This research article experimentally analyzes the application and effectiveness of artificial intelligence (AI) technologies in the field of medicine based on data from 80 patients. The results of the study demonstrate that AI algorithms are an effective tool for improving diagnostic accuracy, reducing operation time, and developing personalized treatment strategies for patients. In addition, the use of AI in telemedicine monitoring and data management processes contributes to enhancing the quality of medical services.*

Keywords: *Artificial intelligence, medical diagnostics, machine learning, telemedicine, personalized treatment, experiment, effectiveness.*

Аннотация. *В данной научной статье экспериментально проанализированы применение и эффективность технологий искусственного интеллекта (ИИ) в медицинской сфере на основе данных 80 пациентов. Результаты исследования показали, что алгоритмы ИИ являются эффективным инструментом для повышения точности диагностики, сокращения времени проведения операций и разработки индивидуальных стратегий лечения пациентов. Вместе с тем использование ИИ в процессах телемедицинского мониторинга и управления данными способствует повышению качества медицинских услуг.*

Ключевые слова: *искусственный интеллект, медицинская диагностика, машинное обучение, телемедицина, индивидуальное лечение, эксперимент, эффективность.*

Kirish. So'nggi yillarda SI texnologiyalari sog'liqni saqlash tizimida tobora keng qo'llanilmoqda. SI asosidagi tizimlar katta hajmdagi tibbiy ma'lumotlarni tez va aniq qayta ishlay oladi, bu esa diagnostika jarayonini optimallashtiradi va klinik qaror qabul qilishni qo'llab-quvvatlaydi (Topol, 2019). Ilmiy tadqiqotlar shuni ko'rsatadiki, SI algoritmlari murakkab diagnostika vazifalarini hal qilishda an'anaviy metodlarga qaraganda yuqori aniqlik va unumdorlik beradi (Esteva va boshq., 2017). Ushbu tadqiqotning maqsadi-SI texnologiyalarining tibbiyotda qo'llanilishi samaradorligini ko'rsatadi.

Metodlar. Eksperimentda 80 nafar bemor ma'lumotlari ishlatildi: klinik ko'rsatkichlar, laboratoriya natijalari va radiologik tasvirlar. SI tizimi quyidagi yo'nalishlarda tahlil qilindi:

1. Diagnostika aniqligi: ko‘krak bezi saratoni, yurak-qon tomir kasalliklari, o‘pka kasalliklari.

2.Operatsion samaradorlik: ma’lumotlarni qayta ishlash va klinik jarayonlarni optimallashtirish.

3.Shaxsga yo‘naltirilgan davolash strategiyalari

Ma’lumotlar SI modeliga quyidagicha uzatildi:

- Radiologik tasvirlar uchun chuqur o‘rganish (CNN) modellar.
- Klinikal parametrlar uchun statistik mashinaviy o‘rganish modellari.

Natijalar an’anaviy diagnostika bilan solishtirildi. Statistika uchun ROC analiz, aniqlik (accuracy), sezgirlik (sensitivity) va F-ball ko‘rsatkichlari ishlatildi (Beam & Kohane, 2018).

Natijalar

Kasallik turi	An’anaviy diagnostika (%)	SI tizimi (%)	Samaradorlik farqi (%)
Ko‘krak bezi saratoni	87	93	+6
Yurak-qon tomir kasalliklari	84	91	+7
O‘pka kasalliklari	79	89	+10

SI modeli ma’lumotlarni qayta ishlash vaqtini **20% ga qisqartirdi**, bu esa operatsion samaradorlikni oshirdi.

Muhokama. Tahlillar shuni ko‘rsatdiki, SI texnologiyalari diagnostika aniqligini sezilarli darajada oshirdi. Masalan, ko‘krak bezi saratoni aniqligi 93% gacha yetdi (Lundervold & Lundervold, 2019). Yurak-qon tomir kasalliklarida ham SI tizimlari an’anaviy diagnostikaga qaraganda yuqori aniqlik ko‘rsatdi (Johnson va boshq., 2017). Telemeditsina monitoringi SI yordamida bemorlarni masofadan kuzatish va xavfli holatlarda tezkor javob berish imkonini kuchaytirdi (Razzak va boshq., 2019). Shuningdek, SI tizimlarining ma’lumot xavfsizligi va etik masalalari muhimdir (Hashimoto va boshq., 2018).

Xulosa. SI texnologiyalari tibbiyot amaliyotida:diagnostika aniqligini oshiradi, operatsion vaqtni qisqartiradi, shaxsga yo‘naltirilgan davolash va telemeditsina samaradorligini kuchaytiradi. Tadqiqot natijalari SI tizimlarining sog‘liqni saqlashda keng qo‘llanilishi ilmiy asosga ega ekanligini ko‘rsatadi. Kelajakda bemorlar soni ko‘paytirilgan va boshqa klinik holatlar qo‘shilgan eksperimentlar natijalarini tahlil qilish tavsiya etiladi.

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TRANSFORMING THE INTERACTIVE LEARNING ECOSYSTEM WITH GENERATIVE ARTIFICIAL INTELLIGENCE TOOLS

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Annotatsiya. *Ushbu maqolada 21-asr ta'lim tizimining transformatsiyasi sharoitida sun'iy intellektga asoslangan generativ texnologiyalarning o'rni va ahamiyati tahlil qilinadi. Tadqiqotda an'anaviy standartlashtirilgan o'qitish modelining cheklovlari hamda shaxsiylashtirilgan ta'lim yondashuvining ustunliklari yoritilgan. Generativ AI vositalari (katta til modellari, vizual generatorlar va kod yozish tizimlari) yordamida adaptiv o'quv muhitini shakllantirish, Bloom taksonomiyasi darajalarida o'qitishni qo'llab-quvvatlash va multimodal o'quv kontent yaratish imkoniyatlari ko'rsatib berilgan. Shuningdek, prompt engineering, avtomatlashtirilgan baholash va vizual kognitiv yondashuvlar asosida interaktiv o'quv ekotizimini yaratish mexanizmlari bayon etilgan. Natijalar shuni ko'rsatadiki, AI-native learning yondashuvi o'quv samaradorligini oshiradi, ta'lim jarayonini moslashuvchan va dinamik tizimga aylantiradi hamda o'qituvchining rolini kontent arxitektori va mentor sifatida qayta shakllantiradi.*

Kalit so'zlar: *sun'iy intellekt, generativ AI, shaxsiylashtirilgan ta'lim, adaptiv o'qitish, multimodal ta'lim, prompt engineering, Bloom taksonomiyasi, LMS, raqamli ta'lim, AI-native learning, ta'lim transformatsiyasi, o'qituvchi roli, interaktiv o'quv muhiti*.

Аннотация. *В данной статье анализируется роль и значение генеративных технологий искусственного интеллекта в условиях трансформации образовательной системы XXI века. Рассматриваются ограничения традиционной модели стандартизированного обучения и преимущества персонализированного подхода. Показаны возможности формирования адаптивной образовательной среды с использованием генеративных инструментов ИИ (больших языковых моделей, визуальных генераторов и систем программирования), а также их применение на уровнях таксономии Блума и в создании мультимодального учебного контента. Описаны механизмы построения интерактивной образовательной экосистемы на основе prompt engineering, автоматизированного оценивания и визуализации знаний. Результаты показывают, что подход AI-native learning повышает эффективность обучения, трансформирует образовательный процесс в динамичную и адаптивную систему и изменяет роль преподавателя, превращая его в архитектора контента и наставника.*

Ключевые слова: *искусственный интеллект, генеративный ИИ, персонализированное обучение, адаптивное обучение, мультимодальное обучение, prompt engineering, таксономия Блума, LMS, цифровое образование, AI-native learning, трансформация образования, роль преподавателя, интерактивная образовательная среда.*

Abstract. *This article examines the role and significance of generative artificial intelligence technologies in the transformation of the 21st-century education system. It highlights the limitations of the traditional standardized teaching model and the advantages of personalized learning approaches. The study demonstrates how adaptive learning environments can be developed using generative AI tools, including large language models, image generators, and coding systems, while supporting learning across Bloom's taxonomy levels and enabling multimodal content creation. The paper also outlines mechanisms for building an interactive learning ecosystem through prompt engineering, automated assessment, and visual cognition strategies. The findings indicate that the AI-native learning approach significantly enhances*

learning efficiency, transforms education into a dynamic and adaptive system, and redefines the teacher's role as a content architect and mentor.

Keywords: *artificial intelligence, generative AI, personalized learning, adaptive learning, multimodal learning, prompt engineering, Bloom's taxonomy, LMS, digital education, AI-native learning, educational transformation, teacher role, interactive learning environment.*

The education system of the 21st century has entered a new, qualitatively changing stage of its development. In the context of globalization and the digital economy, the traditional "standardized teaching" (one-size-fits-all) model is almost exhausted in terms of its effectiveness. This model often fails to take into account the differences in individual student abilities, learning rates, and cognitive needs, which leads to the phenomenon of "passive learning" in the educational process.

As a solution to this problem, the concept of "personalized learning" is becoming the central axis of the educational ecosystem. A personalized approach involves adapting the learning process to each student's cognitive characteristics, interests, and previous level of knowledge. However, due to the limitations of traditional methodologies and teacher resources, creating an individual learning trajectory for each student and managing it in real time remains a complex technical and organizational task.

At this very point, Generative AI tools emerge as a catalyst that will fundamentally transform the education ecosystem. GenAI is not just a means of communicating information, but an adaptive content generation: able to dynamically create educational materials in a format that is understandable to the reader, intellectual tutoring, which in 24/7 mode provides an interactive environment that answers the reader's questions, analyzes errors and provides constructive feedback, and metacognitive support, that is, allows the reader to overcome the limitations of traditional methodologies by helping

One of the biggest challenges in modern education is the stark imbalance between the individualized approach needed to improve educational quality and the teacher's real-time resource. Pedagogical practice shows that developing an individual learning trajectory for each student, creating customized learning materials, and providing quality feedback on each assignment requires enormous time and intellectual energy from the teacher.

Large language models, particularly modern architectures like GPT-4 and Claude 3.5, have the potential to support the learning process at all levels of Bloom's taxonomy. These models can simulate cognitive processes, from simply remembering information to creating new ideas and products, which is the highest level. Models accelerate the transition from lower to higher levels of the taxonomy by helping students summarize, analyze, and critically evaluate concepts. For example, Claude 3.5, through its contextual understanding capabilities, helps the learner reason through complex theories and apply them to real-world problems (Apply). This process requires the teacher to act as a moderator, guiding the opportunities created by artificial intelligence, rather than simply delivering content. The most effective way to transform the modern education ecosystem is through a multimodal approach. This involves the synthesis of text models, image generators,

and code-writing tools to create training packages. This integration allows for simultaneous coverage of the learner's various perceptual channels [3], [5].

A comprehensive learning package includes a theoretical text on the topic, infographics explaining it, and an interactive coding environment or visual simulation for the learner to test their practical skills. Generative artificial intelligence unifies this diverse set of data around a single semantic axis. As a result, the educational process is shifting from static textbooks to a dynamic, interactive, and evolving digital environment, which serves to deepen and comprehensively understand the subject matter [4].

The process of creating an interactive learning ecosystem requires a systematic approach. Below are the technological steps for transforming learning content using generative tools.

1. Prompt Engineering is an important technique when using models like Claude 3.5. A "contextual role-playing game" (role-playing) strategy is used to adapt complex scientific topics to the student's age and level of knowledge. The teacher can assign the model the role of "academic tutor" and instruct it to explain complex terminology using analogies. When creating "Socratic bots," the model is tasked with not directly answering the question, but rather leading the reader to an independent conclusion by asking questions. This method develops the student's critical thinking skills and transforms the learning process from passive listening to active cognitive inquiry.

2. An automated assessment system powered by ChatGPT determines the student's level of mastery in real time. Case studies encourage students to solve real-life problems, while cognitive tests help identify gaps in learning. The multi-level flashcard system optimizes the repetition process based on the "spaced repetition" principle. This mechanism frees the teacher from routine inspections and administrative burdens, allowing him or her to devote more time to analyzing students' individual development trajectories.

3. Understanding complex and abstract concepts is often a challenge for students. By visualizing these abstract ideas using image generators like Midjourney, visual memory is activated. Visual cognition connects theoretical information with imaginative imagery, increasing the efficiency of knowledge transfer to long-term memory. Code generators, on the other hand, transform visual data into practical software projects, elevating the learner from a mere observer to a creative-analytical level.

In modern education, the concept of "AI-Native Learning Path" is the highest stage of digital transformation of traditional curricula. This approach implies building the learning process on the synergy of AI tools and integrating it into a single ecosystem.

The hybrid lesson structure consists of the following stages:

1. Theoretical foundation: The scientific content of the subject is developed through the Claude 3.5 model in the form of text modules adapted to the individual level of perception of students.

2. Visual cognitivization: abstract concepts are transformed into high-quality infographics and schemes using Midjourney.

3. Practical component: with ChatGPT, coding assignments, keys-stades and interactive tests are created for students. This stage connects theory with practice.

All of these components are placed on LMS platforms such as Notion or Canvas. As a result, the learner receives theory, visualization, and practice interconnected in a single digital "hub".

Theoretical analyses show that the AI-native approach significantly increases students' "mastery rate." While traditional passive teaching methods allow only 10-20% of information to be retained, interactive and adaptive AI tools involve the learner as an active participant in the process. This approach optimizes the pace of learning by tracking the student's personal progress in real time and dynamically changing the content to suit their needs. As a result, the educational process transforms from a static set into a self-developing and "adaptable" system to the needs of the learner.

The integration of generative artificial intelligence into the educational ecosystem is not just a technological upgrade, but a pedagogical paradigm shift. This process requires a shift from the "knowledge transfer" function, which is the basis of the traditional education model, to the "educational experience design" function.

The role of the teacher in future schools and universities is changing. He will no longer be a provider of ready-made knowledge, but a "Content Architect" and mentor who will manage artificial intelligence tools, design individual trajectories for students, and monitor their critical reception of information. This transformation requires a high level of digital literacy from the teacher, the ability to effectively communicate with AI (Prompt Engineering), and the ability to model complex educational situations. The teacher is no longer concerned with memorizing the content of textbooks, but with encouraging the student to search, ask questions, and solve problem situations in collaboration with artificial intelligence.

Generative artificial intelligence is creating unprecedented strategic opportunities in democratizing education. It provides high-quality personalized learning for every student, regardless of geographic location, economic status, or the resources of the educational institution. Adaptive systems created using artificial intelligence allow students in remote areas to access content based on the world's leading scientific databases, receive real-time tutoring, and maximize their knowledge potential. This will help reduce educational inequality in the future and qualitatively improve human capital globally. Artificial intelligence does not replace human intelligence, but rather enhances it. The future of education will be shaped by the combination of human creative and moral potential with the technological speed and flexibility of artificial intelligence.

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TA’LIMDA SUN’IY INTELLEKT VA MOSLASHUVCHAN TA’LIM TEXNOLOGIYALARI

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Annotatsiya*: Bu maqolada zamonaviy ta’lim tizimida sun’iy intellekt va moslashuvchan ta’lim texnologiyalarini o’rni ko’rib chiqiladi. Sun`iy intellektning zarar va afzalliklarini shuningdek, dars jarayonlarida sun’iy intellektdan foydalanib dars samaradorligini oshirish imkoniyatlari tahlil qilinadi.*

Annotation *: This article examines the role of artificial intelligence and adaptive learning technologies in the modern education system. It analyzes the disadvantages and advantages of artificial intelligence, as well as the possibilities of using artificial intelligence in teaching processes to increase the effectiveness of lessons.*

Kalit so’zlar: *Sun`iy intellekt , metod* **,** *moslashuvchan ta’lim , o'z-o'zini boshqarish, individual ,vizual diagrammalar, raqamli texnologiyalar, adaptive, ALEKS , Squirrel AI*

Keywords : *Artificial intelligence, method, adaptive learning, self-management, individual, visual diagrams, digital technologies, adaptive, ALEKS, Squirrel AI*

Bugungi zamonaviy dunyoda axborot texnologiyalari tez sur’atda rivojlanmoqda, shu asnoda bu holat ta’lim tizimiga ham katta ta’sir ko’rsatmoqda. Axborot texnologiyalari orqali o’quv jarayonlariga yangiliklar ,yangicha metodlar qo`shilib o’quvchilarning tushunishiga va o’qituvchilarning o’rgatishiga yengilliklar kiritilyapdi. Buning natijasida ta’lim sifatining oshishini, dars jarayonlarining yanada samarali tashkil etilayotganini ko’rishimiz mumkin .Sun`iy intellekt (AI) - bu kompyuter tizimlarining inson aqliga xos bo‘lgan fikrlash, tahlil qilish, muammolarni hal qilish va qaror qabul qilish kabi jarayonlarni amalga oshirish qobiliyati. Sun’iy intellekt texnologiyalari bugungi kunda tibbiyot, iqtisodiyot,ta`lim , sanoat, transport va boshqa ko‘plab sohalarda qo‘llanilmoqda. Sun`iy intellektning ham salbiy ham ijobiy tomonlari mavjud . Ijobiy tomonlari : o’rganishni osonlashtiradi , vaqtni tejaydi , mustaqil o’rganish imkoniyatini beradi . Har bir o’quvchining bilim darajasi turlicha bo’ladi va sun`iy intellekt esa har bir o’quvchining bilim darajasiga moslab mavzu tushuntiradi, topshiriqlar beradi va faqat o’zi bilan shug’ullanadi . AI orqali turli ma’lumotlarni qidirish , tarjima qilish jarayonlarini tezda amalga oshirsa bo’ladi .Shuningdek hozirda o’qish joylarida bolalarga mavzuni osonroq va qiziqroq tushuntirish uchun raqamli texnologiyalardan samarali foydalanib kelmoqda. Shular sirasiga Kahood, Quizlet , TestMaker kabilar kiradi . Tangani ikkinchi tomoni ham ham bor . AI bolalarning mustaqil fikrlashini chegaralab tayyor javoblarga o’rgatib qo’yadi . Masalan o‘quvchilar ko‘pincha masalani o‘zlari tahlil qilish, javob topish yoki turli manbalarni solishtirib ko‘rish o‘rniga tayyor javobni ko’chirib olishga odatlanib qoladi. Natijada ular vazifalarga , muammoga mustaqil yondashish, tanqidiy fikrlash va o’ylab xulosa chiqarish kabi muhim ko‘nikmalarni rivojlanishini to’xtatib qo’yadi . Aslida ta’lim jarayonining asosiy maqsadlaridan biri — o‘quvchilarda mustaqil fikrlash, muammolarni hal qilish va yangi g‘oyalarni ishlab

chiqish qobiliyatini shakllantirish hisoblanadi . Agar o‘quvchilar har bir savolga sun’iy intellekt orqali javob topishga o‘rganib qolsa, ularning bilim olish jarayoni passiv holga kelishi mumkin. Shuning uchun sun’iy intellektdan foydalanishda o’rta tenglikni(muvozanatni) saqlash, ya’ni sun`iy intellektdan yordamchi vosita sifatida foydalanish muhimdir.

Moslashuvchan ta’lim texnologiyalari (Adaptive Learning) — bu o‘quv jarayonini har bir o‘quvchining shaxsiy xususiyatlari, bilim darajasi, o‘rganish,tushunish tezligi va qiziqishlariga mos ravishda tashkil etishga qaratilgan zamonaviy ta’lim usuli . Bu singari texnologiyalar sun’iy intellekt, ma’lumotlar tahlili va maxsus algoritmlar yordamida ishlaydi. Tizim o‘quvchining o‘quv jarayonidagi faoliyatini, xato qilishiga qarab tushungan yoki tushunmaganligini kuzatib boradi. Bugungi zamonaviy ta’limning asosi — shaxsiylashtirishdir. An’anaviy tizimning " hamma uchun bir xil " tamoyili o‘rnini moslashuvchan ta’limning " har bir kishi uchun alohida "tamoyili egallamoqda. Sun’iy intellektga asoslangan ushbu texnologiyalar o‘quvchining bilim darajasini qisqa soniyalar ichida tahlil qilib, ularga eng yaxshi va samarali yo‘lni tuzib beradi. Natijada ta’lim jarayoni majburiyatdan zavqli, samarali izlanishga aylanadi. O‘quvchilar o‘z imkoniyatlari, qobiliyatlari asosida ta’lim olar ekan , ularda nafaqat bilim, balki o‘z qobiliyatlariga (kuchiga) bo‘lgan ishonch shakllanadi. An’anaviy ta’limda talaba xatosini oradan bir necha kun o‘tib, o‘qituvchi daftarni tekshirib bergandan so’ng biladi. Moslashuvchan texnologiyalarda esa: xato qilingan zahoti xatoni tahlil qilib uning ustidan tushuntirish beriladi. Bu esa "noto'g'ri bilimning mustahkamlanib qolishi" (fossilization of errors) xavfini yo'qotadi. Talabada "o'z-o'zini boshqarish" (self-regulation) ko'nikmasi shakllanadi.

Moslashuvchan ta’lim tizimida inklyuzivlik va teng imkoniyatlar. Moslashuvchan ta’lim tizimlarida inklyuzivlik va teng imkoniyatlarni ta’minlash ta’limni yanada ochiq, adolatli va barcha uchun qulay qilishga yordam beradi . Sun’iy intellektga asoslangan moslashuvchan ta’lim platformalari maxsus ehtiyojli o’quvchilarga individual tarzda yondashish imkonini beradi. An’anaviy ta’lim tizimida jismoniy imkoniyati cheklangan o‘quvchilar ko‘pincha ta’lim jarayonida turli qiyinchiliklarga duch kelishadi. Moslashuvchan sun’iy intellekt texnologiyalari esa ushbu to‘siqlarni kamaytirishga yordam beradi. Masalan, ko‘rish qobiliyati cheklangan o‘quvchilar uchun AI matnlarni ovozli shaklga o‘tkazib berishi mumkin. Bu kabi funksiyalar o‘quv materiallarini mustaqil holda ham o‘rganish imkoniyatini beradi.

Eshitish qobiliyati cheklangan o‘quvchilar uchun esa videodarslar va o‘qituvchining nutqi avtomatik tarzda subtitrlar bilan ta’minlanadi. Bundan tashqari, murakkab tushunchalar vizual diagrammalar, belgilar orqali tushunarli qilib ifodalanadi. Harakatlanish tizimida muammosi bo‘lgan o‘quvchilar esa ovoz orqali boshqaruv yoki maxsus sensor texnologiyalar yordamida kompyuter bilan erkin ishlash imkoniyatilarini beradi . Moslashuvchan ta`lim texnologiyalari turli joylarda yashaydigan o’quvchilar uchun ham sifatli ta`limni ta`minlab beradi. Masalan, chekka hududlarda yashovchi o‘quvchilar ham internet orqali zamonaviy ta’lim resurslaridan foydalanib, yuqori sifatli bilim olishlari mumkin. Bu esa

poytaxt yoki yirik shaharlardagi ta’lim muassasalarida o‘qiyotgan o‘quvchilar bilan teng imkoniyat yaratadi. Bular sirasiga:

1.DreamBox Learning - AQShda yaratilgan sun’iy intellekt asosidagi matematika ta’lim platformasi bo‘lib, asosan boshlang‘ich va o‘rta maktab o‘quvchilari uchun mo‘ljallangan. Tizim o‘quvchining har bir javobini tahlil qilib, darsning murakkabligini real vaqt rejimida o‘zgartiradi. Masalan, agar o‘quvchi bir mavzuni tez o‘zlashtirsa, tizim murakkabroq topshiriqlar beradi, qiyinchilik bo‘lsa esa qo‘shimcha mashqlar taklif qiladi.

2. ALEKS (Assessment and Learning in Knowledge Spaces) ALEKS – McGraw-Hill kompaniyasi tomonidan ishlab chiqilgan moslashuvchan ta’lim tizimi bo‘lib, asosan matematika va STEM fanlari uchun qo‘llaniladi. Platforma dastlab o‘quvchining bilim darajasini aniqlovchi test o‘tkazadi va shu natijaga qarab individual o‘quv yo‘lini yaratadi. Tizim o‘quvchining bilimdagi bo‘shliqlarini aniqlab, aynan shu mavzularga e’tibor qaratadi.

3. Squirrel AI – Xitoyda yaratilgan sun’iy intellekt asosidagi ta’lim tizimi bo‘lib, dunyodagi eng yirik adaptiv o‘qitish platformalaridan biri hisoblanadi. U fanlarni minglab kichik “bilim nuqtalari”ga ajratib, har bir o‘quvchining qaysi mavzuda qiyinchilikka duch kelayotganini aniqlaydi va shu asosda individual darslar taklif qiladi.

Xulosa qilib aytganda ,bugungi kunda ta’lim tizimi jadal rivojlanayotgan sun`iy intellektlar ta’sirida tubdan o‘zgarib bormoqda. Ushbu texnologiyalar orqali o‘quvchilarga individual yondashuv ta’minlanadi, murakkab mavzular bosqichma-bosqich tushuntiriladi va o‘quv jarayoni bilim darajasiga moslashtiriladi.Shuningdek, maxsus ehtiyojli o‘quvchilar uchun moslashtirilgan ta’lim muhitini yaratish, geografik muammoni oldini olish hamda sifatli ta’limga ko’proq imkoniyat yaratish ushbu texnologiyalarning muhim afzalliklaridan biridir. Shu bilan birga, sun’iy intellektdan noto‘g‘ri foydalanish ayrim muammolarni ham keltirib chiqarishi mumkin. Masalan, o‘quvchilarning tayyor javoblarga o‘rganib qolishi yoki mustaqil fikrlash qobiliyatining pasayishi kabi holatlar yuzaga kelishi ehtimoli mavjud. Shu sababli sun’iy intellektdan oqilona va muvozanatli foydalanish ham muhim hisoblanadi.Umuman olganda, sun’iy intellekt va moslashuvchan ta’lim texnologiyalari zamonaviy ta’lim tizimining ajralmas qismiga aylanib bormoqda.

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2-SHO‘BA. TA’LIMDA QULAYLIK, TENG IMKONIYATLAR VA INKLYUZIYA.
SECTION 2. ACCESSIBILITY, EQUAL OPPORTUNITIES, AND INCLUSION IN EDUCATION
2-СЕКЦИЯ. ДОСТУПНОСТЬ, РАВНЫЕ ВОЗМОЖНОСТИ И ИНКЛЮЗИЯ В ОБРАЗОВАНИИ

RAQAMLI INKLYUZIYA TA’LIMINING IQTISODIY FOYDASI VA INVESTITSIYA QAYTISHI

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Annotatsiya. *Ushbu tadqiqotda raqamli inklyuziv ta’limning rivojlanayotgan mamlakatlarda, xususan O‘zbekistonda iqtisodiy samaradorligi va ijtimoiy ahamiyati tahlil qilinadi. Onlayn platformalar, ochiq raqamli resurslar va raqamli infratuzilma orqali ta’lim xarajatlarini 50–80% gacha kamaytirish, ta’limga teng kirishni ta’minlash hamda inson kapitalini oshirish imkoniyatlari asoslab berilgan. Tadqiqot natijalari shuni ko‘rsatadiki, raqamli ta’lim yuqori iqtisodiy rentabellikka ega bo‘lib, har bir investitsiya qilingan 1 dollar uchun 5–20 dollar miqdorida qaytish keltiradi. Shuningdek, pandemiya davridagi o‘quv yo‘qotishlarini kamaytirish, bandlikni oshirish va uzoq muddatda YaIM o‘sishiga ijobiy ta’sir ko‘rsatishi aniqlangan. Tahlillar asosida raqamli inklyuziyani kengaytirish davlat siyosati va investitsiya strategiyalarining ustuvor yo‘nalishi sifatida tavsiya etiladi.*

Kalit so‘zlar: *raqamli inklyuziv ta’lim, iqtisodiy samaradorlik, ROI, inson kapitali, ta’lim xarajatlari, ochiq ta’lim resurslari (OER), raqamli infratuzilma, YaIM o‘sishi, ta’lim tengligi, masofaviy ta’lim, rivojlanayotgan mamlakatlar.*

Аннотация. *В данном исследовании анализируется экономическая эффективность и социальная значимость цифрового инклюзивного образования в развивающихся странах, в частности в Узбекистане. Обосновываются возможности снижения затрат на образование на 50–80% за счёт использования онлайн-платформ, открытых образовательных ресурсов и цифровой инфраструктуры, а также обеспечения равного доступа к обучению и роста человеческого капитала. Результаты показывают, что цифровое образование обладает высокой экономической рентабельностью, обеспечивая возврат инвестиций на уровне 5–20 долларов на каждый вложенный доллар. Кроме того, выявлено его положительное влияние на сокращение образовательных потерь в период пандемии, рост занятости и долгосрочное увеличение ВВП. На основе проведённого анализа рекомендуется рассматривать развитие цифровой инклюзии как приоритетное направление государственной политики и инвестиционных стратегий.*

Ключевые слова: *цифровое инклюзивное образование, экономическая эффективность, ROI, человеческий капитал, затраты на образование, открытые образовательные ресурсы (OER), цифровая инфраструктура, рост ВВП, образовательное равенство, дистанционное обучение, развивающиеся страны.*

Abstract. *This study examines the economic efficiency and social significance of digital inclusive education in developing countries, with a focus on Uzbekistan. It highlights the potential to reduce educational costs by 50–80% through the use of online platforms, open educational resources, and digital infrastructure, while ensuring equal access to education and enhancing human capital. The findings indicate that digital education demonstrates high economic returns, generating between 5 and 20 dollars for every dollar invested. Additionally, it plays a crucial role*

in mitigating pandemic-related learning losses, increasing employment, and contributing to long-term GDP growth. Based on the analysis, expanding digital inclusion is recommended as a strategic priority for public policy and investment planning.

Keywords: *digital inclusive education, economic efficiency, ROI, human capital, education costs, open educational resources (OER), digital infrastructure, GDP growth, educational equity, distance learning, developing countries.*

Raqamli inklyuziv ta’lim (onlayn platformalar, raqamli qulayliklar va ochiq resurslar orqali qishloq, kam ta’minlangan, ayollar va nogironligi bor shaxslar uchun teng imkoniyat yaratish) rivojlanayotgan mamlakatlarda, shu jumladan O‘zbekistonda yuqori iqtisodiy rentabellik ko‘rsatmoqda. U xarajatlarni 50–80% gacha kamaytiradi, inson kapitalini oshiradi, bandlik va daromadni ko‘paytiradi hamda uzoq muddatda YaIM o‘sishiga sezilarli hissa qo‘shadi. Har 1 dollar investitsiya odatda 5–20 dollargacha (ba’zi hollarda undan ham ko‘p) iqtisodiy qaytish beradi. Pandemiya davridagi o‘qish yo‘qotishlari global miqyosda 17 trillion dollarga yaqin umrbod daromad yo‘qotishiga olib kelgan bo‘lsa, raqamli inklyuziya bu yo‘qotishlarni oldini olishning eng samarali yo‘li hisoblanadi.

1-jadval

An’anaviy va raqamli ta’lim xarajatlari taqqoslashi (o‘rtacha har bir o‘quvchi uchun, yillik, USD, rivojlanayotgan mamlakatlar uchun moslashtirilgan)

Xarajat turi	An’anaviy ta’lim	Raqamli ta’lim	Tejash (%)	Izoh
Sinf xonasi, binolar va kommunal	500–800	40–100	80–90	Skalabillik va virtual muhit
Bosma darsliklar va materiallar	150–250	20–50	75–90	Ochiq raqamli resurslar (OER)
O‘qituvchi maoshi va administratsiya	400–600	200–350	35–50	Avtomatlashtirish va masofaviy ish
Raqamli infratuzilma va qurilmalar	50–100	80–150	–	Dastlabki investitsiya, keyin past
Jami xarajat (yillik)	1100–1750	340–650	60–80	Umumiy tejash 50–70% dan ortiq

Ushbu jadval an’anaviy va raqamli ta’limning har bir o‘quvchi uchun yillik o‘rtacha xarajatlarini rivojlanayotgan mamlakatlar (shu jumladan O‘zbekiston kabi kontekst) uchun taqqoslaydi. Raqamli inklyuziv ta’lim sinf xonalari, kommunal xizmatlar va bosma materiallar bo‘yicha 80–90% tejash imkonini beradi, chunki virtual muhit va ochiq raqamli resurslar (OER) skalabillikni ta’minlaydi. O‘qituvchi maoshi va administratsiya xarajatlari avtomatlashtirish tufayli 35–50% ga kamayadi. Dastlabki raqamli infratuzilma xarajati yuqoriroq bo‘lsa-da, keyingi yillarda marjinal xarajatlar keskin pasayib, umumiy tejash 60–80% ni tashkil etadi (World Bank, UNESCO va Education Data Initiative 2023–2025 ma’lumotlariga asosan). Natijada, raqamli platformalar kam ta’minlangan, qishloq va nogironligi bor shaxslar uchun teng imkoniyat yaratib, iqtisodiy jihatdan an’anaviy modeldan samaraliroq bo‘ladi. Bu tejamkorlik uzoq muddatda inson kapitalini oshirish va iqtisodiy o‘sishga hissa qo‘shadi.

2-jadval

Raqamli inklyuziv ta’limning iqtisodiy ko‘rsatkichlari va qaytishi (ROI)

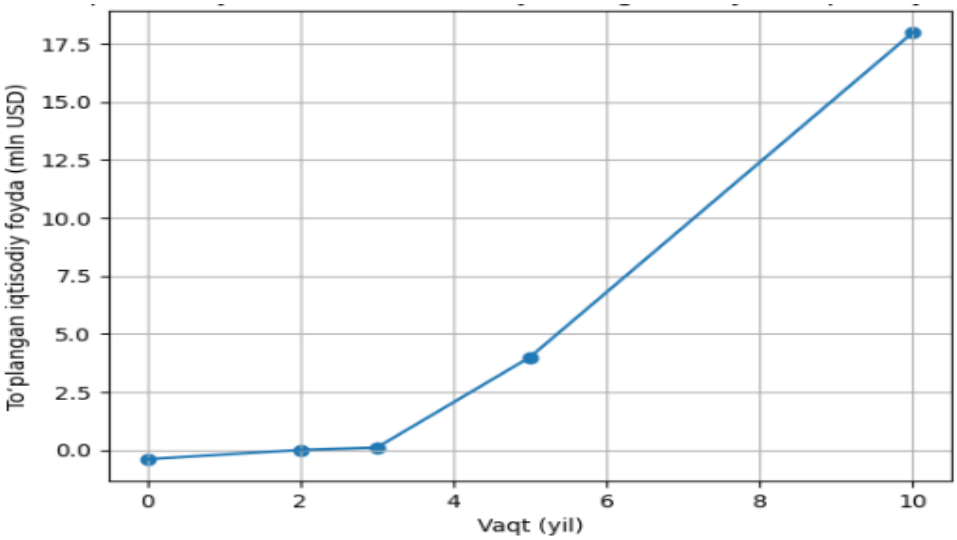
Ko‘rsatkich	Qiymati	Izoh va manba
Har qo‘shimcha yil ta’lim	Daromad +8–10% (rivojlanayotgan mamlakatlarda yuqoriroq)	Global o‘rtacha, past daromadli guruhlarda 9–12%
Investitsiya qaytishi (ROI)	5–20 baravar (umrbod)	Ta’lim investitsiyasining uzoq muddatli foydasi (WEF, World Bank)
Xarajat kamayishi (raqamli platformalar)	50–80%	Skalabillik, OER va avtomatlashtirish (UNESCO, EdTech tadqiqotlari)
Pandemiya o‘qish yo‘qotishlarining oldini olish potensiali	Global 17 trillion USD ga yaqin	COVID-19 tufayli o‘quvchilarning umrbod daromad yo‘qotishi (World Bank 2021)
YaIM ga qo‘shiladigan hissa (10% broadband o‘sishi)	+1.2% YaIM o‘sishi	Rivojlanayotgan mamlakatlarda (World Bank)
Inklyuziv ta’limning ijtimoiy-iqtisodiy qaytishi	Har 1$ ga 5–15$ foyda	Gender va nogironlar uchun yuqori samara

Ushbu jadval raqamli inklyuziv ta’limning asosiy iqtisodiy ko‘rsatkichlarini va investitsiya qaytishini umumlashtiradi. Har qo‘shimcha yil ta’lim past daromadli guruhlarda daromadni 9–12% ga oshirishi, xarajatlar 50–80% ga kamayishi va har bir investitsiya qilingan 1 dollar uchun 5–15 dollar foyda qaytishi raqamli platformalarning nafaqat ijtimoiy, balki yuqori iqtisodiy samaradorligini isbotlaydi. Ayniqsa, pandemiya davrida yuzaga kelgan 17 trillion dollarlik global daromad yo‘qotishlarining oldini olish va 10% broadband o‘sishi orqali YaIM ni 1,2% ga ko‘tarish potensiali raqamli inklyuziyani rivojlanayotgan mamlakatlar uchun eng rentabelli ta’lim strategiyasiga aylantiradi (World Bank, UNESCO, WEF ma’lumotlari asosida).

Grafik raqamli inklyuziv ta’lim investitsiyasining 1000 nafar o‘quvchi uchun 10 yillik kumulyativ iqtisodiy foydasini ko‘rsatadi. Dastlabki yillarda (0–3-yil) investitsiya xarajati tufayli foyda deyarli nolga yaqin bo‘lib, sekin o‘sadi. 3-yildan keyin esa keskin o‘sish kuzatiladi: 5-yilda taxminan 4,2 million USD, 10-yilda esa 18 million USD ga yetadi. Bu holat raqamli ta’limning yuqori skalabilligi va past marjinal xarajatlarini tasdiqlaydi – dastlabki infratuzilma xarajati qoplanishi bilan keyingi yillarda foyda eksponensial ravishda ortadi. Natijada, investitsiya qaytishi (ROI) 10-yil oxirida taxminan 15–18 baravarga yetishi mumkin. Grafik raqamli inklyuziya ta’limi rivojlanayotgan mamlakatlar, xususan O‘zbekiston uchun uzoq muddatli iqtisodiy jihatdan juda samarali ekanligini aniq ko‘rsatib turibdi.

Raqamli inklyuziya ta’limiga investitsiya nafaqat ijtimoiy tenglik va inklyuziyani ta’minlaydi, balki yuqori iqtisodiy rentabellik (5–20 baravar ROI) va

uzoq muddatli YaIM o‘sishini beradi. O‘zbekiston kabi rivojlanayotgan mamlakatlarda “Digital Uzbekistan – 2030” strategiyasi doirasida bunday investitsiyalarni kengaytirish inson kapitalini oshirib, pandemiya yo‘qotishlarini qoplash va iqtisodiy o‘sishni tezlashtirishning eng samarali yo‘lidir. Hukumat va xususiy sektor hamkorligi orqali raqamli infratuzilma va inklyuziv platformalarga ustuvorlik berish tavsiya etiladi.



1-rasm. Raqamli inklyuziv ta’lim investitsiyasining kumulyativ iqtisodiy ta’siri (1000 o‘quvchi uchun, million USD, 10 yillik prognoz)

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BOSHLANG‘ICH SINFLARDA STEAM YONDASHUVI ASOSIDA INGLIZ TILI O‘QITISH

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Annotatsiya: *Mazkur maqolada boshlang‘ich sinflarda ingliz tili o‘qitishda STEAM (Science, Technology, Engineering, Art, Mathematics) yondashuvini qo‘llashning nazariy va amaliy asoslari tahlil qilinadi. Tadqiqotda STEAM yondashuvining mohiyati, uning an’anaviy o‘qitish metodlaridan farqli jihatlari va boshlang‘ich sinflarda ingliz tili darslariga integratsiya qilish mexanizmlari yoritilgan.*

Kalit so‘zlar: *STEAM ta’limi, fanlararo integratsiya, boshlang‘ich ta’lim, ingliz tili o‘qitish, loyiha asosida o‘qitish, ijodiy fikrlash, tanqidiy fikrlash, innovatsion metodlar, til ko‘nikmalari.*

Аннотация. *В данной статье анализируются теоретические и практические основы применения подхода STEAM (Science, Technology, Engineering, Art, Mathematics) при обучении английскому языку в начальных классах. В исследовании раскрываются сущность подхода STEAM, его отличия от традиционных методов обучения, а также механизмы его интеграции в уроки английского языка в начальной школе.*

Ключевые слова: *STEAM-образование, междисциплинарная интеграция, начальное образование, обучение английскому языку, проектное обучение, креативное мышление, критическое мышление, инновационные методы, языковые навыки.*

Abstract. *This article analyzes the theoretical and practical foundations of applying the STEAM (Science, Technology, Engineering, Art, Mathematics) approach in teaching English in primary education. The study explores the essence of the STEAM approach, its differences from traditional teaching methods, and the mechanisms for integrating it into English language lessons in primary school.*

Keywords: *STEAM education, interdisciplinary integration, primary education, English language teaching, project-based learning, creative thinking, critical thinking, innovative methods, language skills.*

XXI asr ta’lim paradigmasi o‘quvchidan faqat bilim egallashni emas, balki uni real vaziyatlarda qo‘llay olishni ham talab etadi. Ayniqsa, ingliz tilini boshlang‘ich bosqichdan o‘rgatish jarayonida til ko‘nikmalarini izolyatsiyalangan shaklda emas, balki hayotiy kontekst bilan bog‘liq holda shakllantirish dolzarb masalaga aylangan. Zamonaviy ta’limda keng qo‘llanilayotgan STEAM (Science, Technology, Engineering, Art, Mathematics) yondashuvi fanlararo integratsiyani ta’minlash orqali o‘quvchilarda kompleks bilim va ko‘nikmalarni shakllantirishni maqsad qiladi. STEAM konsepsiyasi dastlab AQSh ta’lim tizimida shakllangan bo‘lib, keyinchalik ko‘plab rivojlangan mamlakatlar ta’lim amaliyotiga tatbiq etildi. Ushbu yondashuv o‘quvchini passiv bilim oluvchidan faol tadqiqotchi va yaratuvchiga aylantirishga xizmat qiladi.

Boshlang‘ich ta’lim bosqichida o‘quvchilar tafakkuri obrazli va amaliy faoliyatga moyil bo‘lgani sababli ingliz tilini o‘qitishda tajriba, modellashtirish, loyiha ishlari va ijodiy topshiriqlardan foydalanish yuqori samaradorlik beradi. STEAM elementlarini ingliz tili darslariga integratsiya qilish orqali til real hayotiy kontekstda qo‘llanadi, bu esa kommunikativ kompetensiyaning shakllanishiga ijobiy ta’sir ko‘rsatadi. Masalan, “Tabiat hodisalari”, “Shakllar”, “O‘lchov birliklari” kabi mavzularni o‘rganishda fanlararo bog‘liqlikni ta’minlash

o‘quvchilarning lug‘at boyligini kengaytirish va nutqiy faolligini oshirish imkonini beradi.

STEAM ta’limi bilimlarni alohida fanlar doirasida emas, balki o‘zaro bog‘liq tizim sifatida o‘rganishni nazarda tutadi. Uning asosiy g‘oyasi — real hayotiy muammolarni hal etish jarayonida bir nechta fan elementlarini uyg‘unlashtirishdir. Shu jihatdan STEAM yondashuvi konstruktivistik ta’lim nazariyasiga asoslanadi. Konstruktivizmga ko‘ra, bilim tayyor shaklda berilmaydi, balki o‘quvchi tomonidan faol faoliyat jarayonida quriladi. Boshlang‘ich ta’limda bu yondashuv ayniqsa samaralidir, chunki kichik yoshdagi o‘quvchilar bilishni tajriba, kuzatuv va ijodiy faoliyat orqali amalga oshiradilar.

STEAM konsepsiyasi quyidagi pedagogik nazariyalarga tayanadi:

- **Konstruktivizm nazariyasi** — o‘quvchining faol ishtiroki orqali bilim hosil qilish.
- **Faoliyatga yo‘naltirilgan ta’lim** — bilim amaliy jarayonda o‘zlashtiriladi.
- **Kompetensiyaviy yondashuv** — bilimdan ko‘ra uni qo‘llash muhimligi.
- **Loyiha asosida o‘qitish (Project-Based Learning)** — real muammo yechimi orqali integrativ bilim hosil qilish.

Ko‘p intellekt nazariyasi — o‘quvchilarning turli qobiliyatlarini rivojlantirish zarurati.

An’anaviy ta’limda fanlar mustaqil o‘rganiladi va bilim ko‘proq nazariy xarakterga ega bo‘ladi. STEAM yondashuvida esa:

- dars markazida o‘qituvchi emas, o‘quvchi turadi;
- bilim tayyor shaklda emas, izlanish orqali o‘zlashtiriladi;
- fanlar o‘rtasida tabiiy bog‘liqlik yaratiladi;
- baholash jarayoni natijaga emas, jarayonga ham qaratiladi.

Boshlang‘ich sinflarda chet tilini o‘qitishning samaradorligi ko‘p jihatdan tanlangan metodik modelga bog‘liq. An’anaviy yondashuvlar ko‘proq grammatik strukturalarni o‘zlashtirishga yo‘naltirilgan bo‘lsa, zamonaviy metodika o‘quvchini faol subyekt sifatida shakllantirishga qaratilgan. Shu nuqtai nazardan, STEAM modeli til o‘qitish jarayonini mazmunan boyituvchi integrativ mexanizm sifatida e’tirof etiladi. Boshlang‘ich sinf o‘quvchilari uchun STEAM yondashuvi tabiiy o‘rganish muhitini yaratadi. Tajriba o‘tkazish, rasm chizish, konstruktor yig‘ish, oddiy o‘lchov ishlari bajarish jarayonida ular tilni ham faol qo‘llaydilar. Shu tariqa til o‘rganish sun’iy mashqlar emas, balki real faoliyat asosida amalga oshadi.

Ta’limning amaliy xarakterini asoslab bergan amerikalik mutafakkir John Dewey “learning by doing” tamoyilini ilgari surgan. Uning ta’kidlashicha, o‘quvchi bilimni bevosita faoliyat jarayonida egallaganida u barqaror va funksional xarakter kasb etadi. STEAM modeli aynan ushbu g‘oyaning zamonaviy interpretatsiyasi sifatida qaraladi. Bundan tashqari, Howard Gardner tomonidan ishlab chiqilgan ko‘p intellekt nazariyasi ham STEAM yondashuvining metodologik asoslaridan biridir. Mazkur nazariyaga muvofiq, har bir o‘quvchining individual qobiliyat spektri mavjud bo‘lib, ta’lim jarayoni turli intellekt turlarini rivojlantirishga xizmat qilishi lozim. STEAM tarkibidagi san’at komponenti aynan shu maqsadni amalga oshirishga imkon yaratadi.

Boshlang‘ich sinflarda ingliz tili o‘qitishda STEAM integratsiyasi ta’lim jarayonini fanlararo bog‘liqlik asosida tashkil etishni nazarda tutadi. Mazkur yondashuvda ingliz tili alohida o‘quv predmeti sifatida emas, balki boshqa fanlar bilan uyg‘unlikda qo‘llaniladigan kommunikativ vosita sifatida namoyon bo‘ladi. Bu esa o‘quvchilarga tilni sun’iy mashqlar orqali emas, balki real faoliyat jarayonida tabiiy ravishda o‘zlashtirish imkonini beradi.

STEAM integratsiyasining mohiyati shundan iboratki, dars jarayonida Science (tabiiy fanlar), Technology (texnologiya), Engineering (muhandislik), Art (san’at) va Mathematics (matematika) elementlari ingliz tili bilan uyg‘unlashtiriladi. Masalan, tabiat hodisalari mavzusini o‘rganishda o‘quvchilar oddiy tajribalar o‘tkazishi, kuzatuv natijalarini qayd etishi va jarayonni ingliz tilida ifodalashi mumkin. Shuningdek, shakllar yoki o‘lchov birliklarini o‘rganishda matematika elementlari integratsiya qilinib, o‘quvchilar sanash, taqqoslash va tavsiflash jarayonida ingliz tilidan foydalanadilar. Bu jarayon tilni real kontekstda qo‘llash orqali kommunikativ kompetensiyaning shakllanishiga xizmat qiladi.

Boshlang‘ich yoshdagi o‘quvchilar obrazli va amaliy tafakkurga ega bo‘lganliklari sababli, ular tajriba, konstruktor yig‘ish, rasm chizish yoki maket yaratish kabi faoliyatlar orqali bilimni samarali o‘zlashtiradilar. STEAM integratsiyasi aynan shu yosh xususiyatlarini hisobga olgan holda darsni tashkil etishga imkon beradi. Masalan, muhandislik elementlari asosida oddiy qurilish maketini yaratish jarayonida o‘quvchilar ranglar, shakllar, buyruq gaplar va harakat fe’llarini ingliz tilida qo‘llaydilar. San’at elementi esa sahnalashtirish, rasm va ijodiy topshiriqlar orqali lug‘at boyligini mustahkamlashga yordam beradi.

Bundan tashqari, STEAM asosidagi ingliz tili darslari loyiha asosida o‘qitish tamoyiliga tayanadi. O‘quvchilar muammoni aniqlaydi, ma’lumot to‘playdi, amaliy ish bajaradi va natijani ingliz tilida taqdim etadi. Bu jarayonda tinglab tushunish, gapirish, o‘qish va yozish ko‘nikmalari kompleks ravishda rivojlanadi. Eng muhimi, o‘quvchilar tilni maqsadli muloqot vositasi sifatida qo‘llashni o‘rganadilar.

Shuningdek, STEAM integratsiyasi darsda o‘quvchilarning motivatsiyasini oshiradi, mustaqil fikrlash va jamoaviy hamkorlik ko‘nikmalarini shakllantiradi. Dars jarayoni interaktiv va qiziqarli tus oladi, natijada o‘quvchilar faol ishtirokchi sifatida namoyon bo‘ladilar. Bu esa ta’lim samaradorligini oshirishga xizmat qiladi.

Umuman olganda, boshlang‘ich sinflarda ingliz tili o‘qitishda STEAM integratsiyasi tilni fanlararo kontekstda o‘rgatish orqali o‘quvchilarning kommunikativ kompetensiyasini, ijodiy va tanqidiy fikrlashini rivojlantiruvchi zamonaviy metodik model sifatida muhim ahamiyat kasb etadi.

STEAM asosida ingliz tili o‘qitish zamonaviy ta’lim talablariga mos ravishda o‘quvchilarning nafaqat til ko‘nikmalarini, balki keng qamrovli kompetensiyalarini ham rivojlantirishga xizmat qiladi. Ushbu yondashuvning bir qator pedagogik va metodik afzalliklari mavjud.

Avvalo, STEAM integratsiyasi tilni real hayotiy kontekstda qo‘llash imkonini yaratadi. An’anaviy darslarda o‘quvchilar ko‘proq grammatik qoidalar va lug‘at birliklarini yodlashga yo‘naltirilsa, STEAM yondashuvida ular tajriba o‘tkazish, model yaratish yoki loyiha ustida ishlash jarayonida ingliz tilidan muloqot vositasi

sifatida foydalanadilar. Bu esa kommunikativ kompetensiyaning tabiiy shakllanishiga olib keladi.

Ikkinchidan, mazkur yondashuv o‘quvchilarning motivatsiyasini sezilarli darajada oshiradi. Boshlang‘ich sinf o‘quvchilari uchun amaliy faoliyat, ijodiy topshiriqlar va guruhli ishlash jarayoni qiziqarli hisoblanadi. STEAM asosidagi darslar interaktiv va dinamik tusga ega bo‘lib, o‘quvchilarning darsga bo‘lgan qiziqishini kuchaytiradi. Natijada ular til o‘rganishga ongli va faol munosabat bildiradilar.

Uchinchidan, STEAM yondashuvi tanqidiy va ijodiy fikrlashni rivojlantiradi. Muammoli vaziyatlar yaratish, tajriba o‘tkazish va loyiha ishlab chiqish jarayonida o‘quvchilar mustaqil qaror qabul qilish, tahlil qilish va xulosa chiqarish ko‘nikmalarini egallaydilar. Bu jarayon tilni faqat o‘rganish emas, balki uni fikr ifodalash vositasiga aylantirishga yordam beradi.

To‘rtinchidan, mazkur model jamoaviy hamkorlik va ijtimoiy ko‘nikmalarni shakllantiradi. Guruhli loyiha ishlari davomida o‘quvchilar o‘zaro muloqot qiladi, vazifalarni taqsimlaydi va natijani birgalikda taqdim etadi. Bu esa ingliz tilida muloqot qilish ko‘nikmasini rivojlantirish bilan birga, ijtimoiy moslashuvchanlikni ham oshiradi.

Beshinchidan, STEAM integratsiyasi fanlararo bog‘liqlikni ta’minlaydi. Til boshqa fanlar bilan uyg‘unlikda o‘rganilganda, bilimlar tizimli xarakter kasb etadi. Masalan, matematika yoki tabiiy fan elementlari bilan birlashtirilgan ingliz tili darsi o‘quvchilarga bilimlarni kompleks tarzda idrok etish imkonini beradi.

Shuningdek, STEAM yondashuvi individual qobiliyatlarni rivojlantirishga yordam beradi. San’at elementi orqali ijodkorlik, texnologiya va muhandislik elementlari orqali mantiqiy fikrlash va muammoni hal qilish ko‘nikmalari shakllanadi. Bu esa har bir o‘quvchining o‘z qobiliyatini namoyon etishiga sharoit yaratadi.

Boshlang‘ich ta’lim bosqichida ingliz tilini STEAM modeli asosida o‘qitish o‘quvchilarning lingvistik, ijtimoiy va intellektual kompetensiyalarini uyg‘un rivojlantirish imkonini beradi. Mazkur yondashuv fanlararo integratsiya orqali ta’lim mazmunini boyitadi, tilni real hayotiy kontekstga olib kiradi hamda o‘quvchini faol, mustaqil fikrlovchi shaxs sifatida shakllantirishga xizmat qiladi.

Shunday qilib, STEAM modeli boshlang‘ich sinflarda ingliz tilini o‘qitish jarayonini modernizatsiya qilish, uni samarador va interaktiv tusga kiritish uchun istiqbolli metodik platforma vazifasini bajaradi.

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RAQAMLI TA’LIM MUHITIDA INKLYUZIV DIZAYN ASOSIDA TENG IMKONIYATLARNI TA’MINLASHNING PEDAGOGIK MODELI

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Annotatsiya. *Mazkur maqolada raqamli ta’lim muhitida inklyuziv dizayn tamoyillariga asoslangan pedagogik model ishlab chiqilgan. Model diagnostik, kontentni loyihalash, adaptiv o‘qitish va differensial baholash komponentlarining integratsiyasiga asoslanadi. Tadqiqot natijasida teng imkoniyatlarni ta’minlashning konseptual mexanizmi taklif etildi hamda uni amaliyotga joriy etish bo‘yicha ilmiy-amaliy tavsiyalar ishlab chiqildi.*

Kalit so‘zlar: *raqamli ta’lim, inklyuziv dizayn, teng imkoniyatlar, adaptiv o‘qitish, differensial baholash, pedagogik model.*

Аннотация. *В данной статье разработана педагогическая модель, основанная на принципах инклюзивного дизайна в цифровой образовательной среде. Модель базируется на интеграции диагностических процедур, проектирования учебного контента, адаптивного обучения и дифференцированного оценивания. В результате исследования предложен концептуальный механизм обеспечения равных возможностей, а также разработаны научно-практические рекомендации по его внедрению в образовательную практику.*

Ключевые слова: *цифровое образование, инклюзивный дизайн, равные возможности, адаптивное обучение, дифференцированное оценивание, педагогическая модель.*

Abstract. *This article presents a pedagogical model based on the principles of inclusive design in a digital learning environment. The model is grounded in the integration of diagnostic assessment, content design, adaptive learning, and differentiated evaluation components. As a result of the study, a conceptual mechanism for ensuring equal opportunities is proposed, along with scientific and practical recommendations for its implementation in educational practice.*

Keywords: *digital education, inclusive design, equal opportunities, adaptive learning, differentiated assessment, pedagogical model.*

Kirish. Globallashuv va raqamli transformatsiya jarayonlari ta’lim tizimini yangi bosqichga olib chiqdi. Masofaviy o‘qitish platformalari, elektron resurslar va intellektual tizimlar ta’limga kirish imkoniyatini kengaytirdi. Shu bilan birga, raqamli muhitda tenglik masalasi dolzarb bo‘lib qolmoqda.

Raqamli ta’lim platformalarining bir xil dizaynda ishlab chiqilishi barcha foydalanuvchilar uchun bir xil qulaylikni kafolatlamaydi. Ayniqsa, maxsus ehtiyojli o‘quvchilar, kognitiv xususiyatlari turlicha bo‘lgan shaxslar yoki texnologik savodxonligi past foydalanuvchilar uchun qo‘shimcha to‘siqlar yuzaga kelishi mumkin.

Shu sababli inklyuziv dizayn tamoyillariga asoslangan pedagogik modelni ishlab chiqish zamonaviy ta’lim siyosatining ustuvor yo‘nalishlaridan biridir.

Tadqiqotlar shuni ko‘rsatadiki, raqamli notenglik uch bosqichda namoyon bo‘ladi:

1. Texnik infratuzilma darajasida (internet, qurilma yetishmovchiligi);
2. Platforma va interfeys darajasida (kirish imkoniyati talablariga mos emaslik);

3. Pedagogik metodologiya darajasida (yagona o‘qitish uslubi).

Inklyuziv dizayn konsepsiyasi barcha foydalanuvchilar ehtiyojlarini hisobga olgan holda ta’lim muhitini loyihalashni nazarda tutadi. Bu yondashuv ta’lim jarayonini shaxsga yo‘naltirilgan, moslashuvchan va adolatli tashkil etishni talab qiladi.

Raqamli muhitda inklyuzivlik quyidagi mezonlar orqali baholanadi:

✓ multimodal kontent mavjudligi;
✓ navigatsiya qulayligi;
✓ moslashtiriladigan interfeys;
✓ alternativ baholash shakllari;
✓ individual o‘quv trayektoriyasi.

Mazkur tadqiqot tizimli tahlil, pedagogik modellashtirish va konseptual loyihalash metodlariga asoslandi. Model ishlab chiqishda quyidagi bosqichlar amalga oshirildi:

✓ inklyuzivlik mezonlarini aniqlash;
✓ pedagogik va texnologik komponentlarni integratsiyalash;
✓ adaptiv mexanizmlarni ishlab chiqish;
✓ ilmiy-amaliy tavsiyalarni shakllantirish.

Taklif etilgan model to‘rt o‘zaro bog‘liq komponentdan iborat.

1. Diagnostik komponent

Ushbu bosqichda o‘quvchining individual xususiyatlari aniqlanadi. Diagnostika quyidagilarni o‘z ichiga oladi:

✓ o‘rganish uslubi;
✓ kognitiv daraja;
✓ funksional cheklovlar;
✓ texnologik tayyorgarlik.

Natijada individual o‘quv profili shakllantiriladi.

2. Inklyuziv kontentni loyihalash komponenti

Kontent quyidagi talablar asosida ishlab chiqiladi:

✓ mantiqiy strukturalangan matn;
✓ muhim tushunchalarning vizual ajratilishi;
✓ audio va video tavsiflar;
✓ subtitr va transkripsiyalar;
✓ rang kontrasti va shrift o‘lchamini sozlash imkoniyati.

Bu jarayonda pedagog va texnik mutaxassislar hamkorligi muhim ahamiyat kasb etadi.

3. Adaptiv o‘qitish mexanizmi

Adaptiv modul quyidagilarni ta’minlaydi:

✓ murakkablik darajasini dinamik boshqarish;
✓ individual topshiriqlarni tavsiya qilish;
✓ takroriy o‘zlashtirish imkoniyati;
✓ real vaqt rejimida qayta aloqa.

Bu yondashuv o‘quvchining shaxsiy rivojlanish trayektoriyasini qo‘llab-quvvatlaydi.

4. Differensial baholash tizimi

Baholash jarayoni rivojlanishga yo‘naltirilgan bo‘lishi kerak. Quyidagi shakllar qo‘llaniladi:

– portfolio asosidagi baholash;
– loyiha ishlari;
– og‘zaki va vizual taqdimotlar;
– avtomatlashtirilgan tahlil modullari.

Bu tizim har bir o‘quvchining individual salohiyatini inobatga oladi.

Modelning ishlash algoritmi quyidagicha:

1. Foydalanuvchi tizimga kiradi va dastlabki diagnostika o‘tkaziladi.
2. Shaxsiy profil shakllantiriladi.
3. Kontent moslashtirilgan shaklda taqdim etiladi.
4. Adaptiv mexanizm o‘quv jarayonini boshqaradi.
5. Baholash natijalari asosida tizim parametrlar yangilanadi.

Mazkur siklik jarayon uzluksiz takomillashuvni ta’minlaydi.

Tadqiqot natijalari asosidagi tavsiyalar:

1. Raqamli ta’lim platformalarini ishlab chiqishda inklyuziv dizayn standartlarini majburiy joriy etish.
2. O‘qituvchilar uchun inklyuziv pedagogika va raqamli dizayn bo‘yicha malaka oshirish kurslarini tashkil etish.
3. Ta’lim muassasalarida adaptiv o‘qitish tizimlarini pilot loyiha sifatida joriy etish.
4. Differensial baholashni normativ hujjatlar darajasida mustahkamlash.
5. Raqamli kontent yaratishda multimodal yondashuvni standart sifatida qabul qilish.

Taklif etilgan model ta’lim jarayonini demokratlashtirish va teng imkoniyatlarni ta’minlashga xizmat qiladi. U shaxsga yo‘naltirilgan yondashuvni raqamli texnologiyalar bilan integratsiya qiladi. Natijada:

- ✓ o‘quvchilarning motivatsiyasi oshadi;
- ✓ akademik natijalar yaxshilanadi;
- ✓ psixologik qulaylik ta’minlanadi;
- ✓ pedagogik monitoring soddalashadi.

Biroq modelni joriy etishda texnik infratuzilma va metodik tayyorgarlik muhim omil hisoblanadi.

Xulosa. Raqamli ta’lim muhitida inklyuziv dizayn asosida ishlab chiqilgan pedagogik model teng imkoniyatlarni ta’minlashning samarali mexanizmi hisoblanadi. Model diagnostik, loyihalash, adaptiv va baholash komponentlarining integratsiyasiga asoslanadi hamda individual ehtiyojlarga moslashuvchan ta’lim jarayonini tashkil etadi.

Kelgusida modelni empirik sinovdan o‘tkazish, sun’iy intellekt elementlari bilan boyitish va milliy ta’lim platformalariga integratsiya qilish maqsadga muvofiqdir.

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GIPERBOLANING SEMANTIK XUSUSIYATLARI VA NUTQDAGI QO‘LLANISHI

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Annotatsiya: *Ushbu maqola figurativ til birliklaridan biri bo‘lgan giperbolaning semantik xususiyatlarini tahlil qilishga bag‘ishlangan. Tadqiqotda giperbolaning nutqda yuzaga kelish jarayoni hamda uning semantik maydonlari o‘rganiladi. Maqolaning maqsadi giperbolaning semantik tasnifini ishlab chiqish va uning nutqdagi qo‘llanish xususiyatlarini aniqlashdan iborat. Tadqiqotda korpus lingvistika usulidan foydalanilib, British National Corpus materiallari tahlil qilindi. Natijalar giperbolaning ikki asosiy semantik o‘lchovga — baholovchi va miqdoriy komponentlarga ega ekanligini ko‘rsatdi. Shuningdek, giperbolalar ko‘pincha salbiy baholash va mutlaq ifodalar orqali namoyon bo‘lishi aniqlandi.*

Kalit so‘zlar: *giperbola, figurativ til, semantik maydon, korpus tahlili, stilistika.*

Аннотация. *Данная статья посвящена анализу семантических особенностей гиперболы как одного из средств образного языка. В исследовании рассматриваются процесс возникновения гиперболы в речи, а также её семантические поля. Целью статьи является разработка семантической классификации гиперболы и определение особенностей её функционирования в речи. В работе использован метод корпусной лингвистики, проведён анализ материалов British National Corpus. Результаты показали, что гипербола обладает двумя основными семантическими измерениями — оценочным и количественным компонентами. Также установлено, что гиперболы часто реализуются через отрицательные оценки и абсолютные выражения.*

Ключевые слова: *гипербола, образный язык, семантическое поле, корпусный анализ, стилистика.*

Abstract. *This article is devoted to the analysis of the semantic features of hyperbole as one of the figurative language units. The study examines the process of hyperbole formation in speech and its semantic fields. The aim of the paper is to develop a semantic classification of hyperbole and to identify its functional characteristics in discourse. The research employs a corpus linguistics approach, analyzing data from the British National Corpus. The results indicate that hyperbole has two main semantic dimensions—evaluative and quantitative components. It is also found that hyperboles are often expressed through negative evaluation and absolute expressions.*

Keywords: *hyperbole, figurative language, semantic field, corpus analysis, stylistics.*

Kirish. Figurativ til birliklari tilshunoslikning muhim tadqiqot obyektlaridan biri hisoblanadi. Ular nutqning obrazliligini va emotsional ta’sirini kuchaytiradi.[1] Giperbola ana shunday figurativ vositalardan biri bo‘lib, unda real voqelik ataylab oshirib yoki kamaytirib ifodalanadi.[2]

Tilshunoslikda giperbola ko‘pincha metafora va kinoyaga nisbatan kamroq o‘rganilgan. Shunga qaramay, kundalik nutqda ham, badiiy matnlarda ham giperbolaning qo‘llanishi juda keng tarqalgan. Tadqiqotchilar giperbolani ko‘pincha mubolag‘a yoki ortiqcha kuchaytirish vositasi sifatida ta’riflaydilar.[3]

Mazkur maqolaning maqsadi giperbolaning semantik xususiyatlarini o‘rganish hamda uning nutqdagi qo‘llanish shakllarini aniqlashdan iborat.

Metodologiya. Tadqiqotda korpus lingvistika metodidan foydalanildi. Tahlil uchun British National Corpus (BNC) dan olingan tabiiy suhbat matnlari tanlandi.[4]

Tadqiqot materiali sifatida 18 ta suhbat matni, taxminan 52 000 ta so‘zdan iborat korpus hisoblanadi.[5] Tahlil jarayonida giperbolik birliklar aniqlanib, ularning semantik xususiyatlari tasnif qilindi. Giperbolik birliklar so‘z, ibora yoki ifoda ko‘rinishida bo‘lishi mumkinligi hisobga olindi.

Semantik tasnif ikki asosiy yo‘nalishda amalga oshirildi:

1. Baholovchi (evaluative) komponent
2. Miqdoriy (quantitative) komponent

Tahlil va natijalar. Tadqiqot natijalari giperbolaning ikki asosiy semantik o‘lchovga ega ekanligini ko‘rsatdi.

Baholovchi semantik maydon

Bu turdagi giperbolalar nutqda ijobiy yoki salbiy bahoni ifodalaydi.

Ijobiy baho ifodalovchi birliklar: wonderful, great, lovely, brilliant

Salbiy baho ifodalovchi birliklar**:** horrible, disaster, terrible, sickening

Bundan tashqari, hayrat va ta’sir ma’nosini ifodalovchi birliklar ham mavjud: unbelievable, extraordinary, amazing

Miqdoriy semantik maydon

Bu turdagi giperbolalar miqdor, kattalik yoki mutlaq darajani ifodalaydi.

Mutlaq ifodalar: absolutely, totally, completely

Miqdor ifodalari**:** thousands, millions, lots of

Kattalik yoki kichiklik ifodalari: huge, enormous, tiny

Statistik tahlil natijalariga ko‘ra:

61.2% giperbolalar miqdoriy xarakterga ega

38.7% giperbolalar baholovchi xarakterga ega

Natijalar giperbolaning asosiy vazifasi nafaqat miqdorni oshirib ko‘rsatish, balki subyektiv bahoni ifodalash ekanligini ko‘rsatdi. Ko‘plab hollarda miqdoriy giperbolalar ham aslida baholash maqsadida qo‘llanadi.[7]

Masalan: *My bag weighs a ton.*

Bu gapda “ton” so‘zi miqdoriy mubolag‘a bo‘lsa-da, u aslida shikoyat yoki salbiy bahoni bildiradi.

Shuningdek, tadqiqot giperbolaning ko‘pincha salbiy emotsiyalarni ifodalash uchun ishlatilishini ham ko‘rsatdi.

Xulosa. Tadqiqot natijalari giperbolaning semantik jihatdan ikki asosiy komponentga ega ekanligini ko‘rsatdi: miqdoriy va baholovchi. Giperbola nafaqat mubolag‘a vositasi, balki nutqda subyektiv munosabatni ifodalovchi muhim stilistik vosita hisoblanadi. Shuningdek, tadqiqot giperbolaning kundalik nutqda keng qo‘llanishini va uning kommunikativ hamda emotsional funksiyalarini namoyon etdi.

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EQUALITY OF OPPORTUNITY IN EDUCATION, INCLUSION, AND OPENNESS OF EDUCATION FOR EVERYONE

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Abstract. *Equality of opportunity in education is one of the fundamental principles that ensures every learner has access to quality learning regardless of their background, social status, or abilities. Inclusive education emphasizes the participation of all students, including those with disabilities, in mainstream learning environments. Openness in education promotes equal access to educational resources and learning opportunities for everyone. This article explores the concepts of educational equality, inclusive learning, and open education, discussing their importance, challenges, and strategies for successful implementation.*

Key words: *learning opportunities, educational development, equal access, inclusive education.*

Annotatsiya. *Ta'limda imkoniyatlar tengligi — har bir o'quvchining kelib chiqishi, ijtimoiy holati yoki qobiliyatlaridan qat'i nazar, sifatli ta'lim olish imkoniyatini ta'minlaydigan asosiy tamoyillardan biridir. Inklyuziv ta'lim barcha o'quvchilarning, jumladan nogironligi bo'lgan shaxslarning ham, umumiy ta'lim muhitida faol ishtirok etishini ta'kidlaydi. Ochiq ta'lim esa har kim uchun ta'lim resurslari va o'rganish imkoniyatlariga teng kirishni rag'batlantiradi. Ushbu maqolada ta'limda tenglik, inklyuziv ta'lim va ochiq ta'lim tushunchalari yoritilib, ularning ahamiyati, muammolari hamda samarali amalga oshirish strategiyalari muhokama qilinadi.*

Kalit sozlar: *o'rganish imkoniyatlari , ta'lim rivoji, teng imkoniyat (yoki teng kirish imkoniyati) ,inklyuziv ta'lim.*

Аннотация. *Равенство возможностей в образовании является одним из фундаментальных принципов, обеспечивающих каждому учащемуся доступ к качественному обучению независимо от его происхождения, социального статуса или способностей. Инклюзивное образование акцентирует участие всех студентов, включая людей с ограниченными возможностями, в обычной образовательной среде. Открытость в образовании способствует равному доступу к образовательным ресурсам и возможностям обучения для всех. В статье рассматриваются концепции образовательного равенства, инклюзивного обучения и открытого образования, обсуждаются их значимость, проблемы и стратегии успешной реализации.*

Ключевые слова: *возможности обучения, образовательное развитие, равный доступ, инклюзивное образование.*

Introduction. Education plays a crucial role in shaping individuals and societies. However, true educational progress is possible only when every learner is given equal opportunities to succeed. In many countries, social inequality, family income, gender, disability, or geographical location can limit access to quality education. That is why equality of opportunity, inclusion, and openness in education have become global priorities. These principles aim to ensure that no learner is left behind and that everyone benefits from fair, accessible, and high-quality

educational systems. (UNESCO, 2017). Ensuring equal access to education contributes to social stability and economic growth. Inclusive systems help develop human potential and promote fairness within society.

Equality of Opportunity in Education. Equality of opportunity refers to the idea that all students should have the same chances to learn and succeed. This includes equal access to teachers, resources, technology, safe learning environments, and extracurricular opportunities. When educational systems fail to provide equal conditions, students from disadvantaged backgrounds face long-term negative effects, such as lower academic achievement or limited career opportunities. According to OECD (2019), educational inequality remains a major challenge globally. Ensuring fairness requires policy reforms, financial support, and effective school management. Inclusive and fair education helps both individuals and society grow, so schools and governments mast remove barriers to learning.

Inclusion in Education. Inclusive education means that all learners—regardless of ability, disability, language, or socioeconomic background—study together in mainstream classrooms. Inclusion does not only involve placing students in the same building; it requires adapting teaching methods, learning materials, and classroom environments to meet diverse needs. Research shows that inclusive classrooms improve students' social skills, self-confidence, and academic outcomes. It also promotes tolerance and respect among students (Ainscow, 2005). Inclusive education also helps create a more supportive and understanding learning environment where diversity is valued as a strength.

Openness of Education for Everyone. Open education promotes accessibility by removing traditional barriers such as cost, distance, or limited resources. This includes open educational resources (OER), online learning platforms, digital libraries, and flexible learning programs. Open education allows learners from rural areas, working adults, and people with disabilities to study more freely. With technological advancements, open universities and online courses have become major tools for promoting equal educational access (Wiley, 2014). Inclusive and open education allows all students to learn together, gain confidence and access learning without barriers. Open education also supports lifelong learning and provides opportunities for individuals to continuously develop their knowledge and skills.

Challenges in Achieving Equality and Inclusion. Despite global efforts, some challenges remain. These include:

• Limited funding for inclusive learning materials
• Lack of trained teachers
• Social stereotypes and discrimination
• Poor access to digital technologies
• Unequal distribution of school resources

For meaningful progress, schools, governments, and communities must collaborate to create supportive and inclusive environments (UNESCO, 2020).

Effective strategies include:

• Training teachers in inclusive pedagogy
• Providing assistive technologies for students with special needs
• Ensuring free or affordable access to educational materials
• Developing open online learning systems
• Creating policies that protect marginalized groups
• Encouraging community and parental involvement

These approaches help ensure that education becomes fair, accessible, and beneficial for everyone

Conclusion. Equality of opportunity, inclusion, and openness in education are essential components of modern educational systems. They help ensure that every learner—regardless of background or ability—receives the support and resources needed to succeed. By promoting these principles, societies can achieve higher levels of social justice, innovation, and economic development. Over time, equal and inclusive education becomes not just a policy goal but a meaningful reality for all learners.

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MOBIL TEXNOLOGIYALAR ASOSIDA TALABALARNING AMALIY KO‘NIKMALARINI SHAKLLANTIRISH MASALALARI

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Annotatsiya. *Ushbu maqolada ta’lim jarayonida talabalarning amaliy ko‘nikmalarini mobil texnologiyalar asosida rivojlantirish masalasi pedagogik muammo sifatida tahlil qilingan. Tadqiqotda mobil ilovalar, raqamli ta’lim resurslari va interaktiv platformalardan foydalanish imkoniyatlari ko‘rib chiqildi. Natijalar mobil texnologiyalar talabalarning mustaqil faolligini oshirish, nazariy bilimlarni amaliyot bilan bog‘lash va kompetensiyaga yo‘naltirilgan ta’limni ta’minlashga xizmat qilishini ko‘rsatdi. Shu bilan birga, mobil ta’limni joriy etish jarayonida o‘qituvchilarning metodik tayyorgarligi, talabalarning raqamli kompetensiyasi hamda didaktik ta’minlash bilan bog‘liq muammolar mavjudligi aniqlandi. Maqolada ushbu muammolarni bartaraf etishga qaratilgan ilmiy-metodik tavsiyalar asoslab berilgan.*

Kalit so‘zlar: *mobil texnologiyalar, mobil ta’lim, amaliy ko‘nikmalar, raqamli ta’lim, pedagogik muammo, kompetensiyaga yo‘naltirilgan ta’lim.*

Аннотация. *В статье рассматривается проблема развития практических навыков студентов на основе мобильных технологий как педагогическая задача. В исследовании анализируются возможности использования мобильных приложений, цифровых образовательных ресурсов и интерактивных платформ в учебном процессе. Полученные результаты показывают, что мобильные технологии способствуют повышению самостоятельности обучающихся, интеграции теоретических знаний с практической деятельностью и реализации компетентностно-ориентированного обучения. Вместе с тем выявлены проблемы, связанные с методической подготовкой преподавателей, уровнем цифровой компетентности студентов и дидактическим обеспечением мобильного обучения. В статье обоснованы научно-методические рекомендации по повышению эффективности использования мобильных технологий в образовательном процессе.*

Ключевые слова: *мобильные технологии, мобильное обучение, практические навыки, цифровое образование, педагогическая проблема, компетентностный подход.*

Abstract. *This article examines the development of students’ practical skills through mobile technologies as a pedagogical problem. The study analyzes the educational potential of mobile applications, digital learning resources, and interactive platforms in the teaching process. The findings indicate that mobile technologies enhance students’ independent learning, support the integration of theoretical knowledge with practical activities, and contribute to competence-oriented education. At the same time, several challenges are identified, including teachers’ methodological readiness, students’ level of digital competence, and the didactic support of mobile learning. The article substantiates scientific and methodological recommendations aimed at improving the effectiveness of mobile technologies in education.*

Keywords: *mobile technologies, mobile learning, practical skills, digital education, pedagogical problem, competence-based approach.*

Hozirgi raqamli transformatsiya sharoitida ta’lim tizimiga innovatsion axborot-kommunikatsiya texnologiyalarini joriy etish ustuvor vazifalardan biri hisoblanadi. Jumladan, mobil texnologiyalar ta’lim jarayonining ajralmas qismiga aylanib, talabalarning amaliy ko‘nikmalarini shakllantirish va rivojlantirishda samarali vosita sifatida xizmat qilmoqda.

O‘zbekiston Respublikasi Prezidentining 2020 yilning 29 oktyabrida PF-6097-son “Ilm-fanni 2030 yilgacha rivojlantirish konsepsiyasini tasdiqlash to‘g‘risida”gi

farmonida iqtisodiyot tarmoqlari va ijtimoiy sohani jadal rivojlantirish, ilmiy-intellektual hamda moliyaviy resurslarni to‘liq safarbar etgan holda ilmiy-innovatsion salohiyatdan keng foydalanish, istiqbolda ilm-fanni muntazam isloh qilib borishning ustuvor yo‘nalishlari belgilab berilgan.

“Mobil ta’lim” tushunchasining turli ta’riflarini mahalliy va xorijiy ilmiy adabiyotlarda qizg‘in muhokama qilinib, a) ta’lim maqsadlarida ishlatilishi mumkin bo‘lgan mobil qurilmalarning texnologik xususiyatlarini aks ettirish; va b) mobil qurilmalarning didaktik xususiyatlari va metodik imkoniyatlarini aks ettirishi haqida mulohazalar yuritiladi.

Hozirgi raqamli jamiyat sharoitida ta’lim tizimi oldiga talabalarni nafaqat nazariy bilimlar, balki yuqori darajadagi amaliy ko‘nikmalar bilan ta’minlash vazifasi qo‘yilmoqda. Ayni paytda, mobil texnologiyalarning keng tarqalishi ularni ta’lim jarayoniga joriy etish uchun yangi imkoniyatlar yaratmoqda. YUNESKO ma’lumotlariga ko‘ra, mobil qurilmalar ta’lim olish imkoniyatini kengaytirish, o‘quv jarayonini individuallashtirish va kompetensiyaga yo‘naltirilgan ta’limni rivojlantirishda muhim vosita hisoblanadi[2]. Shu bilan birga, ilmiy tadqiqotlarda mobil ta’lim talabalarning mustaqil faoliyatini kuchaytirishi va nazariy bilimlarni amaliyot bilan bog‘lashga xizmat qilishi ta’kidlanadi[3]. Biroq, mobil texnologiyalardan foydalanish pedagogik jihatdan yetarli darajada asoslanmagan hollarda kutilgan samarani bermasligi mumkin. Shu bois, ta’lim jarayonida talabalarning amaliy ko‘nikmalarini mobil texnologiyalar asosida rivojlantirishni pedagogik muammo sifatida o‘rganish zamonaviy ta’lim tizimi uchun dolzarb ilmiy masalalardan biri hisoblanadi.

O‘quv jarayonining pedagogik jihatiga shunga o‘xshash urg‘u xorijiy mualliflar va dasturiy ta’minot ishlab chiquvchilarining ta’riflarida ham berilgan. S.Titov, M.Sharpls va boshqalar mobil ta’limni o‘quvchilarga o‘rganilayotgan materialni samaraliroq o‘zlashtirish, ma’lumot olish va yaratish imkonini beruvchi ixcham va ko‘chma qurilmalardan foydalanishga asoslangan faoliyat sifatida ta’riflaydilar[4]. Mobil ta’lim “ixcham, ko‘chma mobil qurilmalar va texnologiyalar orqali muntazam ravishda yetkazib beriladigan faoliyat, bu esa o‘quvchilarga ma’lumot almashish, olish va yaratishda samaraliroq bo‘lish imkonini beradi”. Mobil ta’lim - bu “o‘qitish va o‘rganish jarayonlarini osonlashtirish, qo‘llab-quvvatlash, optimallashtirish va takomillashtirish uchun qulay, ko‘chma mobil qurilmalar va simsiz, osongina mavjud texnologiyalardan foydalanishdir”.

Xorijlik olimlarning fikricha, mobil ta’lim – bu “o‘quv jarayonlarini

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osonlashtirish, qo‘llab-quvvatlash, optimallashtirish va kengaytirish uchun qulay ko‘chma mobil texnologiyalar va simsiz, har doim mavjud texnologiyalardan foydalanish” deb tushuniladi.

Yuqoridagi ta’riflarni tahlil qilish shuni ko‘rsatadiki, ko‘plab mualliflar o‘z ta’riflarida “mobil ta’lim” tushunchasining turli pedagogik jihatlariga e’tibor qaratganlar. S.V.Titova o‘z ta’riflarida mobil qurilmalarga meta-fan kompetensiyalarini rivojlantirish uchun ishlatilishi mumkin bo‘lgan o‘qitish vositalari sifatida e’tibor qaratib [5], o‘qitishning yondashuvlari, metodlari va mazmunini moslashtirish zarurligiga e’tibor qaratadi. Shunga o‘xshash fikrlarni ba’zi G‘arb tadqiqotchilarining ishlarida ham topish mumkin. Xususan, o‘quv jarayonida mobil qurilmalardan foydalanganda qo‘llaniladigan o‘qitish metodikasi ham o‘zgarishi kerakligini ta’kidlaydilar. Darhaqiqat, chiziqli bo‘lmagan texnologiyalarga (kitob vositalariga emas) asoslangan ta’lim axborot yetkazib berishning chiziqli bo‘lmagan shaklini talab qiladi[6]. Shunga ko‘ra, material yetkazib berishning modulli shakli eng maqbul bo‘ladi.

Ta’riflar tahlili shuni ko‘rsatadiki, mobil ta’lim ko‘p qirrali tushunchadir. Maqsadlariga qarab, olimlar o‘z ta’riflarida mobil ta’limning turli jihatlarini ta’kidlab, ularni qarama-qarshi qo‘ymasdan, balki bir-birini to‘ldirib kelishgan.

Ta’limda mobil texnologiyalarning imkoniyatlari quyidagilardan iborat:

1. Interaktiv o‘qitish muhitini yaratish. Mobil ilovalar (simulyatorlar, virtual laboratoriyalar, keys dasturlar) orqali talabalar nazariy bilimlarini amaliyotda qo‘llashni o‘rganadilar.

2. Mustaqil ta’limni qo‘llab-quvvatlash. Mobil platformalar talabalarda mustaqil qaror qabul qilish, muammo yechish va tadqiqotchilik ko‘nikmalarini rivojlantiradi.

3. Tezkor aloqa va fidbek. Messenjerlar, LMS tizimlar va mobil test dasturlari orqali o‘qituvchi-talaba o‘rtasida doimiy muloqot ta’minlanadi.

4. Kasbiy kompetensiyalarni shakllantirish. Ixtisoslikka oid mobil dasturlar (masalan, pedagogik, tibbiy, texnik simulyatorlar) orqali kasbiy amaliy mahorat oshadi.

5. Ta’limni individuallashtirish. Mobil texnologiyalar har bir talabaning tayyorgarlik darajasiga mos topshiriqlar berish imkonini yaratadi.

Samaradorlik omillari quyidagilardan iborat:

Mobil texnologiyalar asosida amaliy ko‘nikmalarni rivojlantirish samaradorligi quyidagi omillarga bog‘liq:

- raqamli ta’lim resurslarining sifatli yaratilishi;
- o‘qituvchilarning AKT kompetentligi;
- metodik ta’minotning yetarliligi;
- talabalarning motivatsiyasi;
- internet va texnik infratuzilmaning mavjudligi.

[5] Титова С.В. МОБИЛЬНОЕ ОБУЧЕНИЕ СЕГОДНЯ: СТРАТЕГИИ И ПЕРСПЕКТИВЫ / Вестн. Моск. ун-та. Сер. 19. Лингвистика и межкультурная коммуникация. 2012. № 1. – С. 9-25.

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Tadqiqot natijalari ta’lim jarayonida mobil texnologiyalardan foydalanish talabalarning amaliy ko‘nikmalarini rivojlantirishda samarali vosita ekanini ko‘rsatdi. Bu holat mobil ta’lim muhiti talabalarga o‘quv materiallarini istalgan vaqt va joyda o‘zlashtirish imkoniyatini berishi bilan izohlanadi[7]. Shuningdek, mobil qurilmalar orqali tashkil etilgan interaktiv topshiriqlar talabalarning faolligi va mustaqil ta’lim olish qobiliyatini oshiradi[8].

Olingan natijalar ilmiy adabiyotlardagi xulosalar bilan uyg‘un ekani aniqlandi. Jumladan, M.Sharpls va boshqalar mobil texnologiyalar ta’limda nazariy bilimlarni amaliy faoliyat bilan bog‘lash imkonini berishi, shu orqali kompetensiyaga yo‘naltirilgan ta’limni ta’minlashini ta’kidlaydi[9]. Bizning tadqiqotimiz ham mobil ilovalar va raqamli resurslardan foydalanish talabalarning amaliy mashg‘ulotlarda faol ishtirok etishini kuchaytirishini ko‘rsatdi.

Shu bilan birga, mobil texnologiyalarni joriy etish pedagogik muammolar bilan ham bog‘liq ekani kuzatildi. Ayniqsa, talabalarning raqamli savodxonlik darajasi turlicha ekani va o‘qituvchilarning mobil ta’lim bo‘yicha metodik tayyorgarligi yetarli emasligi ta’lim samaradorligiga salbiy ta’sir ko‘rsatishi mumkin[10]. Bu holat mobil texnologiyalardan foydalanishni faqat texnik emas, balki didaktik muammo sifatida ham qarash zarurligini ko‘rsatadi.

Tadqiqot natijalari shuni anglatadiki, mobil texnologiyalar o‘z-o‘zidan yuqori natija bermaydi, balki ularni maqsadli va tizimli qo‘llash talab etiladi[11]. Ta’kidlaganidek, mobil ta’lim faqat qurilmadan foydalanish emas, balki o‘quv jarayonini yangi pedagogik model asosida tashkil etishdir. Shu nuqtai nazardan, mobil texnologiyalardan foydalanishda an’anaviy o‘qitish usullari bilan integratsiya qilingan gibrid yondashuv samarali hisoblanadi.

Umuman olganda, tadqiqot natijalari mobil texnologiyalar talabalarning amaliy ko‘nikmalarini rivojlantirishda muhim pedagogik resurs ekanini tasdiqlaydi. Biroq, ushbu jarayonni ilmiy-metodik jihatdan asoslamasdan turib, kutilgan samaraga erishib bo‘lmaydi. Shu bois, mobil texnologiyalarni ta’lim jarayoniga joriy etish pedagogik muammo sifatida kompleks yondashuvni talab qiladi.

Tadqiqot natijalari shuni ko‘rsatdiki, mobil texnologiyalardan foydalanish ta’lim jarayonida talabalarning amaliy ko‘nikmalarini rivojlantirishda muhim pedagogik imkoniyatlarga ega. Mobil ilovalar, raqamli ta’lim resurslari va interaktiv platformalar orqali o‘quv jarayonini tashkil etish talabalarning mustaqil faolligini oshirishga, nazariy bilimlarni amaliyot bilan bog‘lashga va kompetensiyaga yo‘naltirilgan ta’limni ta’minlashga xizmat qiladi. Shu bilan birga, mobil texnologiyalar ta’lim muhitini individuallashtirish va o‘quv materiallariga doimiy kirish imkonini yaratish orqali amaliy ko‘nikmalarni shakllantirish samaradorligini

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oshiradi.

Biroq, mobil texnologiyalardan foydalanish o‘z-o‘zidan yuqori natija bermaydi. Ularni ta’lim jarayoniga samarali joriy etish uchun pedagogik, didaktik va metodik asoslar ishlab chiqilishi, o‘qituvchilarning raqamli kompetensiyasi va metodik tayyorgarligi oshirilishi zarur. Shu bois, talabalarning amaliy ko‘nikmalarini mobil texnologiyalar asosida rivojlantirishni pedagogik muammo sifatida kompleks yondashuv asosida hal etish maqsadga muvofiq hisoblanadi. Ushbu tadqiqot natijalari ta’lim tizimida mobil texnologiyalardan foydalanishni takomillashtirishga qaratilgan ilmiy-amaliy tavsiyalar ishlab chiqish uchun nazariy asos bo‘lib xizmat qiladi.

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CORPUS-BASED ANALYSIS OF POLYMER CHEMISTRY TERMINOLOGY: FREQUENCY AND STYLISTIC FEATURES (ENGLISH AND UZBEK LANGUAGES)

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Abstract. *This study investigates the frequency and stylistic features of polymer chemistry terminology using corpus linguistics methods, with a comparative focus on English and Uzbek languages. By analyzing specialized corpora, the research identifies key trends in term usage, standardization, and stylistic variation across scientific discourse. The findings highlight differences in terminological development, showing that English exhibits high consistency and global standardization, while Uzbek demonstrates a hybrid system influenced by borrowing, translation, and adaptation. The study further explores how genre, audience, and communicative purpose affect the distribution and stylistic realization of terms. The results contribute to a deeper understanding of scientific language evolution and provide practical implications for terminology standardization, lexicography, and translation studies.*

Keywords: *Corpus linguistics, polymer chemistry, terminology, frequency analysis, stylistic features, English, Uzbek, scientific discourse.*

Аннотация. *В данном исследовании изучаются частотность и стилистические особенности терминологии в области полимерной химии с использованием методов корпусной лингвистики, с сравнительным анализом английского и узбекского языков. Анализ специализированных корпусов позволяет выявить ключевые тенденции в использовании терминов, стандартизации и стилистических вариациях в научном дискурсе. Результаты подчеркивают различия в развитии терминологии, показывая, что английский язык демонстрирует высокую согласованность и глобальную стандартизацию, в то время как узбекский язык представляет собой гибридную систему, подверженную влиянию заимствований, перевода и адаптации. Исследование также изучает, как жанр, аудитория и коммуникативная цель влияют на распространение и стилистическую реализацию терминов. Результаты способствуют более глубокому пониманию эволюции научного языка и имеют практическое значение для стандартизации терминологии, лексикографии и переводоведения.*

Ключевые слова: *Корпусная лингвистика, полимерная химия, терминология, частотный анализ, стилистические особенности, английский язык, узбекский язык, научный дискурс.*

Annotatsiya. *Ushbu tadqiqotda ingliz va o‘zbek tillariga qiyosiy e’tibor qaratgan holda, korpus lingvistikasi usullaridan foydalangan holda polimerlar kimyosi terminologiyasining chastotasi va stilistik xususiyatlari o‘rganiladi. Ixtisoslashgan korpuslarni tahlil qilish orqali tadqiqot ilmiy nutqda atamalardan foydalanish, standartlashtirish va stilistik o‘zgarishlarning asosiy tendentsiyalarini aniqlaydi. Natijalar atamalarni ishlab chiqishdagi farqlarni ko‘rsatib, ingliz tili yuqori izchillik va global standartlashtirilganligini ko‘rsatadi, o‘zbek tili esa qarz olish, tarjima va moslashish ta’sirida gibrid tizimni namoyish etadi. Tadqiqot janr, auditoriya va kommunikativ maqsad atamalarning tarqalishi va stilistik amalga oshirilishiga qanday ta’sir qilishini o‘rganadi. Natijalar ilmiy til evolyutsiyasini chuqurroq tushunishga yordam beradi va terminologiyani standartlashtirish, leksikografiya va tarjima uchun amaliy natijalar beradi.*

Kalit so‘zlar: *Korpus lingvistikasi, polimerlar kimyosi, terminologiya, chastota tahlili, stilistik xususiyatlar, ingliz tili, o‘zbek tili, ilmiy nutq.*

Introduction. In modern linguistics, corpus-based approaches have become essential tools for analyzing language use in specialized domains. Corpus linguistics enables researchers to examine authentic language data systematically and quantitatively, offering insights into frequency, collocation, and discourse patterns. This methodological framework is particularly valuable in the study of scientific terminology, where precision, consistency, and standardization are critical. One such domain is polymer chemistry, a rapidly developing field that relies heavily on specialized terminology. Polymer science encompasses a wide range of concepts related to macromolecules, including their synthesis, structure, properties, and applications. As a result, the field generates a large number of technical terms, many of which require careful standardization to ensure effective communication among researchers. With the increasing globalization of science, English has become the dominant language of international communication. This dominance significantly influences the development of scientific terminology in other languages, including Uzbek. Consequently, Uzbek scientific discourse often reflects a combination of native linguistic resources and borrowed or adapted terms from English and Russian.

The study of polymer chemistry terminology is particularly relevant due to the interdisciplinary nature of the field. It intersects with materials science, nanotechnology, engineering, and environmental science, leading to continuous terminological expansion. Understanding how these terms are used, adapted, and standardized across languages is essential for improving scientific communication and translation practices. This paper aims to examine the frequency and stylistic characteristics of polymer chemistry terms in English and Uzbek using corpus linguistics methods. It also seeks to identify patterns of borrowing, variation, and functional distribution across different genres of scientific texts.

Methodology. The study employs a corpus-based comparative approach. Two specialized corpora were compiled to ensure a representative dataset for analysis. Corpus Design

English Corpus: Approximately 500,000 words, consisting of scientific articles, textbooks, and research papers in polymer chemistry.

Uzbek Corpus: Approximately 300,000 words, including academic publications, translated materials, university textbooks, and instructional texts.

The corpora were designed to reflect different genres of scientific discourse, ensuring a balanced representation of formal research writing and pedagogical materials. Analytical Tools and Procedures The data were analyzed using corpus linguistics tools such as:

- Frequency lists
- Concordance analysis
- Keyword extraction
- Collocation analysis

The analysis focused on the following parameters:

- Frequency of core terminological units
- Distribution across genres
- Stylistic variation and synonymy

- Patterns of borrowing and adaptation

Quantitative analysis was complemented by qualitative interpretation to better understand the linguistic and functional aspects of terminology use.

Results and Discussion. 1. Frequency Analysis of Terminology. The frequency analysis revealed that core terminological units dominate both corpora. In the English corpus, terms such as polymer, monomer, and polymerization appear with high frequency and consistency. This reflects the strong standardization of English scientific terminology.

In the Uzbek corpus, equivalent terms such as polimer, monomer, and polimerizatsiya are also frequent. However, variation is more noticeable due to translation practices and the coexistence of alternative forms.

For example:

polymerization → polimerizatsiya / polimerlashuv

chain reaction → zanjir reaksiyasi

Such variation indicates that Uzbek terminology is still undergoing normalization. The presence of synonymous or competing forms reflects an evolving terminological system.

Additionally, frequency distribution shows that English terms tend to have more stable collocational patterns, whereas Uzbek terms exhibit greater variability depending on context and genre.

2. Stylistic Features of Scientific Discourse. The stylistic analysis demonstrates clear differences between English and Uzbek scientific texts.

English Scientific Style. English polymer chemistry texts are characterized by:

Frequent use of passive constructions; High lexical density; Concise expression of complex ideas; Strong reliance on standardized terminology. These features contribute to clarity, objectivity, and efficiency in scientific communication.

Uzbek Scientific Style. Uzbek texts, in contrast, display:

More explanatory and descriptive structure; Greater use of paraphrasing; Mixed lexical composition (native and borrowed terms); Pedagogical orientation in many texts. This reflects the relatively developing stage of Uzbek scientific discourse, where clarity is often achieved through explanation rather than compression.

3. Borrowing and Adaptation Processes. The analysis confirms that borrowing plays a significant role in the development of Uzbek polymer chemistry terminology. Three main strategies were identified:

Transliteration:polymer → polimer, monomer → monomer

Calque (loan translation):chain reaction → zanjir reaksiyasi

Hybrid formations:polimerlashuv (native suffix + borrowed root)

These strategies demonstrate how Uzbek adapts international terminology while maintaining linguistic identity. However, they also contribute to variation and occasional inconsistency.

4. Functional Distribution Across Genres. The study also examined how terminology usage varies across different types of texts.

Research Articles: High density of technical terms, minimal explanation, strong adherence to international standards.

Textbooks: Balanced use of terminology and explanation, often including definitions and examples.

Educational Materials: Simplified terminology, frequent paraphrasing, and pedagogical adaptation. This variation highlights the importance of communicative purpose in shaping terminological choices. It also suggests that standardization efforts must consider genre-specific requirements.

5. Implications for Terminology Standardization. The findings of this study have important implications for the development of Uzbek scientific terminology:

The need for unified standards in term selection and usage. The importance of integrating international norms with national linguistic traditions. The role of corpus linguistics in identifying preferred forms and eliminating redundancy. A systematic approach to terminology planning can enhance clarity and consistency in scientific communication.

Conclusion. This study demonstrates significant differences between English and Uzbek polymer chemistry terminology in terms of frequency, stylistic features, and standardization. English exhibits a highly standardized and globally unified system, while Uzbek reflects a dynamic and evolving terminological landscape influenced by borrowing, adaptation, and pedagogical considerations. Corpus linguistics proves to be an effective methodological tool for analyzing such differences, providing both quantitative and qualitative insights into language use. The results contribute to ongoing efforts in terminology development, translation, and scientific communication. Future research may expand the corpus size, include additional languages, or explore diachronic changes in terminology.

Table

Term (English)	**Frequency**	**Uzbek Equivalent**	**Frequency**
polymer	1250	polimer	820
monomer	980	monomer	760
polymerization	870	polimerizatsiya	540

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THE CO-DESIGNER MODEL: RE-IMAGINING ACTIVE LEARNING IN THE AGE OF AI

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Abstract. As Generative AI evolves from a "disruptive tool" to a pedagogical staple, the focus for educators must shift toward intentional, creative integration. This session argues that AI’s greatest value lies not in streamlining administrative tasks, but in its ability to function as a **pedagogical co-**designer—enabling the creation of immersive, high-engagement environments that were previously too logistically complex to manage.

This presentation demonstrates practical, scalable applications of AI for the modern classroom, specifically focusing on:

Dynamic Role-Play & Simulations: Designing "living" scenarios—such as constitutional assemblies or diplomatic crises—where AI generates real-time obstacles, stakeholder personas, and shifting variables that require students to pivot, negotiate, and apply theory in high-stakes environments.

The Digital Museum Concept: Utilizing AI to help students synthesize vast historical and social datasets into curated "Virtual Museums" or "Exhibitions of Memory." This shifts the student’s role from a passive consumer of information to an active, creative curator of knowledge.

Customized Task Engineering: Demonstrating how AI can generate bespoke, high-complexity tasks tailored for both individuals and groups. This includes AI-generated "devil’s advocate" prompts for individual research, and multi-layered, collaborative problem-solving briefs for teams that adapt based on the group’s specific progress and decisions.

By highlighting these specific methodologies, the session offers a blueprint for an "AI-Enhanced Liberal Arts" model. The conclusion reflects on the changing role of the instructor—arguing that when AI handles the scaffolding of complex activities, the professor is freed to act as a deep-level mentor, guiding students through the complexities of nuance, ethics, and human critical thought.

Keywords: AI Pedagogy; Active Learning; Classroom Simulations; Digital Humanities; Creative Collaboration; Immersive Education.

DIGITAL COMPETENCE OF EDUCATORS IN THE CONTEXT OF ARTIFICIAL INTELLIGENCE TRANSFORMATION

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Annotatsiya. *Ushbu tadqiqot o‘qituvchilarning sinf xonalarida sun’iy intellektdan (SI) foydalanishga bo‘lgan tayyorgarligi va kompetensiyasini o‘rganadi. Dunyoning turli mintaqalarida o‘qituvchilarning rivojlanayotgan ta’lim texnologiyalarini o‘zlashtirishi va joriy etishi bo‘yicha turlicha tendensiyalar kuzatilmoqda. Texnologik jihatdan rivojlangan ta’lim tizimlarida o‘qituvchilar malakasini oshirishning mustahkam dasturlari, qo‘llab-quvvatlovchi rahbariyat va keng tarqalgan raqamli infratuzilma pedagoglarning tayyorgarligi va kompetensiyasini oshirishga xizmat qiladi. SI asosidagi adaptiv o‘qitish platformalari kabi vositalar o‘qituvchilardan baholash tizimini qayta ko‘rib chiqishni talab qilsa, virtual reallik (VR) immersiv (sho‘ng‘ish) ta’lim tajribasiga yangicha yondashuvlarni taqozo etadi. O‘qituvchilar tayyorgarligiga to‘sqinlik qilayotgan ayrim muammolar sirasiga SI bo‘yicha maxsus o‘quv imkoniyatlarining cheklanganligi, maktablardagi texnologik infratuzilma bo‘shliqlari va texnologik o‘zgarishlarga nisbatan qarshiliklar kiradi. Ushbu muammolarning yechimi sifatida quyidagilar taklif etiladi: maktablarda texnik yordamni kuchaytirish; SI integratsiyasini qo‘llab-quvvatlovchi rahbarlik madaniyatini shakllantirish; SIdan foydalanish bo‘yicha etik ko‘rsatmalar va siyosiy strategiyalarni ishlab chiqish; o‘qituvchilarning dunyoqarashini o‘zgartirish va ularning texnologik o‘z-o‘ziga ishonchini (self-efficacy) oshirish. Sun’iy intellektga bo‘lgan bog‘liqlikning ortishi ta’lim sohasiga sezilarli ta’sir ko‘rsatib, o‘qitish, o‘rganish va baholash amaliyotlarini qayta shakllantirmoqda. O‘qituvchilarning tayyorgarligi nafaqat texnik bilimlarni, balki ijobiy fikrlash tarzini ham o‘z ichiga oladi. Sinf xonalarida SIning kelajagi nafaqat texnologik taraqqiyotga, balki o‘qituvchilar imkoniyatlarini kengaytirish va etik innovatsiyalarga bo‘lgan umumiy sadoqatga bog‘liq. Shu sababli, ushbu tadqiqot quyidagilarni tavsiya etadi: o‘qituvchilar tayyorlash dasturlariga SI savodxonligi integratsiya qilinishi, kasbiy rivojlanish jarayonlari doimiy va kontekstga moslashtirilgan bo‘lishi, maktab rahbariyati esa innovatsiyalarni qo‘llab-quvvatlovchi muhitni yaratishi lozim.*

Kalit so‘zlar: *sun’iy intellekt, raqamli kompetensiya, pedagogik tayyorgarlik, TPACK modeli, SAMR modeli, o‘qituvchi etikasi, generativ texnologiyalar, ta’lim transformatsiyasi.*

Abstract. *This paper explores the readiness and competency of teachers to use artificial intelligence (AI) in the classroom. Different regions of the world are witnessing different trends in the adoption and implementation of emerging educational technologies by teachers. In technologically advanced education systems, strong teacher development programs, supportive leadership, and a widespread digital infrastructure serve to enhance the readiness and competency of educators. While tools such as AI-based adaptive learning platforms require teachers to rethink their assessment systems, virtual reality (VR) requires new approaches to immersive learning experiences. Some of the challenges that hinder teacher readiness include limited AI-specific training opportunities, gaps in technology infrastructure in schools, and resistance to technological change. The following are suggested solutions to these challenges: strengthening technical support in schools; creating a leadership culture that supports the integration of AI; developing ethical guidelines and policy strategies for the use of AI; changing the mindset of teachers and increasing their technological self-efficacy. The increasing reliance on artificial intelligence is having a significant impact on the education sector, reshaping teaching, learning, and assessment practices. Teacher training includes not only technical knowledge, but also a positive mindset. The future of AI in classrooms depends not only on technological advances, but also on a shared commitment to teacher empowerment and ethical*

innovation. Therefore, this study recommends that: teacher education programs integrate IS literacy, professional development processes be ongoing and contextualized, and school leadership create an environment that supports innovation.

Key words: *artificial intelligence, digital competence, pedagogical training, TPACK model, SAMR model, teacher ethics, generative technologies, educational transformation.*

Аннотация. *В данной статье рассматривается готовность и компетентность преподавателей к использованию искусственного интеллекта (ИИ) в учебном процессе. В разных регионах мира наблюдаются различные тенденции внедрения и использования новых образовательных технологий учителями.*

В технологически развитых системах образования программы профессионального развития преподавателей, поддерживающее руководство и распространённая цифровая инфраструктура способствуют повышению готовности и компетентности педагогов. Такие инструменты, как адаптивные обучающие платформы на основе ИИ, требуют переосмысления систем оценки, а виртуальная реальность (VR) — новых подходов к погружению учащихся в образовательный процесс.

К числу проблем, препятствующих готовности преподавателей, относятся ограниченные возможности специализированного обучения ИИ, разрывы в технологической инфраструктуре школ и сопротивление технологическим изменениям. Среди предлагаемых решений: усиление технической поддержки в школах; формирование культуры руководства, поддерживающей интеграцию ИИ; разработка этических норм и стратегий использования ИИ; изменение менталитета учителей и повышение их технологической самоэффективности.

Растущая зависимость от ИИ оказывает значительное влияние на сектор образования, трансформируя практики преподавания, обучения и оценки. Подготовка учителей включает не только технические знания, но и формирование позитивного отношения к технологиям. Будущее ИИ в учебных классах зависит не только от технологических достижений, но и от совместного стремления к расширению прав и возможностей учителей и этическим инновациям. В связи с этим исследование рекомендует: интегрировать ИИ-грамотность в программы подготовки педагогов, обеспечить непрерывное и контекстуализированное профессиональное развитие, а школьному руководству создать среду, поддерживающую инновации.

Ключевые слова: *искусственный интеллект, цифровая компетентность, педагогическая подготовка, модель TPACK, модель SAMR, этика преподавателя, генеративные технологии, трансформация образования.*

Introduction. In the third decade of the 21st century, the education sector has become the most active point of the "Fourth Industrial Revolution". Artificial Intelligence (AI) is no longer just a tool for processing data, but is now a subject performing cognitive tasks. This situation poses a new ontological question for educators: "If AI knows everything, what is the role of a teacher?". This article aims to scientifically substantiate new standards of teacher training.

Theoretical Framework. The article uses a synthesis of three main conceptual models to analyze teacher competence:

Firstly, Enhanced TPACK Model. The traditional TPACK (Technological Pedagogical Content Knowledge) model is supplemented with an AI-Context (AIC) component. This means that the teacher can understand how the AI algorithms work (black-box problem) and analyze its impact on pedagogical outcomes.

Next are SAMR and Redefinition. The SAMR model proposed by Puentedura (2006) acquires the following dynamics in the AI context:

• *Augmentation:* AI optimizes the teacher's lesson plans and increases the rate of personalized feedback.

• *Redefinition:* Previously impossible learning tasks — for example, creating complex models in real time or controlling virtual simulations — are realized in collaboration with AI.

According to the research methods the study uses a comprehensive approach:

1. Systematic Literature Review (SLR): An analysis of more than 50 international studies published in the last 24 months.

2. Cognitive Task Analysis (CTA): A step-by-step analysis of the teacher's strategy for communicating with AI tools during the lesson.

3. Ethical Deliberation: A methodology for assessing the neutrality and objectivity of AI-generated content.

Results and Discussion. *A New Hierarchy of Digital Competencies.* The research findings suggest that modern teacher training in an AI-integrated learning environment should consist of a three-tiered hierarchical model that differs from traditional digital skills. At the first level, AI Literacy is fundamental; it refers not only to working effectively with prompts (requests), but also to the ability to identify and filter system-generated hallucinations (false information).

The second level of the hierarchy is Cognitive Collaboration, in which the teacher systematically introduces AI into the lesson scenario as a "co-pedagogist" rather than just a technical tool. Finally, the highest level is Metacognitive Control. At this level, the teacher not only uses technology, but also provides methodological guidance to develop in students a critical approach to artificial intelligence and the ability to correctly assess its capabilities and limitations.

Obstacles and Risks in the "Teacher-AI" Symbiosis. Scientific analyses confirm that the process of teachers' adaptation to SI is accompanied by a number of psychological and systemic obstacles. In particular, the rapid pace of new technologies is causing a state of "Techno-stress" among teachers. At the same time, the "Algorithmic Bias" in algorithms is considered a serious factor that can negatively affect the objectivity of education.

The most important aspect of the discussions is that the teacher's introduction of the results provided by SI into the teaching process without in-depth analysis creates the risk of "cognitive offloading". This situation can lead to a decrease in the intellectual activity of the teacher and excessive dependence of the quality of education on technical means. That is why the human factor, namely the teacher's critical filter and pedagogical control, remains crucial in the teacher-AI symbiosis.

As a recommendation, based on the results of the research and the analysis of the identified cognitive barriers, a comprehensive set of strategic recommendations is put forward to adapt the education system to the era of artificial intelligence. First

of all, given that the pace of technological change has significantly outpaced the traditional system of professional development, it is necessary to move to a micro-credit and continuous education model for teachers. This approach involves the introduction of short-term training courses for teachers that are constantly updated, specialized in AI and have a modular structure, which will allow teachers to apply the latest generative tools in practice without interrupting the teaching process. At the same time, it is necessary to form the principle of hybrid pedagogy as the foundation of future education. In this case, while a certain part of the lesson hours is allocated to data analysis and work with AI agents for routine tasks, the main and meaningful part of the lesson must be directly focused on human communication, moral education, and fundamental values. To maintain this balance, it is recommended that each educational institution develop a Digital Ethics Standard (code of ethics) that sets out the legal and ethical boundaries for the use of AI. Such an institutional document will not only ensure academic integrity, but also establish a culture of responsible and safe use of AI among educators and students.

Conclusion. In the era of artificial intelligence, teacher training is no longer just a technical skill, but a high-level epistemological responsibility. The teacher must integrate technology into his or her work, while maintaining the qualities that AI cannot provide - empathy, moral judgment, and contextual understanding. Future education is not about denying AI, but about the art of managing intellectual engagement with it.

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BOSHLANG‘ICH SINF O‘QUVCHILARIDA TEXNALOGIYA DARSLARINI TASHKIL QILISH VA INNOVATSION TEXNOLOGIYALARDAN FOYDALANISH

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Annotasiya. *Boshlang‘ich sinf o‘quvchilari savodxonligini oshirishda innovatsion texnologiyalardan foydalanishning mazmuni va mohiyati asoslash orqali ularni amaliyotga tatbiq etishga qaratilgan. Boshlang‘ich sinf o‘quvchilarini bilish mobaynidagi innovatsiyalar bu - bilimlarni kengaytirish, ma’lumot olish, qayta ishlash, yangi usullar, texnologiyalar va yondashuvlarni takomillashtiradi.Bolalarning bilish jarayonini yangi falsafiy, kognitiv va ilmiy yondashuvlarni ham qamrab oladi. Innovatsiya nafaqat ta’limdagi balki barcha sohalar sifatlarini yaxshilashga qaratilgan maqsadli harakat tizimi hisoblanadi. Maqolada boshlang‘ich sinf o‘quvchilarida darslarni tashkil qilishda innovatsion texnologiyalarning shakllanishi haqida fikr mulohazalar yuritiladi.*

Kalit so‘zlar: *innovatsion texnologiyalar, bilish jarayoni, falsafiy, kognitivilmiy yondashuv*

Аннотация: *Цель исследования – применение инновационных технологий для повышения уровня грамотности учащихся начальной школы путем обоснования их содержания и сути. Инновации в обучении учащихся начальной школы – это расширение знаний, приобретение, обработка, совершенствование новых методов, технологий и подходов. Процесс обучения детей также включает в себя новые философские, познавательные и научные подходы. Инновация – это система целенаправленных действий, направленных на повышение качества не только образования, но и всех сфер. В статье рассматривается формирование инновационных технологий в организации уроков для учащихся начальной школы.*

Ключевые слова*: инновационные технологии, когнитивный процесс, философский, когнитивно-научный подход*

Abstract: *The aim is to apply innovative technologies in improving the literacy of primary school students by justifying their content and essence. Innovations in the learning of primary school students are the expansion of knowledge, the acquisition, processing, improvement of new methods, technologies and approaches. The process of children’s learning also includes new philosophical, cognitive and scientific approaches. Innovation is a system of purposeful actions aimed at improving the quality not only in education, but also in all areas. The article discusses the formation of innovative technologies in the organization of lessons for primary school students.*

Keywords: *innovative technologies, cognitive process, philosophical, cognitive-scientific approach*

Barkamol shaxs tarbiyasida albatta mehnat ta’limining alohida o‘rni bor. Bu o‘quv fani o‘quvchilarda aqliy va jismoniy mehnat turlari, mehnat jamoalari haqida keng tushuncha hosil qilish, mehnatga oid ko‘nikma va malakalarni rivojlantirish, ta’ limiy maqsadlarga xizmat qilishdir.Maktabdagi texnalogiya ta’limi va tarbiyasining maqsadi: o‘quvchilarga mehnatga muhabbat va mehnat ahliga hurmat tuyg‘usini singdirishdan, o‘quvchilarni hozirgi zamon sanoat va qishloq xo‘jalik

ishlab chiqarishini qurilish transport xizmat koʻrsatish sohalari asoslari va texnologik jarayonlar bilan tanishtirishdan, oʻqish va ijtimoiy foydali ish jarayonida ularda mehnat koʻnikmalari va mahoratini hosil qilishdan, ongli ravishda kasb tanlashga va boshlangʻich hunar taʼlimini olishga undashdan iboratdir. Texnologiya fani va ksbga tayyorlash vazifalari boshlangʻich maktabda butun, taʼlim- tarbiya tizimi hamda barcha oʻquv predmetlari yordamida hal qilinadi. Boshlangʻich sinflarda texnologiya fanining asosiy maqsadi va vazifalari : mehnatga axloqiy va psixologik tayyorlash oʻquvchilarni boshlangʻich politexnik bilim bilan qurollantirish texnologiya faniga amaliy tayyorlash, texnologik operatsiyalarning malaka va kunikmalari bilan qurollantirish oʻquvchilarni texnologiya fani jarayonida har tomonlama oʻstirishni tarkib toptirishdan iboratdir. Boshlangʻich sinf oʻquvchilarida texnalogiya darslarini tashkil etishda bolalarning darsga boʻlgan qiziqishini aniqlash lozim, chunki bolalar qiziqqan faoliyatiga kirishimli boʻladi. Texnologiya fani oʻz ichiga matematika, tasviriy sanʼat, tabiatshunoslik va yana bir nechta fanlarni oʻz ichiga oladi chunki bu fanlarni bolalar oʻzlashtirishi lozim, texnologiya darsida matematikadan - oʻlchashda, tasviriy sanʼat - ranglar jilosini, tabiatshunoslik - manzaralarni aks ettiradi. Dars jarayonida albatta mavzuga mos koʻrgazmalar boʻlishi kerak, chunki bolalar texnalogiya darsida yasalgan buyumini koʻrip tafakkur qilib, qiziqib yasashga harakat qiladi, darsda ustoz ham bolalar bilan birgalikda yasashi kerak. Darslarni zamonaviy uslubda qiziqarli olib borishi lozim. Dars mobaynida bolalarning diqqat - eʼtiborini darsga qaratish uchun turli xil metodlardan foydalanish kerak. Innovatsiya - inglizcha yangilik kiritish, yangilik degan maʼnoni bildiradi. Texnologiya yunoncha " texnos" sanʼat mahorat va " logos " - fan soʻzidan olingan boʻlib, innovatsion texnologiya taʼlim tarbiya shakllari, metodlari va usullariga yangicha yondashish degan maʼ noni anglatadi. Innovatsion texnologiyalar pedagogik jarayon va oʻqituvchi,oʻ quvchi faoliyatiga yangilik, oʻzgarishlar kiritish. Taʼlim tizimidagi har qanday islohotlar, innovatsiyalar, investitsiyalar, shubhasiz taʼlim samaradorligini oshirishga va zamonaviy taʼlim talablariga qaratilgan. Innovatsion texnologiyalar taʼlim jarayonida oʻquvchilar hamda oʻqituvchi oʻrtasidagi faollikni oshirish orqali o ʼquvchilarning bilimlarini oʻzlashtirishini faollashtirish,shaxsiy sifatlarni rivojlantirishga qaratilgan. Interfaol metodlarni qoʻllash dars samaradorligini oshirishga yordam beradi. Dars mobaynida metodlardan foydalanilsa darsning sifat va taʼlim tarbiyaviy ishlar samaradorligini oshirishda oʻziga xos ahamiyat kasb etadi. XXI asrda Ozbekiston taʼlim tizimini isloh qilish va takomillashtirish ustuvor vazifalardan biri hisoblanadi. Oʻz navbatida texnologiya fani yoʻnalishida izlanishlar olib borayotgan olimlarimiz zimmasiga tegishli oʻquv fanlari boʻyicha oʻ quv adabiyotlarini hozirgi davr talabi va ilm - fanning soʻnggi yutuqlarini hisobga olgan holda yangilab borish, taʼlim jarayoniga innovatsiya va taʼlim texnologiyalarini joriy qilmoqda. Mamlakatimiz Oliy taʼlim muassasalarida barcha fanlarni oʻqitish jarayonida innovatsiyalar va ilgʻor xorijiy tajribalarni qoʻllash bugungi kunning dolzarb masalalaridan biridir. Bugungi kunda amaliyotda yangilik va innovasiya soʻzlari orasida farqlar bor. Yangilik - bu fandagi eng soʻ nggi kiritilgan yutuqlar, bilimlar, usullardir. Bu yutuqlar, bilimlar usullarni amalda qoʻllanilishi bilan innovatsiyaga aylanadi. Innovatsion texnologiyalar: fikrlashning kognitiv sxemasini yaratish, oʻz- oʻzini hurmat qilish, oʻqish natijalari

orqali o‘zini o ’zi tasdiqlash.Differentsial yondashuvga asoslangan muvaffaqiyatli o‘rganish uchun asos sifatida nazariy materialini yaxshi bilish, har qanday vazifa nazariyaning bir qismi hisoblanadi. Muammoli vaziyat yaratish " chetga o‘tish", yordamchi savollardan foydalanish, iqtidorli bolalar bilan ishlash kabi, talablarni o‘z ichiga oladi.

Xulosa. Boshlang‘ich sinf o‘quvchilarida texnalogiya fanining tarbiyaviy ahamiyati muhim hisoblanadi. O‘quvchilarida mehnat turlari haqidagi tushunchalarni shakllantiradi, mehnatga bo‘lgan qiziqishini hosil qiladi, mehnatsevarlik, mas’uliyati, intizomlilik, jamoatchilik hissini tarbiyalash kabi tushunchalarni shakllantiradi.

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ПЕДАГОГИЧЕСКИЕ ИННОВАЦИИ И ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В МЕТОДИКЕ ОБУЧЕНИЯ РЕШЕНИЮ ПРАКТИКО-ОРИЕНТИРОВАННЫХ ЗАДАЧ ПО ПРОГРАММИРОВАНИЮ БУДУЩИХ ИНЖЕНЕРОВ

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Аннотация: *В статье анализируются педагогические инновации и потенциал искусственного интеллекта в методике обучения решению практико-ориентированных задач по программированию будущих инженеров. Обосновывается методологическая модель интеграции цифровых ресурсов, обеспечивающая адаптивность, персонализацию обучения, развитие профессиональных компетенций и повышение качества инженерной подготовки в условиях цифровой трансформации образования.*

Ключевые слова: *педагогические инновации; искусственный интеллект; практико-ориентированные задачи; инженерное образование; цифровые ресурсы.*

Annotatsiya: *Ushbu maqola pedagogik innovatsiyalar va kelajakdagi muhandislarga amaliyotga yo‘naltirilgan dasturlash muammolarini hal qilishni o‘rgatishda sun’iy intellektning salohiyatini tahlil qiladi. Unda ta’limning raqamli transformatsiyasi sharoitida moslashuvchanlikni, o‘rganishni shaxsiylashtirishni, professional kompetensiyalarni rivojlantirishni va muhandislik tayyorgarligi sifatini oshirishni ta’minlaydigan raqamli resurslarni integratsiyalashning metodologik modeli asoslanadi.*

Kalit so‘zlar: *pedagogik innovatsiyalar; sun’iy intellekt; amaliyotga yo‘naltirilgan muammolar; muhandislik ta’limi; raqamli resurslar.*

Abstract: *This article analyzes pedagogical innovations and the potential of artificial intelligence in teaching future engineers how to solve practice-oriented programming problems. It substantiates a methodological model for integrating digital resources that ensures adaptability, personalization of learning, development of professional competencies, and improved quality of engineering training in the context of the digital transformation of education.*

Keywords: *pedagogical innovations; artificial intelligence; practice-oriented problems; engineering education; digital resources.*

Введение. Современный этап развития высшего инженерного образования характеризуется глубокой цифровой трансформацией, обусловленной стремительным развитием информационных технологий, автоматизированных производственных систем, больших данных и искусственного интеллекта. Инженер XXI века функционирует в условиях высокотехнологичной среды, где программирование выступает не отдельной дисциплиной, а универсальным инструментом профессиональной деятельности. Проектирование технических систем, моделирование процессов, автоматизация управления, обработка экспериментальных данных — все эти направления требуют устойчивых навыков алгоритмического мышления и способности разрабатывать программные решения прикладного характера. В связи с этим особую актуальность приобретает проблема совершенствования методики обучения программированию будущих

инженеров, ориентированной на формирование практической готовности к профессиональной деятельности. Традиционная модель преподавания программирования в инженерных вузах преимущественно строится на изучении синтаксиса языка, стандартных алгоритмов и типовых учебных задач, часто не связанных с реальными производственными ситуациями. Несмотря на формирование базовых знаний, подобный подход не всегда обеспечивает развитие способности переносить полученные знания в практическую плоскость. Выпускники демонстрируют владение отдельными конструкциями языка, но испытывают затруднения при разработке комплексных решений, требующих междисциплинарной интеграции, анализа условий задачи и выбора оптимального алгоритма. Данная проблема свидетельствует о необходимости перехода от репродуктивной модели обучения к практико-ориентированной, основанной на деятельностном и компетентностном подходах.

В условиях цифровизации образования и активного внедрения интеллектуальных технологий возникает возможность переосмысления методических оснований подготовки инженеров. Педагогические инновации, такие как проектно-ориентированное обучение, проблемный подход, смешанные форматы взаимодействия и цифровые образовательные платформы, позволяют приблизить учебный процесс к реальным условиям профессиональной деятельности. Особое значение приобретает использование инструментов искусственного интеллекта, обеспечивающих адаптивность образовательной среды, автоматизированный анализ результатов обучения, индивидуализацию заданий и оперативную обратную связь. Искусственный интеллект перестаёт быть исключительно технологическим инструментом и становится методическим ресурсом, способным существенно повысить эффективность формирования профессиональных компетенций.

Интеграция интеллектуальных систем в образовательный процесс открывает новые возможности для построения персонализированных траекторий обучения. Анализируя характер ошибок, темп усвоения материала, стиль программирования и уровень сформированности навыков, цифровые платформы способны адаптировать содержание задач, предлагать дополнительные разъяснения и формировать рекомендации по устранению пробелов. Это особенно важно в обучении программированию, где своевременная диагностика типовых ошибок и системная работа над ними определяют успешность дальнейшего освоения дисциплины. Вместе с тем применение искусственного интеллекта требует научно обоснованной методологии, учитывающей педагогические закономерности, психологические особенности обучающихся и цели профессиональной подготовки.

Следует отметить, что внедрение инновационных технологий само по себе не гарантирует повышения качества образования. Без методического осмысления и целенаправленного проектирования образовательной среды цифровые инструменты могут выполнять лишь вспомогательную функцию. Поэтому ключевым фактором модернизации инженерного образования

становится разработка научно обоснованной модели интеграции педагогических инноваций и искусственного интеллекта в процесс обучения решению практико-ориентированных задач по программированию. Такая модель должна учитывать специфику инженерных направлений подготовки, междисциплинарный характер задач, необходимость формирования аналитического и системного мышления, а также требования современного рынка труда.

Особую значимость приобретает развитие компетенций преподавателя, выступающего организатором цифровой образовательной среды. Современный педагог должен не только владеть предметным содержанием, но и уметь проектировать практико-ориентированные задачи, использовать аналитические инструменты мониторинга, интерпретировать данные образовательной аналитики и интегрировать интеллектуальные ресурсы в учебный процесс. Таким образом, речь идёт о трансформации профессиональной роли преподавателя, который становится архитектором образовательной экосистемы, обеспечивающей адаптивность, доступность и результативность подготовки будущих инженеров.

Актуальность настоящего исследования обусловлена противоречием между потребностью общества и индустрии в инженерах, способных разрабатывать программные решения прикладного характера, и недостаточной методической проработанностью использования инновационных и интеллектуальных ресурсов в процессе обучения. Разрешение данного противоречия требует комплексного анализа педагогических инноваций, потенциала искусственного интеллекта и разработки целостной методической модели, ориентированной на формирование профессиональной готовности будущих инженеров к практической деятельности.

В этой связи целью статьи является теоретическое обоснование и методическое описание интеграции педагогических инноваций и инструментов искусственного интеллекта в обучении решению практико-ориентированных задач по программированию, направленной на повышение качества инженерной подготовки и развитие профессиональных компетенций в условиях цифровой трансформации образования.

Основная часть. Совершенствование методики обучения решению практико-ориентированных задач по программированию будущих инженеров предполагает системное обновление содержания, форм, методов и средств обучения. В центре данной трансформации находится переход от изучения языка программирования как совокупности синтаксических конструкций к формированию способности использовать программирование как инструмент инженерного анализа, моделирования и проектирования. Это требует построения образовательного процесса на основе деятельностного, компетентностного и системного подходов, обеспечивающих формирование устойчивых профессиональных умений.

Практико-ориентированная задача в инженерном образовании представляет собой моделирование фрагмента реальной профессиональной

деятельности. Такая задача характеризуется наличием прикладного контекста, междисциплинарной направленности, вариативности решения и необходимостью обоснования выбранного алгоритма. В отличие от традиционных учебных примеров, она предполагает анализ исходных данных, выявление ограничений, построение математической модели, разработку программной реализации и интерпретацию полученных результатов. Именно такая структура обеспечивает формирование инженерного мышления, соединяющего теоретические знания и практические навыки.

Реализация практико-ориентированного подхода невозможна без педагогических инноваций, направленных на активизацию познавательной деятельности студентов. Проектно-ориентированное обучение позволяет интегрировать программирование в решение комплексных инженерных кейсов, связанных с автоматизацией технологических процессов, обработкой экспериментальных данных или моделированием технических систем. Проблемное обучение формирует способность самостоятельно формулировать алгоритм решения, выбирать оптимальные методы и оценивать эффективность программной реализации. Смешанные форматы обучения обеспечивают гибкость взаимодействия и расширяют возможности самостоятельной работы обучающихся с цифровыми ресурсами.

Особое место в современной методике занимает использование искусственного интеллекта как инструмента поддержки и адаптации образовательного процесса. Интеллектуальные системы автоматической проверки кода позволяют оперативно анализировать корректность алгоритма, выявлять синтаксические и логические ошибки, оценивать эффективность реализации. Алгоритмы анализа данных обучения способны выявлять повторяющиеся затруднения и формировать персонализированные рекомендации, что создаёт условия для индивидуализации обучения и минимизации типовых ошибок на ранних этапах формирования навыков.

Интеграция искусственного интеллекта в процесс обучения программированию предполагает построение поэтапной методической модели, представленной в таблице 1.

Таблица 1. Модель интеграции педагогических инноваций и ИИ в обучении программированию

Этап	**Педагогические действия**	**Инструменты ИИ**	**Формируемые компетенции**
Диагностический	Первичная оценка уровня знаний, анализ типовых ошибок	Автоматическая проверка кода, аналитика данных	Базовые алгоритмические навыки
Адаптивный	Дифференциация заданий, индивидуальные траектории	Адаптивные платформы, генерация задач	Умение выбирать методы решения
Проектный	Реализация инженерных кейсов	Анализ эффективности кода, подсказки	Инженерное мышление

Аналитико-коррекционный	Мониторинг прогресса, корректировка методики	Learning analytics, прогнозирование	Самостоятельность и рефлексия

Представленная модель демонстрирует взаимосвязь педагогических решений и интеллектуальных инструментов. Искусственный интеллект обеспечивает оперативную обратную связь и поддерживает адаптивность обучения, тогда как преподаватель определяет стратегию развития компетенций и методическую логику образовательного процесса.

Визуально концептуальная схема методической интеграции представлена на рисунке 1.



Рисунок 1. Концептуальная модель интеграции педагогических инноваций и искусственного интеллекта в обучении программированию.

На схеме отражено взаимодействие трёх ключевых компонентов: преподавателя как организатора образовательной среды, интеллектуальной цифровой платформы как инструмента адаптации и аналитики, а также студента как активного субъекта профессионального становления. Центральным элементом выступает практико-ориентированная задача, обеспечивающая связь теоретических знаний с реальной инженерной деятельностью. Обратная связь, формируемая системой искусственного интеллекта, позволяет корректировать содержание обучения и поддерживать индивидуальную траекторию развития.

Эффективность предложенной модели проявляется в повышении уровня самостоятельности обучающихся, развитии способности анализировать инженерные ситуации и выбирать адекватные программные средства для их решения. Апробация инновационного подхода демонстрирует сокращение

количества типовых алгоритмических ошибок, рост качества проектных работ и повышение мотивации студентов к изучению программирования. Интеграция интеллектуальных инструментов способствует объективизации оценивания и снижению субъективного фактора в проверке результатов.

Таким образом, сочетание педагогических инноваций и технологий искусственного интеллекта формирует целостную образовательную среду, ориентированную на развитие профессиональных компетенций будущих инженеров. Методологическая интеграция цифровых ресурсов обеспечивает адаптивность обучения, персонализацию образовательных траекторий и повышение качества подготовки специалистов, способных эффективно решать практические инженерные задачи в условиях цифровой экономики.

Заключение и практические рекомендации. Проведённый анализ показал, что интеграция педагогических инноваций и инструментов искусственного интеллекта в методику обучения решению практико-ориентированных задач по программированию является стратегически значимым направлением модернизации инженерного образования. Современные требования к подготовке специалистов инженерного профиля предполагают не только владение языками программирования, но и способность применять алгоритмические методы для решения реальных производственных задач, осуществлять моделирование технических процессов и разрабатывать программные решения в междисциплинарной среде. Практико-ориентированная направленность обучения способствует формированию устойчивых профессиональных компетенций, развитию системного и инженерного мышления, а также готовности к проектной деятельности. Включение в образовательный процесс реальных кейсов, задач прикладного характера и междисциплинарных проектов позволяет приблизить учебную деятельность к условиям будущей профессиональной практики. При этом искусственный интеллект выступает не как автономная обучающая система, а как инструмент методической поддержки, обеспечивающий адаптивность, оперативную обратную связь и аналитическое сопровождение образовательного процесса.

Результаты исследования позволяют сделать следующие выводы. Во-первых, педагогические инновации создают основу для перехода от репродуктивного обучения к деятельностной модели формирования компетенций. Во-вторых, интеллектуальные образовательные системы повышают эффективность контроля знаний и позволяют индивидуализировать образовательные траектории. В-третьих, комплексное применение инновационных методов и цифровых инструментов способствует повышению качества подготовки будущих инженеров и их конкурентоспособности на рынке труда. В-четвёртых, ключевым фактором успешной реализации предложенной модели является методическая готовность преподавателя к использованию цифровых и интеллектуальных ресурсов.

Практическая значимость работы заключается в возможности внедрения разработанной методической модели в учебный процесс инженерных

направлений подготовки. Полученные результаты могут быть использованы при разработке рабочих программ дисциплин по программированию, создании банка практико-ориентированных задач, проектировании цифровых образовательных курсов и организации повышения квалификации преподавателей.

В качестве практических рекомендаций целесообразно:

Разработать и внедрить систематизированный банк инженерных практико-ориентированных задач, отражающих реальные профессиональные ситуации.

Интегрировать в образовательный процесс адаптивные цифровые платформы с функциями интеллектуальной проверки и аналитики кода.

Организовать подготовку преподавателей по вопросам использования искусственного интеллекта и learning analytics в обучении программированию.

Включить в учебные планы проектно-ориентированные модули, предусматривающие междисциплинарное взаимодействие.

Разработать критерии оценки сформированности профессиональных компетенций с учётом аналитических данных интеллектуальных систем.

Таким образом, педагогические инновации и искусственный интеллект формируют методологическую основу подготовки будущих инженеров, ориентированную на практическую деятельность, адаптивность образовательной среды и развитие профессиональной самостоятельности.

Комплексное внедрение данных подходов обеспечивает повышение качества инженерного образования и соответствует стратегическим направлениям цифровой трансформации высшей школы.

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DIGITAL TECHNOLOGIES IN FORMING FOREIGN LANGUAGE PROFESSIONAL COMMUNICATIVE COMPETENCE OF FUTURE LAWYERS

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Abstract. *The article examines the role of digital technologies and artificial intelligence in the formation of foreign language professional communicative competence of future lawyers. It analyzes the concept of information competence and highlights the importance of integrating AI-related skills into the educational process.*

Keywords: *digital technologies; artificial intelligence; information competence; professional communicative competence; legal education.*

Аннотация. *В статье рассматривается роль цифровых технологий и искусственного интеллекта в формировании профессиональной коммуникативной компетенции будущих юристов на иностранном языке. Анализируются научные подходы к определению информационной компетенции и подчеркивается необходимость интеграции навыков работы с искусственным интеллектом в образовательный процесс.*

Ключевые слова: *цифровые технологии, искусственный интеллект, информационная компетенция, профессиональная коммуникативная компетенция, юридическое образование.*

The legal profession is undergoing significant transformation largely driven by technological development. Digital technologies and artificial intelligence are increasingly being introduced into almost every field, including the legal sphere, gradually changing the way legal services are delivered and how lawyers perform their professional activities. While technology enables reforms in the legal sector, the growing demand for more efficient and affordable legal services remains a key driver of these changes. As a result, new forms of legal products, online legal services, and digital systems—such as online courts and self-help platforms—are being developed to improve access to justice, particularly for individuals who cannot afford traditional legal assistance.[5]

In this context, the professional requirements for lawyers are also evolving. Modern legal specialists must not only possess strong legal knowledge but also demonstrate the ability to work effectively with digital tools, accurately interpret automated legal texts, and clearly express legally significant ideas. As emphasized by Asiimwe Kyomugisha, technological literacy plays an important role in the formation of competent, ethical, and effective legal professionals [1].

In scientific literature, various approaches exist to interpreting the concept of information competence. Scholars use different terms and conceptual frameworks to define and describe this phenomenon, including “information and communication competence,” “information and technological competence,” “information and computer competence,” “information competence,” and “information culture” [4]. In many studies, these terms are used interchangeably and are not clearly distinguished from one another.

Information competence is defined by L. Turusheva as a set of skills that enable individuals to determine the amount of information required, use information effectively, critically evaluate information and its sources, develop a personal knowledge base based on selected information, apply information to achieve specific goals, and use information ethically. Developing this idea, she also emphasizes that an important aspect of information competence is the ability to recognize when information is needed and to access, evaluate, and use it effectively. In the modern information environment, information can be obtained from various sources, including libraries, public resources, specialized organizations, mass media, and the Internet. However, much of this information is presented in an unfiltered form, which raises concerns about its authenticity, validity, and quality. The large volume of available information and the uneven reliability of sources create additional challenges for information users. Furthermore, relying on the definition developed by the Commission on Learning Resources and Instructional Technology (CLRIT) at the University of California, L. Turusheva interprets information competence as an integration of library, computer, and media literacy, technological skills, as well as ethical norms, effective thinking, and communicative skills [6].

According to N. Balovsyak, information competence represents a comprehensive personal capability that includes identifying information needs, search, processing, storage, and transmission of data in various formats, as well as effectively using information and communication technologies in both everyday life and professional activities. Expanding this perspective, K. V. Kovalyova emphasizes the structural components of informational-communicative competence, which in the modern educational context include technical, technological, informational, legal, and value-based elements [2].

A similar viewpoint is expressed by K. Martzoukou who suggests that “digital competence is understood as the ability to use constantly evolving digital tools and media effectively for learning, performing digital tasks, online communication, and teamwork, as well as adhering to ethical principles of information use and maintaining a mindset that values lifelong digital learning and development” [3].

Technological advancements have a huge impact on the practice of law. Specifically, artificial intelligence is being used more and more to perform in-depth legal studies using massive amounts of data in addition to automating routine legal procedures. In order to fulfill professional responsibilities and offer remote legal services, future specialists must be equipped to handle a variety of digital tasks.

We believe that a graduate of higher education’s professional communication competence includes information competence. The analysis of the scientific literature reveals that while different academics have consistently defined information competence, the problems pertaining to artificial intelligence within this competence have not received enough attention.

These days, artificial intelligence and digital technologies are quickly penetrating practically every aspect of human endeavor, including the legal profession. This means that future professionals must be trained to use these technologies efficiently and appropriately as needed. In this sense, under the circumstances of higher education institutions, future experts in the field of jurisprudence should develop specialized skills related to artificial intelligence in addition to technological or information-processing abilities.

Such competence becomes especially important in the context of teaching foreign languages because it equips students with the skills necessary to critically analyze legal texts produced by artificial intelligence, make accurate decisions based on them, fill in professional knowledge gaps, use digital platforms and expert systems efficiently, and apply these technologies appropriately in particular professional situations. Since modern legal communication is primarily conducted through digital platforms, AI-based legal databases, automated document-drafting tools, and search systems, this need becomes particularly apparent when teaching English to law students.

From an educational perspective, the rapid integration of digital technologies and artificial intelligence requires the systematic and methodical incorporation of these tools into the learning process. In such conditions, students must develop practical skills in working with AI systems, including the ability to assess their reliability, recognize their limitations, and understand the ethical implications of their use. Consequently, the development of information competence should be oriented toward the effective use of artificial intelligence, as this approach prepares future specialists to communicate effectively in professional environments mediated by digital technologies and to adapt to the evolving demands of the twenty-first-century labor market. In the legal field, these transformations significantly expand the structure of a modern lawyer's communicative competence, which now includes linguistic and discursive abilities, subject-specific knowledge, intercultural interaction, and digital skills essential for professional activity. These conditions necessitate the development of an appropriate methodological framework and deeper linguodidactic research to ensure students' readiness to communicate effectively in professional legal setting.

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“YOMG‘IRDA QOLGAN MUSHUK” HIKOYASIDA GENDERGA DOIR SO‘ZLARNING MAZMUNIY TAHLILI VA TA’LIM JARAYONIDA O‘RGATISH USLUBI

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Anotatsiya: *Ushbu maqolada Ernest Hemingwayning “Yomg‘irda qolgan mushuk” hikoyasida genderga doir so‘zlar va ularning badiiy mazmunga va tarjimalarga ta’siri qiyosiy tahlil qilinadi. Tadqiqotda ayol va erkak obrazlarini ifodalovchi leksik birliklar, murojaat shakllari hamda emotsional rangdorlikka ega til vositalari tahlil markaziga olinadi. Xususan, mushuk obrazi ayol qahramonning mehrga, e’tibor va erkinlikka bo‘lgan ichki ehtiyojlarini ifodalovchi metafora sifatida talqin etiladi. Tadqiqot natijalari tarjima jarayonida gender sezgirligini hisobga olish badiiy matn mazmunini to‘g‘ri va chuqur talqin qilishda va buni ta’lim jarayonida o‘rgatishda muhim omil ekanini ko‘rsatadi.*

Kalit so‘zlar: *Gender, tarjima tahlili, ayol obrazi, badiiy metafora, mushuk obrazi, leksik birliklar, Ernest Hemingway.*

Аннотация: *В данном исследовании анализируются слова, связанные с гендерной принадлежностью, в рассказе Эрнеста Хемингуэя «Кот под дождем» и их влияние на смысл и интерпретацию. Основное внимание уделяется лексическому выбору, формам обращения и эмоционально окрашенной речи, формирующим образы женщин и мужчин. Кот интерпретируется как метафора, отражающая внутренние потребности женского персонажа. Результаты показывают, что гендерно-чувствительный анализ необходим как для точной литературной интерпретации, так и для эффективных методов обучения в образовательном процессе.*

Ключевые слова*: Гендер, переводческий анализ, образ женщины, художественная метафора, образ кошки, лексические единицы, Эрнест Хемингуэй*

Abstract*: This study analyzes gender-related words in the short story “Cat in the Rain” and their influence on meaning and interpretation. It focuses on lexical choices, forms of address, and emotionally colored language that shape female and male images. The cat is interpreted as a metaphor reflecting the female character’s inner needs. The findings show that gender-sensitive analysis is essential both for accurate literary interpretation and for effective teaching methods in the educational process.*

Keywords*: Gender, translation analysis, female image, literary metaphor, cat image, lexical units, Ernest Hemingway.*

KIRISH

Mavzuning dolzarbligi. Bugungi kunda badiiy asarlarni tarjima qilish jarayonida nafaqat mazmuniy aniqlik, balki gender sezgirligini hisobga olish masalasi ham dolzarb ahamiyat kasb etmoqda. Ayniqsa, ayol va erkak obrazlari o‘rtasidagi munosabatlar, ularning ijtimoiy va psixologik holati tarjima jarayonida til vositalari orqali turlicha talqin qilinishi mumkin. Ernest Hemingwayning

“Yomg‘irda qolgan mushuk” hikoyasi ushbu jihatdan muhim asarlardan biri bo‘lib, unda ayol qahramonning ichki ehtiyojlari va erkak obrazining befarqligi gender masalasi doirasida badiiy ifodasini topgan. Hikoyaning uch xil tarjimasida genderga doir so‘zlarning turlicha berilishi mazmun va obraz talqiniga sezilarli ta’sir ko‘rsatadi. Shu bois mazkur mavzuni tadqiq etish zamonaviy tarjimashunoslik va gender lingvistikasi nuqtayi nazaridan dolzarb hisoblanadi. Ushbu mavzu nafaqat tarjimashunoslik, balki inklyuziv va adaptiv ta’lim nuqtayi nazaridan ham muhimdir. Chunki genderga sezgir yondashuv asosida badiiy matnlarni o‘rganish talabalarda tenglik, hurmat va ijtimoiy ongni shakllantirishga xizmat qiladi.

Tadqiqotning maqsadi va vazifalari. Tadqiqotning asosiy maqsadi “Yomg‘irda qolgan mushuk” hikoyasining uch tarjimasida genderga doir leksik birliklarning berilishi va ularning badiiy mazmunga ta’sirini qiyosiy tahlil qilishdan iborat. Mazkur maqsadni amalga oshirish uchun quyidagi vazifalar belgilandi:

- Gender tushunchasining badiiy matndagi o‘rnini aniqlash;
- Ayol va erkak obrazlarini ifodalovchi til birliklarini tahlil qilish;
- Mushuk obrazining metaforik ma’nosini ochib berish;
- Tarjimalarda genderga oid birliklarning mazmuniy farqlarini aniqlash.

Shuningdek, tadqiqot natijalari asosida badiiy matnlarda genderga oid birliklarni o‘qitishning samarali metodlarini ishlab chiqish ham ko‘zda tutiladi.

Tadqiqot metodologiyasi. Mazkur tadqiqotda qiyosiy-tahliliy, semantik va kontekstual tahlil metodlaridan foydalanildi. Shuningdek, gender lingvistikasi va tarjimashunoslik nazariyalariga tayangan holda leksik birliklarning funksional xususiyatlari o‘rganildi. Tarjimalardagi farqlarni aniqlashda tavsifiy va interpretativ metodlar qo‘llanildi. Ushbu metodologiya badiiy matn tarjimasida gender omilining mazmuniy ahamiyatini chuqurroq ochib berishga xizmat qiladi. Mazkur metodlar ta’lim jarayonida ham qo‘llanilib, talabalarni matnni chuqur tahlil qilishga, gender stereotiplarini aniqlashga va tanqidiy fikrlash ko‘nikmalarini rivojlantirishga xizmat qiladi.

ASOSIY NAZARIY ASOSLAR

Badiiy tarjima jarayonida gender masalasi so‘nggi yillarda lingvistika va tarjimashunoslikning muhim tadqiqot yo‘nalishlaridan biriga aylandi. Gender lingvistikasi vakillarining ta’kidlashicha, til orqali ijtimoiy rollar, psixologik holatlar va madaniy stereotiplar uzatiladi [4]. Shu nuqtayi nazardan qaralganda, badiiy matn tarjimasida ayol va erkak obrazlariga oid leksik birliklarning tanlanishi asar mazmuniga bevosita ta’sir ko‘rsatadi.

Tarjimashunos olim Yu. Naydaning fikricha, tarjimada faqatgina shakliy ekvivalentlik emas, balki mazmuniy va funksional ekvivalentlik ham muhim ahamiyatga ega (5). Ayniqsa, genderga doir birliklar tarjimasida funksional moslik saqlanmasa, qahramon obrazining talqini o‘zgarib ketishi mumkin. Bu holat Ernest Hemingwayning “Yomg‘irda qolgan mushuk” hikoyasi tarjimalarida yaqqol kuzatiladi.

G. Turi tarjimani madaniy hodisa sifatida baholab, tarjimon tanlovi har doim muayyan ijtimoiy va madaniy normalarga tayanganini ta’kidlaydi [6]. Ushbu yondashuv gender masalasini tahlil qilishda muhim nazariy asos bo‘lib xizmat

qiladi, chunki ayol obrazining passiv yoki faol tarzda berilishi ko‘pincha tarjimonning madaniy qarashlari bilan bog‘liq bo‘ladi.
Shuningdek, S. Bassnett badiiy tarjimada ayol ovozi va ichki nutqning yetarlicha aks ettirilmasligi asar mazmunini soddalashtirib yuborishini qayd etadi (7). Mazkur fikr “Yomg‘irda qolgan mushuk” hikoyasidagi ayol qahramonning ichki kechinmalari tarjimada qanday berilganini tahlil qilishda muhim ahamiyat kasb etadi.

Xulosa qilib aytganda, gender lingvistikasi va zamonaviy tarjimashunoslik nazariyalari badiiy matn tarjimasida ayol va erkak obrazlarini chuqurroq tahlil qilish imkonini beradi. Ushbu nazariy yondashuvlar hikoyaning turli tarjimalarida mushuk obrazining ayol qahramon ichki ehtiyojlarining metaforasi sifatida talqin etilishini asoslashga xizmat qiladi.

Shu bilan birga, genderga oid til birliklarini tahlil qilish adabiy matnlarni o‘qitish jarayonida ham muhim metodik ahamiyatga ega. Tadqiqotchilar ta’kidlashicha, badiiy matnlar asosida gender stereotiplari va til vositalarini tahlil qilish talabalarning tanqidiy fikrlashini rivojlantiradi hamda til va madaniyat o‘rtasidagi bog‘liqlikni chuqurroq anglashga yordam beradi [8], [9], [10]. Shu sababli, bunday yondashuvni adabiy matnlarni o‘qitish metodikasida qo‘llash talabalarning lingvistik va madaniy kompetensiyalarini rivojlantirishda samarali vosita hisoblanadi.

Bu nazariy yondashuvlar asosida badiiy matnlarni o‘qitishda interaktiv metodlardan, jumladan, muhokama, qiyosiy tahlil va rol o‘ynash usullaridan foydalanish talabalarning gender masalalarini chuqurroq anglashiga yordam beradi.

Tahlil. Ernest Hemingwayning “Yomg‘irda qolgan mushuk” hikoyasi qisqa hajmiga qaramay, ayol va erkak o‘rtasidagi psixologik nomutanosiblikni, ayolning ichki ehtiyojlari va jamiyatdagi o‘rnini yorituvchi chuqur gender mazmuniga ega asardir. Ushbu hikoyaning o‘zbek tiliga uch xil tarjimada o‘girilishi jarayonida genderga doir so‘zlar, murojaat shakllari va tavsiflar turlicha talqin etilgan bo‘lib, bu holat ayol obrazi va umumiy mazmunga sezilarli darajada ta’sir ko‘rsatgan.
Birinchi tarjimada [3] ayol obrazi asosan “Amerikalik ayol”, “Ayol”, “Xotin” kabi betaraf va umumiy nomlar orqali ifodalanadi. Bu tarjimada ayolning hissiy holati nisbatan sokin, ichki kechinmalari esa yashirinroq tarzda berilgan. Gender jihatdan ayolning ojizligi bevosita ochiq ko‘rsatilmadi, balki uning “Mushukni erkalash istagi”, “sochini o‘stirishni xohishi” orqali ramziy tarzda ifodalandi. Erkak obrazi esa “Eri”, “Jorj” nomlari bilan berilib, u doimo passiv, sovuqqon va befarq holatda tasvirlanadi. Bu tarjimada gender farqi asosan xatti-harakatlar orqali seziladi, leksik birliklar esa nisbatan neytral tusda qoladi.

Ikkinchi tarjimada [1], [2] genderga doir so‘zlar yanada aniq va madaniy rang-baranglik bilan berilgan. Bu yerda ayol “Xonim”, “Amerikalik muhojir ayol” tarzida tasvirlanib, unga nisbatan hurmat va muloyimlik ohangi kuchliroq seziladi. Shu bilan birga, ayolning ichki iztiroblari ochiqroq ifodalanib, uning mushukka bo‘lgan mehr ehtiyoji ayollik, ona bo‘lish va himoyaga muhtojlik timsoli sifatida talqin qilinadi. Erkak obrazi esa ayol istaklariga loqayd munosabat bildiruvchi shaxs sifatida yanada keskinroq ko‘rinadi. Bu tarjimada gender qarama-qarshiligi aniqroq

ochilgan bo‘lib, ayol va erkak rollari orasidagi tafovut til vositalari orqali kuchaytirilgan.

Uchinchi tarjimada [1], [2] esa genderga doir birliklar yanada emotsional va xalqona tus olgan. “Xonim”, “janob”, “er-xotin”, “jonivor”, “bechora” kabi so‘zlar ayol obrazining nozik, mehrga chanqoq va ruhiy jihatdan ezilgan holatini yanada kuchliroq ochib beradi. Bu tarjimada ayolning nutqi uzun, hissiyotlarga boy bo‘lib, uning istaklari ketma-ket sanab o‘tiladi. Erkak obrazi esa qisqa, buyruqohang va keskin gaplar bilan ifodalanib, patriarxal ustunlikni eslatadi. Natijada gender tengsizlik bu tarjimada eng yorqin va ochiq shaklda namoyon bo‘ladi.

Hemingway ayol qahramonga ism bermasdan, uning jamiyatdagi va oiladagi tutgan o‘rni o‘sha zamon uchun ahamiyatsiz bo‘lgani va chekka o‘rinda turganini ko‘rsatib beradi. Erkak qahramon ism orqali shaxs sifatida individuallashtirilgan bo‘lsa, ayol faqat ijtimoiy va munosabatlarga bog‘liq rollar (“ayol”, “xotin”, “qiz”) orqali ta’riflanadi. Bu holat ular o‘rtasidagi tenglik nomutanosibligini va XX asr boshlariga xos bo‘lgan patriarxal tizimni aks ettiradi. Ayol qahramonning ismsiz qoldirilishi uning tajribasini umumlashtiradi va uni mustaqil shaxs emas, balki ayollarning hissiy yolg‘izligi va ehtiyojini ifodalovchi ramziy obrazga aylantiradi.

Uch tarjimani qiyosiy tahlil qilish shuni ko‘rsatadiki, genderga doir so‘zlarning tanlanishi va qo‘llanishi hikoya mazmunini turlicha talqin qilishga olib keladi. Birinchi tarjimada gender masalasi nisbatan yashirin va ramziy bo‘lsa, ikkinchi tarjimada ayolning ijtimoiy va hissiy holati aniqroq yoritiladi, uchinchi tarjimada esa ayolning ruhiy iztiroblari va erkakka qaramligi ochiqdan-ochiq ko‘rsatilib, gender muammosi keskinroq tus oladi.

Xulosa qilib aytganda, “Yomg‘irda qolgan mushuk” hikoyasining uch tarjimasida genderga doir so‘zlarning berilishi ayol obrazining talqinida sezilarli farqlarni yuzaga keltiradi. Bu farqlar asarning mazmuniy qatlamini boyitib, mushuk obrazining ayolning ichki ehtiyojlari, mehr va erkinlikka bo‘lgan intilishining metaforasi sifatidagi ahamiyatini har bir tarjimada turlicha darajada ochib beradi.

Mazkur tahlil natijalarini ta’lim jarayonida qo‘llash orqali talabalar turli tarjimalarni solishtirish, gender ifodalarini aniqlash va ularning mazmunga ta’sirini baholash ko‘nikmalarini rivojlantiradilar. Bu esa inklyuziv ta’lim muhitini shakllantirishda muhim ahamiyatga ega.

Yechim va tavsiyalar. Tadqiqot natijalari shuni ko‘rsatadiki, Ernest Hemingwayning “Yomg‘irda qolgan mushuk” hikoyasining turli tarjimalarida genderga doir leksik birliklar va ayol obrazining ifodalanishi sezilarli darajada farqlanadi. Bu holat asosan tarjimonning individual uslubi, madaniy qarashlari hamda ayol obraziga bo‘lgan munosabati bilan bog‘liq.

Birinchidan, badiiy tarjimada ayol qahramonning ichki kechinmalari va psixologik holatini aks ettirishda mazmuniy va funksional ekvivalentlikka ustuvorlik berish tavsiya etiladi. Shakliy soddalashtirish ayol obrazining hissiy qatlamini susaytirishi mumkin.

Ikkinchidan, genderga oid birliklarni tarjima qilish jarayonida tarjimon ijtimoiy-gender stereotiplardan xoli bo‘lishi, matnning asl ruhini saqlagan holda betaraf yondashuvni qo‘llashi lozim.

Uchinchidan, tarjimonlarni tayyorlash jarayonida gender lingvistikasi va madaniyatlararo kommunikatsiya masalalariga alohida e’tibor qaratish zarur.
To‘rtinchidan, badiiy matnlarni o‘qitishda genderga sezgir yondashuv asosida maxsus mashg‘ulotlar, tahliliy topshiriqlar va muhokama darslarini tashkil etish tavsiya etiladi.

Mazkur tadqiqot natijalari kelgusida badiiy tarjima, gender tadqiqotlari va qiyosiy tarjima tahlillari uchun nazariy va amaliy asos bo‘lib xizmat qilishi mumkin.

XULOSA

Mazkur maqolada Ernest Hemingwayning “Yomg‘irda qolgan mushuk” hikoyasining uch xil tarjimasi asosida genderga doir leksik birliklarning qo‘llanilishi va ularning badiiy mazmunga ta’siri tahlil qilindi. Tadqiqot jarayonida ayol qahramon obrazi har bir tarjimada turlicha talqin etilgani aniqlandi. Ayrim tarjimalarda ayolning ichki kechinmalari, hissiy ehtiyojlari va ruhiy holati yanada nozik va chuqur ifodalangan bo‘lsa, boshqalarida esa bu jihatlar soddalashtirilgan yoki ikkinchi darajaga surilgan.

Tahlillar shuni ko‘rsatdiki, genderga oid birliklarning tarjimadagi tanlovi matnning umumiy ohangi va qahramon xarakterining shakllanishida muhim rol o‘ynaydi. Tarjimonning til birliklarini tanlashdagi yondashuvi ayol obrazining o‘quvchi tomonidan qabul qilinishiga bevosita ta’sir etadi. Shuningdek, ushbu yondashuvni ta’lim jarayoniga joriy etish talabalarda gender tengligi, tanqidiy fikrlash va madaniy ongni rivojlantirishga xizmat qiladi, bu esa inklyuziv va adaptiv ta’limning muhim tamoyillaridan biridir.

Shu bois, badiiy asarlarni tarjima qilish jarayonida genderga sezgir yondashuvni shakllantirish, ayol obrazining ichki dunyosini to‘liq va muvozanatli tarzda yetkazishga intilish muhim ahamiyat kasb etadi. Mazkur tahlil tarjima jarayonida mazmun va uslub uyg‘unligini ta’minlash zarurligini yana bir bor tasdiqlaydi.

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OLIY TA’LIM MUASSASALARIDA TA’LIM JARAYONINI BOSHQARISHNI TAKOMILLASHTIRISHDA KREATIV YONDASHUV MASALALARI

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Annotatsiya. *Mazkur tadqiqotda oliy ta’lim muassasalarida ta’lim jarayonini boshqarish tizimini kreativ yondashuv asosida takomillashtirishning nazariy va metodik jihatlari kompleks tahlil qilindi. Ta’lim menejmenti samaradorligini oshirishda innovatsion pedagogik texnologiyalarni qo‘llash, ta’lim muhitida ijodiy faoliyatni rivojlantirish hamda strategik boshqaruv mexanizmlarini modernizatsiya qilishning pedagogik imkoniyatlari asoslab berildi.*

Kalit so‘zlar: *kreativ pedagogika, ta’lim menejmenti, innovatsion boshqaruv, strategik rivojlanish, pedagogik tizim, kompetensiyaviy yondashuv*

Аннотация. *В данном исследовании комплексно проанализированы теоретические и методические аспекты совершенствования системы управления образовательным процессом в высших учебных заведениях на основе креативного подхода. Обоснованы педагогические возможности применения инновационных образовательных технологий для повышения эффективности образовательного менеджмента, развития творческой активности в образовательной среде и модернизации механизмов стратегического управления.*

Ключевые слова: *креативная педагогика, образовательный менеджмент, инновационное управление, стратегическое развитие, педагогическая система, компетентностный подход.*

Abstract. *This study provides a comprehensive analysis of the theoretical and methodological aspects of improving the management system of the educational process in higher education institutions based on a creative approach. The pedagogical potential of applying innovative educational technologies to enhance the effectiveness of educational management, foster creative activity within the learning environment, and modernize strategic management mechanisms is substantiated.*

Keywords: *creative pedagogy, educational management, innovative management, strategic development, pedagogical system, competency-based approach.*

Kirish. Bugungi globallashuv sharoitida oliy ta’lim tizimining sifati va bitiruvchilarning xalqaro mehnat bozorida raqobatbardoshligini ta’minlash masalasi strategik ahamiyat kasb etmoqda. Zamonaviy jamiyatning intellektual rivojlanishi, innovatsion iqtisodiyotning shakllanishi hamda texnologik taraqqiyot sur’atlarining ortib borishi ta’lim jarayonini yangicha yondashuvlar asosida boshqarishni taqozo etmoqda. Shu nuqtai nazardan, xalqaro miqyosda oliy ta’lim sifatini monitoring qilish va takomillashtirish bilan shug‘ullanuvchi nufuzli tashkilotlar tomonidan ta’lim mazmunini modernizatsiya qilish, kompetensiyaviy yondashuvni rivojlantirish va ta’lim texnologiyalarini innovatsion asosda tashkil etish dolzarb vazifa sifatida e’tirof etilmoqda.

Xususan, oliy ta’lim jarayonini modulli tizim asosida tashkil etish, talabalar mustaqil ta’limini kengaytirish hamda o‘qitishning interfaol metodlarini joriy etish orqali bo‘lajak mutaxassislarning kasbiy kompetentligini rivojlantirishga alohida e’tibor qaratilmoqda. Bunday yondashuv nafaqat bilimlarni egallash

samaradorligini oshiradi, balki shaxsning kreativ fikrlashi, muammoli vaziyatlarda mustaqil qaror qabul qilish ko‘nikmalarini shakllantirishga xizmat qiladi.

Mamlakatimiz oliy ta’lim tizimida ham izchil islohotlar amalga oshirilmoqda. Ularning asosiy maqsadi — milliy ta’lim modelini xalqaro standartlarga uyg‘unlashtirish, ta’lim muassasalarining akademik mustaqilligini kengaytirish hamda ilmiy-innovatsion faoliyatni jadallashtirishdan iborat. Shu jarayonda rivojlangan davlatlar tajribasini o‘rganish va uni milliy ta’lim tizimiga adaptatsiya qilish muhim ahamiyat kasb etmoqda.

Tarixiy tajriba shuni ko‘rsatadiki, qaysi jamiyatda ilm-fan va texnologik yangiliklarga keng yo‘l ochilsa, o‘sha hududda ijtimoiy-iqtisodiy rivojlanishning yangi bosqichi — intellektual yuksalish davri yuzaga keladi. Oliy ta’lim muassasalari ana shunday taraqqiyotning asosiy drayverlaridan biri sifatida jamiyatning ilmiy salohiyatini oshirishda yetakchi o‘rin tutadi.

Shu bois hozirgi davrda oliy ta’lim sifati tushunchasiga tizimli va kompleks yondashuv zarur. Mazkur tushuncha ta’lim mazmuni, pedagogik jarayonni tashkil etish samaradorligi, boshqaruv mexanizmlarining innovatsionligi hamda bitiruvchilarning kasbiy tayyorgarlik darajasi bilan chambarchas bog‘liq ko‘p qirrali ijtimoiy-pedagogik kategoriyani ifodalaydi.

Asosiy qism. Mamlakatimizda ta’lim tizimini modernizatsiya qilish jarayonida pedagogik jarayonni boshqarishning innovatsion mexanizmlarini joriy etish ustuvor vazifalardan biri sifatida belgilanmoqda. Bu esa o‘quv jarayonini samarali tashkil etish, ta’lim sifatini oshirish hamda talabalarning bilim, ko‘nikma va kompetensiyalarini rivojlantirishda yangi boshqaruv yondashuvlarini talab etadi.

Boshqaruv jarayoni faqat ishlab chiqarish sohasiga xos hodisa bo‘lib qolmay, balki ijtimoiy tizimlarning barcha bo‘g‘inlarida, xususan, ta’lim tizimida ham muhim metodologik kategoriya hisoblanadi. Ta’lim muassasasida boshqaruv — bu pedagogik jarayonni rejalashtirish, tashkil etish, muvofiqlashtirish, monitoring qilish va natijalarni tahlil etish orqali strategik maqsadlarga erishishga qaratilgan kompleks faoliyatdir.

Zamonaviy pedagogik menejment nazariyasida boshqaruv tushunchasi avvalgi “ma’muriy ta’sir” paradigmasidan farqli ravishda “hamkorlik”, “o‘zaro ta’sir”, “refleksiv boshqaruv” kabi kategoriyalar bilan boyimoqda. Bu esa ta’lim jarayonida sub’ektlararo munosabatlarning demokratik tamoyillar asosida shakllanishiga, shaxsga yo‘naltirilgan boshqaruv modelining rivojlanishiga xizmat qiladi.

Ta’lim menejmenti — bu o‘quv-tarbiya jarayonini samarali tashkil etish, pedagogik jamoaning faoliyatini muvofiqlashtirish hamda raqobatbardosh mutaxassislarni tayyorlashga qaratilgan ilmiy-amaliy tamoyillar tizimidir. Mazkur yo‘nalish strategik rejalashtirish, innovatsion texnologiyalarni joriy etish, sifat monitoringi va institutsional rivojlanish kabi komponentlarni o‘z ichiga oladi.

Oliy ta’lim muassasasini boshqarishda tizimli yondashuv alohida ahamiyat kasb etadi. Chunki ta’lim muassasasi murakkab ijtimoiy-pedagogik tizim bo‘lib, uning tarkibiy qismlari o‘zaro integratsiya jarayonida yangi sifat ko‘rsatkichlarini shakllantiradi. Ushbu tizimning samarali faoliyati ichki strukturaviy barqarorlik va tashqi muhit bilan uzviy aloqadorlikka bog‘liqdir.

Boshqaruv jarayonida markazlashtirish va markazlashtirmaslik tamoyillarining optimal uyg‘unligi muhimdir. Haddan tashqari markazlashgan boshqaruv pedagogik tashabbusning susayishiga olib kelsa, ortiqcha erkinlik esa tizimda tartibsizlik va muvofiqlashtirish muammolarini yuzaga keltirishi mumkin. Shu sababli kollegial qaror qabul qilish mexanizmlarini joriy etish bilan bir qatorda, ijro intizomini ta’minlashga qaratilgan individual mas’uliyat tizimini shakllantirish zarur.Ta’lim jarayonini samarali boshqarish axborot ta’minotining sifatiga ham bevosita bog‘liq.

Pedagogik monitoring, diagnostika va analitik tahlil vositalaridan oqilona foydalanish boshqaruv qarorlarining ilmiy asoslanganligini ta’minlaydi. Talabalarning o‘quv natijalari bilan bir qatorda, ularning motivatsiyasi, shaxsiy qiziqishlari va kasbiy yo‘nalishlarini o‘rganish ta’lim jarayonining individualizatsiyasiga xizmat qiladi.

Zamonaviy oliy ta’lim muassasasi rahbari nafaqat ma’muriy boshqaruvchi, balki strategik menejer sifatida ham faoliyat yuritishi zarur. U innovatsion pedagogik texnologiyalarni joriy etish, axborot-kommunikatsiya vositalaridan samarali foydalanish hamda ilmiy-metodik ishlarni muvofiqlashtirish orqali ta’lim jarayonining sifatini oshirishga bevosita ta’sir ko‘rsatadi.

Shu tariqa, kreativ yondashuv asosida tashkil etilgan boshqaruv tizimi oliy ta’lim muassasasining raqobatbardoshligini ta’minlash, innovatsion rivojlanishini jadallashtirish va ta’lim sifatini yangi bosqichga olib chiqishda muhim omil sifatida namoyon bo‘ladi.

Adabiyotlar sharhi. Pedagogik jarayonda kreativlikni rivojlantirish muammolari ko‘plab xorijiy va mahalliy tadqiqotchilar tomonidan o‘rganilgan. Jumladan, I.P. Ivanov ta’lim jarayonida jamoaviy ijodiy faoliyatni tashkil etish shaxsning ijtimoiy faolligi va mustaqil fikrlashini rivojlantirishning muhim omili ekanligini ta’kidlaydi.

Institutsional pedagogika nazariyasi vakili F. Oury ta’lim muhitini demokratlashtirish orqali boshqaruv samaradorligini oshirish mumkinligini asoslab bergan. Uning fikricha, ta’lim subyektlari o‘rtasidagi hamkorlik ijodiy rivojlanishning muhim shartidir.

Ta’lim menejmenti nazariyasida J. Stoner tomonidan ishlab chiqilgan boshqaruv funksiyalari modeli pedagogik tizimni strategik rejalashtirish va monitoring qilishning muhim metodologik asosi hisoblanadi[3].

O‘zbekistonlik olimlar M. To‘xtaxo‘jayev, U. Nishonov va R. Jalolovlar ta’lim muassasalarini boshqarishning innovatsion mexanizmlarini ishlab chiqib, ta’lim sifatini ta’minlashning tashkiliy-pedagogik omillarini ilmiy jihatdan asoslab berganlar.

Tadqiqot metodologiyasi. Tadqiqot jarayonida tizimli-faoliyat yondashuvi, pedagogik modellashtirish, qiyosiy-tahliliy o‘rganish, refleksiv baholash hamda empirik kuzatish metodlaridan foydalanildi. Ushbu metodlar ta’lim jarayonini boshqarishning kreativ modelini ishlab chiqish hamda uning samaradorligini nazariy asoslash imkonini berdi.

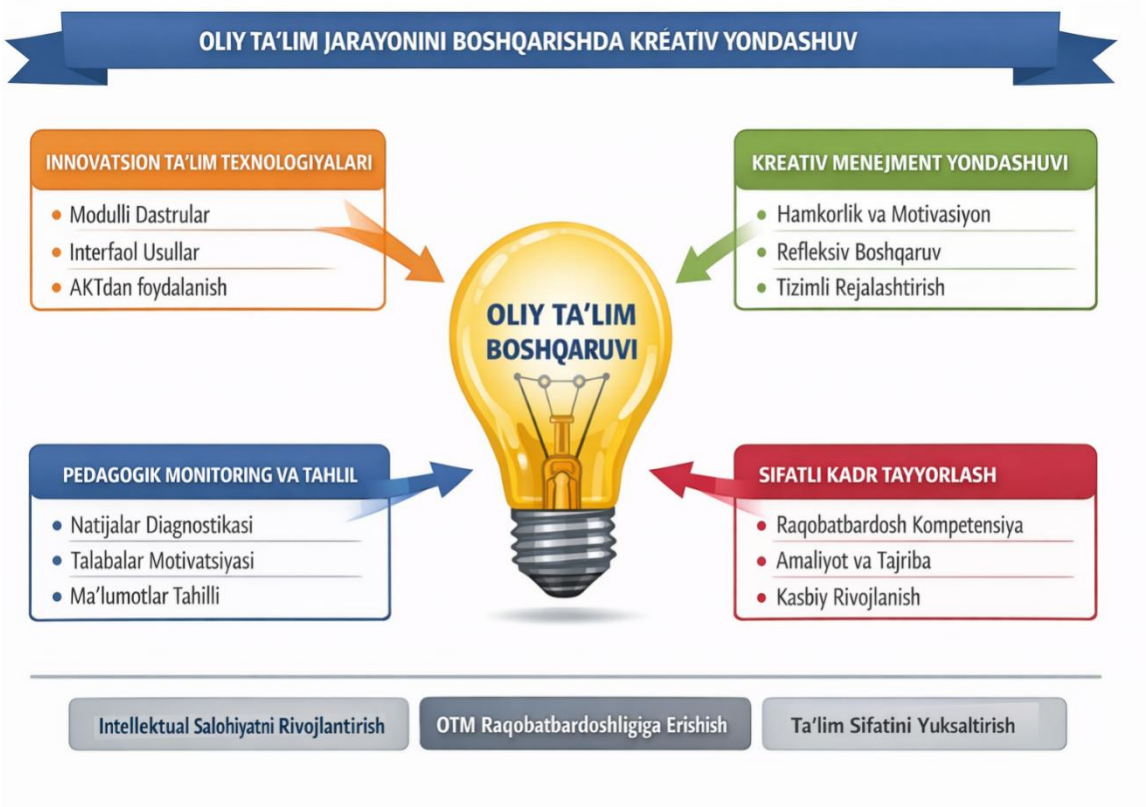
Tadqiqot natijalari. Olib borilgan ilmiy izlanishlar natijasida ta’lim jarayonini boshqarishning kreativ metodik modeli ishlab chiqildi. Mazkur model quyidagi tarkibiy komponentlardan iborat:

Diagnostik komponent. Ta’lim jarayonining mavjud holatini tahlil qilish, pedagogik faoliyat samaradorligini monitoring qilish va ta’lim subyektlarining ehtiyojlarini aniqlash ushbu bosqichning asosiy vazifalarini tashkil etadi.

Loyihaviy komponent. Innovatsion o‘quv dasturlarini ishlab chiqish, interfaol ta’lim texnologiyalarini joriy etish hamda kreativ o‘quv muhitini loyihalash mazkur bosqichning muhim yo‘nalishlari hisoblanadi.

Tashkiliy-faoliyat komponenti. Ta’lim jarayonida raqamli platformalardan samarali foydalanish, akademik hamkorlikni rivojlantirish hamda pedagogik jamoaning ijodiy salohiyatini qo‘llab-quvvatlash ushbu bosqichning asosini tashkil etadi.

Refleksiv-baholash komponenti. Ta’lim natijalarini tahlil qilish, boshqaruv faoliyatini optimallashtirish hamda strategik rivojlanish yo‘nalishlarini belgilash mazkur bosqich orqali amalga oshiriladi.



Muhokama. Kreativ boshqaruv modeli ta’lim jarayonida innovatsion faoliyatni rag‘batlantirish orqali pedagogik tizimning samaradorligini oshirishga xizmat qiladi. Bunday yondashuv talabalarning mustaqil bilim olish, muammoli vaziyatlarni hal etish hamda ijodiy tafakkur ko‘nikmalarini rivojlantirish imkonini yaratadi. Shuningdek, boshqaruv tizimida kreativ strategiyalarning qo‘llanilishi oliy ta’lim muassasasining institutsional rivojlanishiga ijobiy ta’sir ko‘rsatadi.

Xulosa. Xulosa qilib aytganda, kreativ yondashuv asosida tashkil etilgan boshqaruv tizimi ta’lim jarayonining innovatsion rivojlanishini ta’minlab, zamonaviy mehnat bozori talablariga mos raqobatbardosh mutaxassislarni tayyorlash imkonini beradi. Taklif etilgan metodik model oliy ta’lim muassasalarida

ta’lim sifati va boshqaruv samaradorligini oshirishning muhim omili sifatida namoyon bo‘ladi.

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN DEVELOPING COMMUNICATIVE COMPETENCE IN LANGUAGE LEARNING

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Abstract. *This article emphasizes the role and impact of Artificial Intelligence (AI) on the development of communicative competence in language learners, with an emphasis on Communicative Language Teaching (CLT) principles. AI technologies, including adaptive learning systems, intelligent chatbots, and speech recognition tools, provide personalized feedback, interactive learning opportunities, and real-time assessment. The integration of AI within CLT-based instruction enhances learner autonomy, facilitates meaningful communication practice, and promotes effective language acquisition.*

Keywords: *Artificial Intelligence; Communicative Competence; CLT; Adaptive Learning; Chatbots; Speech Recognition tools.*

Annotatsiya. *Ushbu maqola sun’iy intellekt (SI) ning til o‘rganuvchilarda kommunikativ kompetensiyani rivojlantirishdagi ahamiyatini va ta’siri to‘g‘risida fikr yuritadi. Xususan, Communicative Language Teaching (CLT) tamoyillariga urg‘u beriladi. SI texnologiyalari — adaptiv o‘quv tizimlari, intellektual chat-botlar va nutqni tanib olish vositalari — individual fikr-mulohazalar, interaktiv mashqlar va real vaqt rejimida baholash imkoniyatini taqdim etadi. CLT asosidagi darslarga SI integratsiyasi o‘quvchilarning mustaqilligini oshiradi, mazmunli muloqot mashqlarini rivojlantiradi va til ko‘nikmalarini samarali egallashni rag‘batlantiradi.*

Kalit so‘zlar: *Sun’iy intellekt; Kommunikativ kompetensiya; CLT; Adaptiv o‘qitish; Chat-botlar; Nutqni tanib olish instrumenti.*

Аннотация. *Статья посвящена влиянию искусственного интеллекта (ИИ) на развитие коммуникативной компетенции у изучающих иностранные языки, с акцентом на принципы Communicative Language Teaching (CLT). Технологии ИИ, включая адаптивные обучающие системы, интеллектуальные чат-боты и инструменты распознавания речи, предоставляют персонализированную обратную связь, интерактивные возможности обучения и оценку в реальном времени. Интеграция ИИ в обучение по принципам CLT способствует автономии учащихся, развитию осмысленной коммуникационной практики и эффективному освоению языка.*

Ключевые слова: *Искусственный интеллект; Коммуникативная компетенция; CLT; Адаптивное обучение; Чат-боты; Инструменты распознавания речи.*

Introduction. In contemporary education, communicative competence has become an essential part of language learning. Traditional grammar-focused approaches have shifted toward Communicative Language Teaching (CLT), which emphasizes authentic interaction, a student-centred approach, and task-based activities (Richards & Rodgers, 2014). Simultaneously, Artificial Intelligence (AI) is transforming pedagogy through adaptive learning systems, chatbots, automated assessment, and speech recognition tools.

Artificial Intelligence in language learning includes adaptive learning platforms that track learner performance, customize tasks, and provide immediate feedback (Luckin et al., 2016). Intelligent chatbots simulate real conversation

scenarios, enabling learners to practice negotiation of meaning in safe, repeatable contexts. Speech recognition applications assess pronunciation, intonation, and fluency, offering corrective suggestions aligned with CLT principles (Chapelle, 2017). AI also facilitates automated assessment and feedback, freeing teachers for more creative and interactive classroom activities (Holmes et al., 2019). This article will investigate how AI can be applied in CLT-based language instruction to enhance communicative competence while maintaining ethical and pedagogical standards.

Main Body. CLT prioritizes meaningful communication over systematic memorization typical of traditional learning approaches (Richards & Rodgers, 2014). Communicative competence is the concept that refers to a learner's ability to use the language effectively and relevantly in various authentic contexts. In particular, it focuses on the competent interaction or communication process. The term "communicative competence" was introduced by the American sociolinguist Dell Hymes in the 1960s in accordance with the theory of "linguistic competence" suggested by Noam Chomsky (1972). However, linguistic competence primarily supports the acquisition of grammatical knowledge and structure.

According to Canale and Swain (1980), communicative competence encompasses ***linguistic competence, sociolinguistic competence, strategic competence, and discourse competence.*** Each category involves particular components that are vital to competence.

Integrating AI allows each competence area to be supported through personalized, interactive exercises. With advances in technology, namely AI, in language education, each of the listed competences can be supported through adaptive, personalized, and communicative learning environments. AI-powered tools such as intelligent tutoring systems, chatbots, speech-recognition software, and automated feedback platforms allow learners to practice different language skills in ways that simulate authentic communication and provide immediate feedback. (Chapelle, 2017; Godwin-Jones, 2018).

Below is an elaboration of how AI can support the components of each communicative competence:

Table 1

Linguistic competence:	Grammar
	Vocabulary
	Pronunciation
	Sentence structure

"Linguistic competence" refers to the knowledge of the formal aspects of language. It allows learners to produce grammatically correct sentences and understand the rules of a language. As illustrated in the table, linguistic competence involves grammar, vocabulary, pronunciation, and sentence structure.

AI-based language learning systems can provide “personalized grammar and vocabulary practice”. Using machine learning algorithms, these systems analyze a learner’s performance and adapt exercises according to their level, strengths, and weaknesses (Holmes et al., 2019). The effective use of AI can support students to work individually, considering their knowledge of a language.

AI-driven platforms can:

- ❖ generate customized grammar exercises based on previous errors
- ❖ provide automatic correction of grammar and spelling
- ❖ offer pronunciation feedback through speech-recognition technology
- ❖ recommend vocabulary practice tailored to the learner’s needs

Table 2

Sociolinguistic competence:	Cultural norms
	Register (formal and informal)
	Interrelations between speakers
	The category of politeness

“Sociolinguistic competence” is one of the vital aspects of communicative competence, and it refers to the appropriate use of language in different “social contexts.” This component involves a process of understanding cultural norms, formal and informal registers, the relationship between communicators, and the expression of politeness. Sociolinguistic competence is considered a key feature because it concerns the norms of communication and the behaviour of speakers. AI tools can simulate “real-life scenarios for communication”, where learners will be able to interact with virtual characters or agents. (Godwin-Jones, 2018). These types of systems expose students to different social contexts and allow them to select appropriate registers and expressions.

For instance, AI chatbots can simulate situations such as:

- ❖ Talking to a professor
- ❖ Ordering food
- ❖ Preparing for a job interview
- ❖ interacting with friends in informal conversations.

AI chatbots can analyze the speech of learners and suggest culturally appropriate language structures and social contexts. Moreover, role-plays, cultural awareness quizzes, and dialogue completion tasks related to social environments can be designed with the assistance of AI bots. Such interactive environments help learners understand how language varies according to context and culture.

Table 3

Discourse competence:	Logical sequencing of ideas
	Spoken and written texts (coherent and cohesive)
	Unity maintenance
	Thematic development

"Discourse competence" is the ability to organize sentences into coherent and cohesive spoken or written texts. It involves logical sequencing of ideas, use of connectors, thematic development, and maintaining unity within discourse (Canale, 1983).

AI technologies can assist learners in developing discourse competence by analyzing "text structure, coherence, and cohesion". Automated writing evaluation tools can provide detailed feedback on organization, paragraph structure, and logical flow.

In terms of discourse analysis, AI tools can:

- ❖ evaluate essays and highlight problems in coherence
- ❖ suggest appropriate linking words and discourse markers
- ❖ analyze narrative structure and thematic progression
- ❖ provide models of well-organized texts

For speaking practice, AI interactive systems can assess how well learners follow the logical progression of the topic in the given responses. These activities encourage learners to produce structured and meaningful discourse.

Table 4

Strategic Competence:	Paraphrasing
	Asking for clarification
	Use of gestures
	Message reformulation

"Strategic competence" refers to the ability to overcome communication difficulties and maintain interaction when linguistic knowledge is insufficient. It includes strategies such as paraphrasing, asking for clarification, using gestures, or reformulating messages.

AI-based conversational systems allow learners to practice "interactive communication" where misunderstandings or communication gaps may occur. When learners do not know a specific word or expression, the system can prompt them to use alternative strategies.

AI tools focused on strategic competence development:

- ❖ encourage learners to paraphrase unknown vocabulary
- ❖ provide hints when communication breaks down
- ❖ simulate misunderstandings requiring clarification strategies
- ❖ evaluate interaction patterns during conversations

Through repeated interaction with AI-driven conversational partners, learners gain confidence in managing communication "breakdowns." They will be able to foster language skills and self-esteem.

Conclusion. The integration of AI technologies into language learning environments significantly enhances the development of communicative competence. AI systems provide adaptive learning, immediate feedback, and authentic communicative simulations, which support the development of all four components (Holmes et al., 2019; Luckin et al., 2016).

By combining traditional communicative approaches with AI-driven tools, language education can become “more individualized, interactive, and effective”, helping learners develop the skills necessary for successful communication in real-world contexts. AI tools can serve as powerful allies in fostering meaningful communication skills for learners.

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OLIY TA’LIMDA TALABALARNING KOGNITIV VA METAKOGNITIV FAOLIYATINI RIVOJLANTIRISHNING ZAMONAVIY PEDAGOGIK YONDASHUVLARI

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Annotatsiya. *Mazkur maqolada oliy ta’lim jarayonida talabalarning kognitiv va metakognitiv faoliyatini rivojlantirishning ilmiy-metodik asoslari pedagogik texnologiyalar sinergiyasi nuqtai nazaridan tahlil qilingan. Tadqiqot davomida innovatsion ta’lim strategiyalari, interfaol metodlar hamda raqamli ta’lim muhitining o‘quv jarayoniga ta’siri yoritilgan. Shuningdek, pedagogik texnologiyalarning uyg‘un qo‘llanilishi talabalarning mustaqil fikrlash, refleksiya qilish va o‘z o‘qish faoliyatini boshqarish kompetensiyalarini rivojlantirishda muhim omil ekanligi asoslab berilgan.*

Kalit so‘zlar: *kognitiv faoliyat, metakognitiv rivojlanish, pedagogik texnologiyalar, sinergik yondashuv, oliy ta’lim, innovatsion ta’lim, refleksiya, mustaqil ta’lim.*

Аннотация. *В статье раскрываются научно-методические основы развития когнитивной и метакогнитивной активности студентов в системе высшего образования на основе синергии педагогических технологий. Рассматривается влияние инновационных образовательных стратегий, интерактивных методов и цифровой образовательной среды на повышение эффективности учебного процесса. Обосновывается, что интеграция современных педагогических технологий способствует формированию у студентов навыков самостоятельного мышления, рефлексии и управления собственной учебной деятельностью.*

Ключевые слова: *когнитивная активность, метакогнитивное развитие, педагогические технологии, синергетический подход, высшее образование, инновационное обучение, рефлексия, самостоятельное обучение.*

Abstract. *This article examines the scientific and methodological foundations of developing students’ cognitive and metacognitive activity in higher education through the synergy of pedagogical technologies. The study highlights the impact of innovative educational strategies, interactive methods, and digital learning environments on improving the effectiveness of the teaching-learning process. It is substantiated that the integration of modern pedagogical technologies contributes to the development of students’ independent thinking, reflective skills, and self-regulation in learning.*

Keywords: *cognitive activity, metacognitive development, pedagogical technologies, synergistic approach, higher education, innovative learning, reflection, independent learning.*

Kirish. Bugungi kunda oliy ta’lim tizimida amalga oshirilayotgan keng ko‘lamli islohotlar ta’lim jarayoniga zamonaviy pedagogik yondashuvlarni joriy etish, o‘qitish samaradorligini oshirish hamda talabalarni mustaqil, ijodkor va tanqidiy fikrlovchi shaxs sifatida shakllantirishni taqozo etmoqda. Zamonaviy ta’lim paradigmasi bilimlarni oddiy uzatish modelidan voz kechib, talabaning kognitiv va metakognitiv rivojlanishini ta’minlovchi faol ta’lim muhitini yaratishga yo‘naltirilmoqda.

Kognitiv faoliyat shaxsning idrok etish, tushunish, xotirada saqlash, tahlil qilish va umumlashtirish kabi bilish jarayonlarini o‘z ichiga oladi. Metakognitiv faoliyat esa shaxsning o‘z bilish jarayonlarini ongli ravishda boshqarish, o‘rganish strategiyalarini rejalashtirish, monitoring qilish va natijalarni baholash qobiliyatini

ifodalaydi. Mazkur ikki faoliyat turining uyg‘un rivojlanishi talabaning o‘z o‘quv faoliyatiga faol sub’yekt sifatida yondashishini ta’minlaydi.

Oliy ta’limda o‘quvchi markazli yondashuv, interfaol metodlar, refleksiv tahlil, mustaqil izlanish va o‘zini baholashga asoslangan ta’lim muhiti yaratilganda, talabalar o‘z fikrlash strategiyalarini ongli ravishda boshqarish, o‘z bilimlarini chuqurlashtirish hamda yangi ma’lumotlarni qayta ishlashga qodir bo‘ladilar. Shu bois, kognitiv va metakognitiv faoliyatni rivojlantirishda pedagogik texnologiyalar sinergiyasi muhim ilmiy-amaliy yo‘nalish sifatida qaralmoqda. O‘zbekiston Respublikasi ta’lim tizimida ham oxirgi yillarda raqamli ta’lim, masofaviy o‘qitish va interfaol metodlarni keng joriy etish bo‘yicha qator islohotlar amalga oshirilmoqda. Xususan, «Raqamli O‘zbekiston — 2030» strategiyasini tasdiqlash va uni samarali amalga oshirish chora-tadbirlari to‘g‘risida O‘zbekiston Respublikasi Prezidentining Farmoni (PF6079-son, 05.10.2020)1 ta’lim jarayonini innovatsion texnologiyalar asosida tashkil etish, talabalarning mustaqil fikrlash qobiliyatini rivojlantirish va ularni raqamli kompetensiyalar bilan qurollantirish vazifalari belgilangan. Shu bilan birga, oliy ta’lim jarayonida kognitiv va metakognitiv faoliyatni rivojlantirishda pedagogik texnologiyalar sinergiyasini qo‘llash nafaqat darsning samaradorligini oshiradi, balki talabalarning o‘z o‘qish faoliyatiga bo‘lgan mas’uliyatini ham kuchaytiradi. Mamlakatimiz ta’lim siyosatida ham raqamli ta’lim muhitini shakllantirish, masofaviy o‘qitish texnologiyalarini rivojlantirish hamda talabalarni zamonaviy kompetensiyalar bilan qurollantirish ustuvor vazifa sifatida belgilangan. Bu jarayon talabalarning mustaqil fikrlashi, refleksiv yondashuvi va o‘z-o‘zini boshqarish kompetensiyasini rivojlantirishni talab qiladi

Asosiy qism. Metakognitsiya tushunchasi ilk bor ilmiy muomalaga kiritilgan bo‘lib, u shaxsning o‘z fikrlash jarayonini anglash va boshqarish qobiliyati sifatida talqin etiladi. Tadqiqotlar shuni ko‘rsatadiki, metakognitiv strategiyalarni o‘qitish jarayoniga tizimli integratsiya qilish talabalarning o‘qish samaradorligini sezilarli darajada oshiradi. Xususan, refleksiv o‘qitish modeli o‘quvchilarning o‘z bilimlarini monitoring qilish, o‘zlashtirish darajasini baholash va o‘qish strategiyalarini moslashtirish imkonini beradi.

Kognitiv rivojlanish nazariyalari doirasida konstruktivistik yondashuv alohida ahamiyatga ega bo‘lib, unda ta’lim oluvchi bilimni faol tarzda quruvchi sub’yekt sifatida qaraladi. Shu jihatdan interfaol metodlar, muammoli ta’lim, loyiha asosida o‘qitish hamda raqamli ta’lim platformalari kognitiv faollikni oshiruvchi samarali vositalar sifatida e’tirof etiladi.

So‘nggi yillardagi ilmiy izlanishlarda pedagogik texnologiyalarning kompleks uyg‘unlashuvi talabalarning o‘z-o‘zini boshqarish kompetensiyasini rivojlantirishda muhim omil sifatida ko‘rsatib o‘tilmoqda. Ta’lim jarayonida turli metod va vositalarning sinergik integratsiyasi o‘quv faoliyatini tizimlashtiradi, refleksiv muhitni shakllantiradi hamda shaxsiy o‘rganish trayektoriyasini individuallashtirishga xizmat qiladi.

Shuningdek, raqamli ta’lim muhitida blended learning modeli an’anaviy va masofaviy ta’limning integratsiyasi orqali o‘quv jarayonining moslashuvchanligini ta’minlaydi. Bu esa talabalarning kognitiv yuklamasini optimallashtiradi va metakognitiv nazoratni kuchaytiradi.

Adabiyotlar tahlili va metodologiya. Kognitiv va metakognitiv faoliyatni rivojlantirish masalasi pedagogika, psixologiya va ta’lim texnologiyalari fanlarining kesishgan nuqtasida shakllangan kompleks ilmiy yo‘nalishdir. Ilmiy manbalarda metakognitsiya tushunchasi ilk bor J. Flavell tomonidan asoslab berilib, u shaxsning o‘z tafakkur jarayonini anglash va nazorat qilish qobiliyati sifatida talqin etilgan. Keyingi tadqiqotlarda metakognitiv strategiyalar o‘quv jarayonida refleksiya, o‘zini baholash va mustaqil o‘rganish ko‘nikmalarini rivojlantirishning muhim vositasi sifatida qaralgan.

Kognitiv rivojlanish nazariyalari J. Piagetning intellektual rivojlanish bosqichlari haqidagi konsepsiyasi hamda L.S. Vygotskiyning sotsiokultural yondashuvi bilan uzviy bog‘liqdir. Ushbu nazariyalarga ko‘ra, bilish jarayoni faoliyat, hamkorlik va ijtimoiy muloqot orqali shakllanadi. Tajriba asosida o‘rganish modeli muallifi D. Kolb esa o‘quv jarayonining siklik xarakterini asoslab, bilimlarni tajriba – refleksiya – konseptualizatsiya – amaliy qo‘llash bosqichlari orqali rivojlantirish mumkinligini ta’kidlaydi.

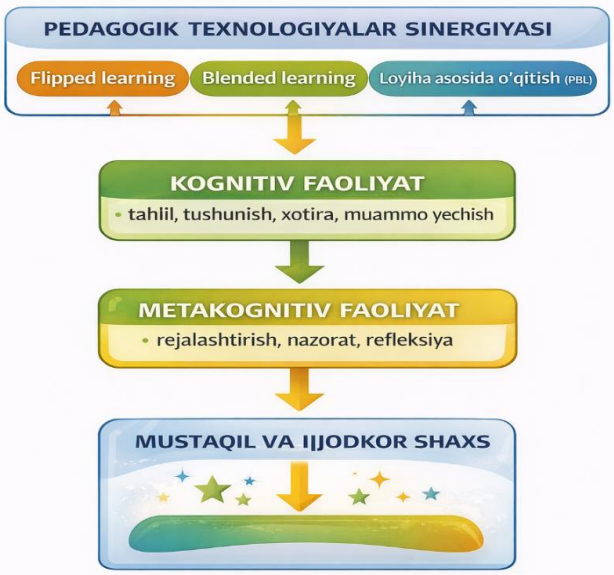
Zamonaviy pedagogik tadqiqotlarda pedagogik texnologiyalar sinergiyasi tushunchasi ta’lim jarayonining samaradorligini oshirishga qaratilgan integrativ yondashuv sifatida talqin qilinadi. Bu yondashuv turli o‘qitish metodlari va texnologiyalarining o‘zaro uyg‘unlashuvi orqali o‘quv faoliyatini faollashtirishni nazarda tutadi.

Natijalar va muhokama. Tadqiqot natijalari shuni ko‘rsatadiki, oliy ta’lim jarayonida kognitiv va metakognitiv faoliyatni rivojlantirish pedagogik texnologiyalarni kompleks tarzda qo‘llash orqali samaraliroq amalga oshiriladi. Sinergik yondashuv o‘quv jarayonining markaziga talabaning shaxsiy faolligini qo‘yadi va uni o‘z o‘qish faoliyatining ongli boshqaruvchisiga aylantiradi.

Kognitiv faoliyat bilish jarayonlarining asosiy komponenti sifatida talabaning yangi bilimlarni o‘zlashtirishiga xizmat qiladi. Metakognitiv faoliyat esa mazkur jarayonni boshqaruvchi yuqori darajadagi mexanizm sifatida namoyon bo‘lib, o‘rganish strategiyalarini tanlash va tahlil qilish imkonini beradi. Ushbu faoliyatlarning o‘zaro uyg‘unligi mustaqil, tanqidiy va refleksiv fikrlovchi shaxsni shakllantirishga zamin yaratadi.

Pedagogik texnologiyalar sinergiyasi o‘qitish jarayonini shaxsga yo‘naltirilgan, interaktiv va refleksiv tizimga aylantiradi. Zamonaviy ta’lim texnologiyalari — masalan, aralash o‘qitish, loyihaviy ta’lim, muammoli o‘qitish hamda o‘yin texnologiyalarining uyg‘unlashuvi talabalarning o‘quv motivatsiyasini oshiradi va ularning o‘zini rivojlantirish ehtiyojini kuchaytiradi. Natijada talaba nafaqat bilim egallovchi sub’yekt, balki o‘z o‘quv faoliyatini rejalashtiruvchi, monitoring qiluvchi va baholovchi faol shaxs sifatida shakllanadi. Bu esa uning metakognitiv mas’uliyati va o‘z-o‘zini boshqarish kompetensiyasining rivojlanishiga olib keladi.

1-rasm. Kognitiv va metakognitiv faoliyatni rivojlantirishda pedagogik texnologiyalar sinergiyasi modeli



Manba: muallif tomonidan ishlab chiqilgan

Xulosa. Oliy ta’lim jarayonida kognitiv va metakognitiv faoliyatni rivojlantirish zamonaviy pedagogik jarayonning ustuvor yo‘nalishlaridan biridir. Tadqiqot natijalari pedagogik texnologiyalar sinergiyasi talabalarning bilish jarayonini faollashtirish, mustaqil o‘rganish strategiyalarini shakllantirish hamda refleksiv fikrlash ko‘nikmalarini rivojlantirishda muhim ahamiyatga ega ekanligini ko‘rsatdi.

Kognitiv faoliyat bilimlarni chuqur o‘zlashtirish va tahlil qilish imkonini bersa, metakognitiv faoliyat o‘rganish jarayonini ongli boshqarish va baholashni ta’minlaydi. Ushbu faoliyatlarning uyg‘un rivojlanishi natijasida talabalarda ijodiy tafakkur, tanqidiy fikrlash va o‘zini rivojlantirish kompetensiyalari shakllanadi.

Shu bois oliy ta’lim tizimida pedagogik texnologiyalarni integratsiyalashgan holda qo‘llash ta’lim sifatini oshirish va raqobatbardosh mutaxassislarni tayyorlashning muhim sharti sifatida namoyon bo‘ladi.

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CURRENT CHALLENGES IN IMPLEMENTING INNOVATIVE EDUCATIONAL TECHNOLOGIES IN HIGHER EDUCATION

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Annotatsiya: *Yangi ta'lim texnologiyalarining tezkor joriy etilishi oliy ta'lim tizimini tubdan o'zgartirdi va moslashuvchan, shaxsga yo'naltirilgan hamda qulay o'quv imkoniyatlarini taqdim etdi. Biroq, bunday texnologiyalarni tatbiq etish samaradorligini ta'minlash uchun hisobga olinishi lozim bo'lgan jiddiy muammolar ham mavjud. Ushbu maqolada 2020-2025 yillarda chop etilgan tadqiqotlar tahlil qilinib, universitetlarda yangi ta'lim texnologiyalarini joriy etishda uchraydigan asosiy to'siqlar aniqlanadi. Natijalar shuni ko'rsatadiki, to'siqlar to'rt asosiy guruhga bo'linadi: o'qituvchilarning raqamli kompetensiyasining yetarli emasligi, nomuvofiq institutsional infratuzilma, raqamli va sun'iy intellekt asosidagi vositalarning maxfiylik va etik masalalari hamda madaniy va tashkiliy qarshilik. Ushbu muammolarni hal etish uchun ko'p qirrali yondashuv zarur, jumladan, doimiy kasbiy rivojlanish, infratuzilmaga ko'proq sarmoya kiritish, axloqiy me'yorlarni ishlab chiqish va madaniy kontekstlarni hisobga olish. Maqola xulosasiga ko'ra, bu to'siqlarni yengib o'tish oliy ta'limda inklyuziv, xavfsiz va barqaror raqamli ta'lim muhitini yaratishda muhim ahamiyatga ega.*

Kalit so'zlar: *yangi ta'lim texnologiyalari, oliy ta'lim, muammolar, raqamli savodxonlik, infratuzilma, etika, madaniyat.*

Абстракт: *Быстрое внедрение новых образовательных технологий преобразовало систему высшего образования, открыв возможности для гибкого, персонализированного и доступного обучения. Тем не менее, существуют и серьезные проблемы, связанные с реализацией таких технологий, которые необходимо учитывать для обеспечения их эффективности. В данной статье рассматриваются исследования 2020-2025 годов с целью определения основных препятствий внедрения новых образовательных технологий в университетах. Результаты показывают, что существует четыре ключевых типа препятствий: недостаточный уровень цифровой компетентности преподавателей, неадекватная институциональная инфраструктура, вопросы конфиденциальности и этики при использовании цифровых и основанных на ИИ инструментов, а также культурное и организационное сопротивление изменениям. Решение этих проблем требует многомерного подхода, включающего постоянное профессиональное развитие, увеличение инвестиций в инфраструктуру, разработку этических стандартов и учет культурных контекстов. В заключении подчеркивается, что преодоление данных барьеров является важным условием формирования инклюзивной, безопасной и устойчивой цифровой образовательной среды в высшем образовании.*

Ключевые слова: *новые образовательные технологии, высшее образование, проблемы, цифровая грамотность, инфраструктура, этика, культура.*

Abstract: *With the fast adoption of new educational technologies, higher education has been transformed and presented with new possibilities of flexible, personalized, and accessible learning. Nevertheless, there are also significant challenges that are associated with the implementation of such technologies, which should be considered to make their use effective. This paper will review recent studies (2020-2025) to define the main obstacles to the implementation of new educational technologies in universities. Results indicate that there are four key types of obstacles, including the lack of digital competence among faculty, inappropriate institutional infrastructure, privacy and ethical issues of digital and AI-based tools, and cultural and organizational change resistance. These issues demand a multi-dimensional approach, such as constant professional growth, more investments in infrastructure, the creation of ethical*

standards, and cultural contexts. The paper concludes that finding a way of overcoming such barriers is vital in ensuring that higher education uses an inclusive, secure, and sustainable digital learning environment.

***Keywords**: new educational technologies, tertiary education, issues, digital literacy, infrastructure, ethics, culture.*

Introduction. It is also due to the quick advancement of digital technologies that have drastically changed the face of higher education, changing the traditional approaches to teaching and learning. Colleges all over the world abandon traditional lecture-delivery models and shift to more dynamic and interactive models, which is possible predominantly through the incorporation of new digital technologies. The e-learning systems, artificial intelligence (AI) apps, learning management systems (LMS), and virtual collaboration tools are becoming more and more popular in order to enhance engagement with students, offer personalized learning opportunities, and make more and more learners of different populations more accessible. These technologies have been known to introduce new opportunities in lifelong learning and the exchange of knowledge globally, whereby institutions can access students regardless of geographical limitations.

In spite of these benefits, the introduction of digital technologies in higher education is not a problem-free task. Although digital innovations are associated with flexibility, inclusivity, and efficiency, they also introduce a new series of challenges that require special attention and strategic planning. Among the barriers detected in previous studies are the lack of digital competence among faculty members, and thus, they cannot integrate technology as a pedagogic tool [2]. Moreover, the poor institutional infrastructure, such as internet connectivity, old-fashioned devices, and poor technical support, is still a decisive obstacle in most universities, especially in the developing context [3].

One more urgent matter is related to the privacy and security of data. With cloud-based providers, online testing, and AI-assisted platforms becoming the leading solutions to the problems in universities, the security of sensitive student and faculty data is becoming the primary concern. According to Kelso et al., not all institutions implement educational technologies considering the security standards, thereby putting themselves at risk [1]. Also, the ethical dilemma has taken on a new form due to the introduction of AI-based applications like ChatGPT, which casts doubt on academic honesty, cheating, and the originality of student work [5].

On top of technical and ethical aspects, cultural, organizational, and pedagogical contexts are the major determinants of the successful use of technology. According to Panicker, cultural views in teaching and learning determine the embracement of technology in higher education [4]. Resistance to change is a common phenomenon in institutions that are rooted in deeply held pedagogical practices, hierarchy, or have minimal or nonexistent stimuli to encourage innovation among the faculty. In a similar way, organizational preparedness, leadership backing, and institutional policies are also decisive factors in whether digital transformation will work or not. Combined, these findings imply that the implementation of educational technologies in higher learning is a multi-dimensional process. Not only must it be technologically prepared, but also

pedagogically innovative, and with ethical frameworks and cultural flexibility. The failure to tackle these mutually dependent issues will lead to universities continuing to expand the digital divide and will prevent able from achieving all the potential of digital transformation.

Methodology. This research uses a systematic literature review (SLR) method to conduct and synthesize the current studies on the problem of implementing innovative educational technologies in the sphere of higher education. The reason why the SLR method was selected is based on the fact that it enables a thorough and systematic review of previous research and hence identification of recurring themes, gaps, and patterns in the literature.

There were three criteria used during selection. Firstly, the articles published after 2020 and before 2025 were taken into consideration only, so the results are related to the latest trends in digital technology integration. Second, the articles needed to directly discuss obstacles or difficulties related to educational technology in higher education, and not only cover the benefits or opportunities. Third, peer-reviewed journal articles and high-quality preprints were only selected to provide academic rigor and credibility.

In total, seven major works were chosen to be analyzed in detail: the articles of Mercader and Gairin, discussing faculty digital competence [2]; Oulamine et al., discussing infrastructural barriers to e-learning [3]; and Kelso et al., discussing privacy and security issues in EdTech adoption [1]. Other research works by Yan and others, Panicker, among others, were also included to give a balanced view on the subject of technology use in terms of ethics, culture, and organizational aspects of technology use [5; 4].

The analysis process consisted of three steps. To begin with, the material of both articles was perused through to obtain descriptive data about the study design, the context of the research, and the major findings. Second, the thematic coding process was used to reveal the recurring themes based on digital literacy, infrastructural preparedness, ethics, and cultural assimilation. Third, the results were integrated and divided into larger dimensions: technical, institutional, ethical, and socio-cultural, making it possible to conduct a comparative study of the various studies. Such a methodological approach, however, also guarantees the credibility of the review and offers a systemic approach to comprehending the complex issues of the digital technology implementation in higher education. The proposed study will be able to provide a comprehensive picture of the obstacles that impede effective incorporation of innovative educational technologies by combining the findings of various contexts and approaches.

RESULTS. The systematic review revealed that four broad areas of challenges exist in the implementation of innovative educational technologies in higher education. These problems are both in personal level competencies and wider institutional, ethical, and cultural areas.

1. Digital Skills of Teachers.

One of the common themes in the reviewed works is the low digital competence of faculty members in universities. Most educators do not have enough training on how to use high-level technological tools and find it difficult to correlate

them with the pedagogical goals. According to Mercader and Gairin, technical expertise is not enough; teachers need to alter their instructional methods to incorporate digital means [2]. Moreover, there are differences in discipline when it comes to adoption: teachers of STEM are more likely to accept digital innovations faster, whereas those in the humanities and social sciences adopt them more slowly. The imbalance in digital competence results in differences in the quality of the learning experience of the students.

2. Barriers in Institutions and Infrastructures.

Another essential impediment was institutional capacity. Some studies point out that higher institutions, especially in developing countries, are facing difficulties in offering good and sustainable infrastructure to support digital learning. Such issues as the lack of internet connection, the absence of sources to finance the new technologies, and the lack of technical support services are widespread [3]. The lack of systematic maintenance and support for the digital tools, even at their introduction, lessens their effectiveness and durability. Therefore, infrastructural vulnerabilities are known not only to limit the scaling of innovations but also to increase disparity between better and poorly resourced institutions.

3. Privacy, Security, and Ethical Issues concerns.

The fast increase in the number of educational technologies has become a burning problem of data privacy, security, and ethics. According to Kelso et al., it is usual that institutions implement EdTech solutions without undertaking the proper evaluation of their adherence to the international standards of security, thus putting sensitive student and faculty data at risk of abuse [1]. Equally, AI-based applications like ChatGPT give rise to new ethical issues, like the risk of plagiarism, lack of transparency in content creation, and threats to academic integrity [5]. These issues indicate that a lack of robust ethical and legal frameworks could lead to negative effects on the credibility of higher education due to technological adoption.

4. Cultural and Organizational Factors.

Cultural and organizational contexts also play a crucial role in determining the success of EdTech integration, in addition to technical and ethical issues. Panicker emphasizes that not only the personal competence but also the institutional culture, leadership support, and pedagogical traditions influence the willingness of educators to adopt technology [4]. The use of digital learning models can be perceived as skepticism or resistance in the context of face-to-face teaching, which is highly valued. Also, inflexible or innovation-oriented policies in organizational structures tend to slow down technology acceptance. All these cultural and organizational processes demonstrate that there cannot be universal adoption of technology, but strategies have to be developed according to local conditions and values.

Discussion. The results imply that, although innovative educational technologies promise a lot in changing higher education, their effective implementation demands multidimensional and challenging problems to be overcome. We have come to realize that universities are becoming very conscious that applying digital innovations is more than just a case of buying and

implementing new technologies, but in fact a systemic process that gets people, policies, and practices involved [2].

Professional Development.

The lack of appropriate digital competence of the faculty members is one of the recurrent problems. Even though students have been referred to as digital natives, there are still a number of educators who are not confident in using advanced platforms. Professional development programs are thus not an option, but a necessity. Pedagogical adaptation, as Mercader and Gairin underline, is just as significant as a technological one; it is necessary to educate a teacher not only to know how to make use of new devices but also to incorporate them into the instruction and evaluation process [2]. Faculty readiness can be enhanced dramatically by using regular workshops, peer mentoring, and certification in digital pedagogy.

Infrastructure Investment.

Also of significance is the necessity of a well-developed infrastructure. Poor bandwidth, unreliable power supply, and outdated equipment continue to destroy digital transformation as experienced in most developing countries and resource-constrained institutions. Oulamine and others emphasize that without a massive investment in digital infrastructure, universities end up increasing inequalities instead of decreasing them [3]. There is hence a need to have governments, higher education authorities coordinate with their partners in the private sector to facilitate fair access to dependable internet, hardware, and software resources. Cybersecurity and system maintenance should also be developed in the context of long-term infrastructural planning to maintain digital ecosystems.

Ethical Frameworks.

The growing use of artificial intelligence (AI) brings new dimensions of complexity. Personalization and efficiency can be achieved with the help of tools like ChatGPT or adaptive learning systems, but they also come with the risk of academic dishonesty, plagiarism, and data security. Yan et al. state that the ethical issues regarding AI are not only technical but also highly educational because they influence the trust, fairness, and authenticity of learning outcomes [5]. Colleges and universities need to come up with well-defined ethical principles and policies regarding the use of AI. These can come in the form of guidelines on responsible use, open data management, and ongoing monitoring of AI-based platforms to ensure the protection of learners and educators.

Cultural Sensitivity.

Lastly, cultural and organizational context has a conclusive effect on attitudes to technology adoption. As demonstrated by Panicker, the institutional culture, support of educational technologies by their leadership, and the socio-cultural expectations, in general, have a considerable influence on how educational technologies can be accepted or rejected [4]. What may be considered a widely accepted technology in one region may be rejected in another because of the variations in pedagogical traditions or teacher-student interactions. Therefore, global digital strategies must be localized in universities, with the innovation process must be in line with cultural norms, values, and learning styles.

Collectively, these results emphasize the fact that to achieve effective implementation of innovative technologies, it is necessary to carry out a holistic approach that extends beyond technical preparedness. Future studies ought to examine interdisciplinary solutions that entail pedagogical creativity, cultural sensitivity, and ethical governance in technology adoption models. In addition, cross-national comparative studies would help in giving an invaluable insight into how various systems of higher education are going through these challenges and what lessons might be applied across the context.

CONCLUSION. The research on the implementation of innovative educational technologies in higher education is a complicated task, which is far more than the appearance of new tools. Although the possible advantages of it, including flexibility, personalization, and broader access, cannot be denied, the obstacles are still considerable. The results of this review point to four key types of challenges, namely, the lack of teacher training and digital competence, infrastructural and institutional issues, a risk of privacy and ethical concerns, and cultural and organizational resistance to change.

These problems must be dealt with at a multi-layered level. The governments should also adopt policy frameworks that promote the adoption of safe, equitable, and innovative technology at the policy level. Universities should invest in the infrastructure at the institutional level and offer continuous professional training to the faculty. At the pedagogical level, approaches to teaching should be changed so that the implementation of technologies should be done in a manner that complements instead of substitutes the significant learning experiences. Moreover, the ethical standards and cultures should be taken into consideration to make the digital tools responsible and context-dependent.

Provided that the above measures are appropriately addressed, the systems of higher education will be in a better position to design inclusive, safe, and sustainable digital learning spaces. Finally, effective adoption of innovative technologies will not only change the way teaching and learning processes are conducted but will also help create more versatile and future-oriented universities.

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ENHANCING COMMUNICATIVE COMPETENCE OF STUDENTS THROUGH TEACHING PROVERBS ON THEME LABOUR

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Abstract. *This research explores the pedagogical value and student perceptions of labor-related English proverbs among university students in Uzbekistan. The study identifies a significant gap between student interest and current curricular implementation. The theoretical framework establishes proverbs as essential rhetorical devices that enhance "textual competence" and facilitate structural transitions in discourse. The data further highlights the multi-functional benefits of proverbs: significant vocabulary improvement, a deeper understanding of social values. To address these shortcomings, the study recommends a shift from rote memorization toward contextualized, speaking-based tasks and cross-linguistic analysis. By integrating digital platforms and research projects, educators can bridge the current resource gap and leverage the high student motivation identified. This study serves as a call for a more systematic, sociolinguistic approach to proverb integration in EFL curricula to foster both communicative competence and cultural literacy.*

Key words: *Labor-related proverbs, English as a Foreign Language, Pedagogical integration, Communicative competence, Vocabulary development, Cultural awareness, Perception survey, Textual competence.*

Annotatsiya. *Ushbu tadqiqot O‘zbekiston universiteti talabalari o‘rtasida mehnat bilan bog‘liq ingliz tili maqollarining pedagogik ahamiyati va talabalarning ularga bo‘lgan munosabatini o‘rganadi. Tadqiqot talabalarning qiziqishi va hozirgi o‘quv dasturining mazmuni o‘rtasida sezilarli tafovut mavjudligini ko‘rsatadi. Nazariy asos maqollarni "matn kompetensiyasi"ni oshiradigan va nutqdagi tarkibiy o‘tishlarni osonlashtiradigan muhim ritorik vosita sifatida belgilaydi. Ma’lumotlar, shuningdek, maqollarning ko‘p funksiyali afzalliklarini ham yoritib beradi: so‘z boyligining sezilarli darajada oshishi va ijtimoiy qadriyatlarni chuqurroq tushunish shular jumlasidandir. Mavjud kamchiliklarni bartaraf etish uchun tadqiqot yod olish usulidan voz kechib, kontekstga asoslangan og‘zaki nutq vazifalari hamda tillararo qiyosiy tahlilga o‘tishni tavsiya qiladi. Raqamli platformalar va tadqiqot loyihalarini tatbiq etish orqali pedagoglar o‘quv resurslaridagi mavjud bo‘shliqlarni to‘ldirishlari va talabalarning yuqori motivatsiyasidan samarali foydalanishlari mumkin. Ushbu tadqiqot muloqot kompetensiyasi va madaniy savodxonlikni oshirish maqsadida, ingliz tili chet tili sifatida o‘quv dasturlariga maqollarni tizimli va sotsiolingvistik yondashuv asosida integratsiya qilishga chorlaydi.*

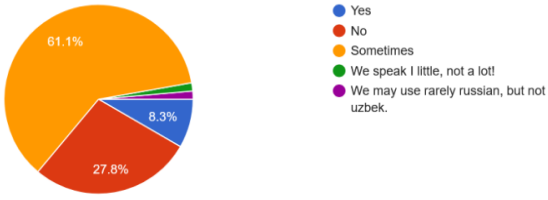
Kalit so‘zlar: *Mehnatga oid maqollar, Ingliz tili chet tili sifatida, Pedagogik integratsiya, Muloqot qobiliyati, Lug‘at boyligini oshirish, Madaniy xabardorlik, Qarashlar tahlili, Matn kompetensiyasi*

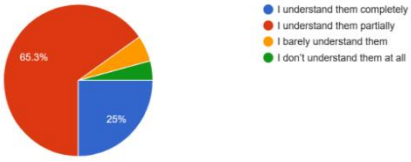
Introduction. Proverbs represent an important component of language and culture, reflecting social values, traditions, and collective wisdom. In language education, proverbs can contribute to vocabulary development, cultural awareness, and communicative competence. Khan and Can Dashkın (2014) examined how EFL student-teachers incorporated idiomatic language including proverbs into original teaching materials. Their findings revealed significant shortcomings in both the frequency and the execution of these expressions. The researchers concluded that the limited selection of idioms was presented ineffectively, failing to provide

the pedagogical support necessary to actually improve students' communicative proficiency. As potent rhetorical instruments, proverbs significantly facilitate the development of textual competence (TextC) and promote high-level proficiency in both oral and written discourse (Vanyushkina-Holt, 2005). Empirical research within applied linguistics indicates that proficient communicators strategically deploy proverbial language as structural markers; specifically, these formulaic expressions are utilized during topical transitions or positioned at the incipit and explicit of texts to initiate or encapsulate core thematic arguments (Drew & Holt, 1998; Irujo, 1986; Littlemore & Low, 2006;).

This study employs a quantitative research methodology using a descriptive survey design to investigate students' perceptions of learning English proverbs, particularly those related to labor, and their role in language acquisition. The research is based on a survey method, which allows the collection of data from a group of participants in order to analyze their attitudes, experiences, and perceptions. The study focuses on identifying patterns in students' responses regarding the usefulness of proverbs in language learning, vocabulary development, and cultural awareness. The participants of the study were 3 university students learning English as a foreign language, mainly Uzbekistan world languages university, Fergana state university, Urganch state university. Approximately 125 respondents participated in the survey. To collect the necessary data for this research, the study employed a two-part questionnaire adapted from Can (2011). Part 1 focused on capturing a comprehensive demographic and academic profile of the participants, including variables such as age, gender, educational background, and prior language learning history. It also assessed the participants' subjective evaluations of their own proficiency. Part 2 was designed to investigate the pedagogical landscape of English as a Foreign Language (EFL) classrooms. Specifically, it sought to identify the specific titles and proficiency levels of the high school educators, as well as any supplementary instructional materials integrated into their teaching practice.

Findings. The sample consisted primarily of learners with intermediate to upper-intermediate English proficiency. The majority of respondents (70.8%) were at the B2 level, followed by 27.8% at the C1 level, while only 1.4% were at the B1 level. Regarding classroom language use, most participants (61.1%) reported that they sometimes use Uzbek during English classes, whereas 27.8% stated that they avoid using it. Only a small percentage frequently use Uzbek, indicating that students generally attempt to maintain English as the primary language of communication.



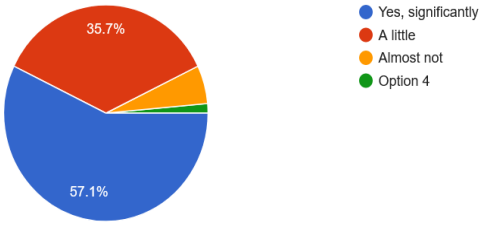


Students demonstrated a generally positive attitude toward learning proverbs. Over half of the respondents (54.9%) considered proverbs

very helpful in language learning, while 39.4% believed they are sometimes helpful. Only a small minority (5.7%) viewed them as not very useful.

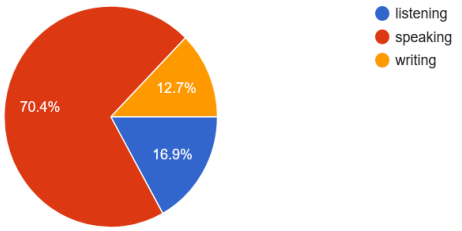
When asked about comprehension, 65.3% of respondents stated that they understand labor-related English proverbs partially, while 25% reported full understanding. A small minority indicated limited or no comprehension. This suggests that although students are familiar with such proverbs, many require additional explanation and contextual practice.

Survey results indicate that labor-related proverbs are present in university instruction but not always systematically integrated. More than half of the respondents (56.3%) described their instruction as partial, while 32.4% reported that proverbs are sufficiently taught. A smaller group indicated that such material is rarely or never included in the curriculum. These results suggest that proverbs often appear as supplementary material rather than as a structured component of language courses.



Vocabulary Development and Cultural Understanding

Students widely recognized the role of proverbs in vocabulary expansion. A majority (57.1%) stated that proverbs significantly improve vocabulary, and 35.7% reported moderate improvement. Furthermore, 54.9% of respondents indicated that learning labor-related proverbs helped them better understand social values, while 35.2% acknowledged a partial influence.



Most respondents (70.4%) believed that learning proverbs mainly improves speaking skills, while smaller percentages associated them with listening (16.9%) and writing (12.7%). Additionally, comparative analysis of proverbs across languages was perceived positively: 49.3% considered it useful and 42.3% somewhat useful.

Despite the positive attitudes toward proverb learning, many students reported limitations in educational resources. Nearly half of the respondents (46.5%) considered existing textbooks only partially sufficient, while 14.1% believed they were inadequate. Only 38% felt that current materials fully meet their needs.

Conclusion and recommendation. Instead of presenting proverbs as isolated expressions, teachers can introduce them through contextualized activities, such as short dialogues, storytelling, or situational role-plays. This approach helps students understand the metaphorical meaning and appropriate usage of proverbs in real-life communication. Since many students find comparative analysis useful, educators can incorporate cross-linguistic comparisons between English proverbs and their equivalents in Uzbek or other languages. This method promotes deeper cultural awareness and highlights similarities and differences in social values and worldviews.

Proverbs can be integrated into speaking-based classroom tasks, such as debates, discussions, and presentations. For example, students may explain a

proverb, create short dialogues using it, or discuss its relevance to modern life. This strategy supports the development of communicative competence. The use of digital platforms, videos, and online proverb databases can make learning more interactive. Teachers may encourage students to create short videos, digital posters, or presentations explaining the meaning and cultural background of specific proverbs. Students can participate in research projects focused on labor-related proverbs. For instance, they might collect proverbs from different cultures, analyze their meanings, and present their findings. This approach promotes critical thinking and independent learning. Universities could integrate proverbs more systematically into language, cultural studies, and linguistics courses. Developing specialized modules or supplementary materials dedicated to proverb study would help address the current gap in instructional resources.

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THE DEFINITION AND MAJOR ELEMENTS OF GAMIFICATION

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Abstract. *This article examines the role and significance of gamification technologies in the modern educational process. The shift from a teacher-centered approach to a learner-centered model, the expansion of digital environments, and students' increasing interest in games necessitate the use of gamification as an effective pedagogical approach. The study analyzes the concept of gamification, its historical development, and Kevin Werbach's model consisting of dynamics, mechanics, and components. In addition, the advantages of gamification in education, its impact on learner motivation, and the challenges associated with its implementation are discussed. The findings emphasize the importance of developing teachers' digital and methodological competencies to ensure the effective integration of gamification into the educational process.*

Key words: *gamification, educational process, digital education, learner motivation, game-based technologies, pedagogical innovation, digital competence.*

Аннотация. *В данной статье рассматривается роль и значение технологий геймификации в современном образовательном процессе. Переход от подхода, ориентированного на преподавателя, к модели, ориентированной на обучающегося, расширение цифровых сред и растущий интерес студентов к играм требуют использования геймификации как эффективного педагогического подхода. Исследование анализирует концепцию геймификации, её историческое развитие и модель Кевина Вербаха, включающую динамику, механику и компоненты. Кроме того, обсуждаются преимущества геймификации в образовании, её влияние на мотивацию учащихся и проблемы, связанные с её внедрением. Результаты подчеркивают важность развития цифровых и методических компетенций преподавателей для обеспечения эффективной интеграции геймификации в образовательный процесс.*

Ключевые слова: *геймификация, образовательный процесс, цифровое образование, мотивация учащихся, игровые технологии, педагогические инновации, цифровая компетентность.*

Annotatsiya*. Mazkur maqolada zamonaviy ta'lim jarayonida gamifikatsiya texnologiyalarining roli va ahamiyati tahlil qilinadi. O'qituvchi markazli yondashuvdan o'quvchi markazli modelga o'tish, raqamli muhitlarning kengayishi va talabalar orasida o'yinlarga bo'lgan qiziqishning ortishi gamifikatsiyani samarali pedagogik yondashuv sifatida qo'llashni zarur qiladi. Tadqiqot gamifikatsiya tushunchasi, uning tarixiy rivojlanishi hamda Kevin Werbach modeli (dinamika, mexanika va komponentlar)ni tahlil qiladi. Shuningdek, gamifikatsiyaning ta'limdagi afzalliklari, o'quvchilar motivatsiyasiga ta'siri va uni joriy etish bilan bog'liq muammolar muhokama qilinadi. Tadqiqot natijalari gamifikatsiyaning ta'lim jarayoniga samarali integratsiyasini ta'minlash uchun o'qituvchilarning raqamli va metodik kompetensiyalarini rivojlantirish muhimligini ko'rsatadi.*

Kalit so'zlar*: gamifikatsiya, ta'lim jarayoni, raqamli ta'lim, o'quvchi motivatsiyasi, o'yinga asoslangan texnologiyalar, pedagogik innovatsiya, raqamli kompetensiya.*

In recent years, significant growth and positive changes have been observed in the field of education. A transition is gradually taking place from a teacher-centered educational approach to a student-oriented form of education, where naturally the student's needs, learning style, and interests are becoming primary factors. In a rapidly

changing modern life, renewal and digitalization characteristics are also noticeable in students' interests and needs. Therefore, the education system and teaching methods of teachers are also facing the necessity of adapting and continuously updating. Today, various digital platforms, internet networks, and web services are expanding and creating opportunities to receive education from any place in the world. The current generation shows less interest in traditional forms of lessons, because they are more attracted to the world of virtual games. Since games have deeply penetrated our daily lives, the use of gamification, that is, the use of game elements in the teaching process, has gradually begun to be widely applied. The application of gamification as a new pedagogical method in various fields has become one of the pressing issues of modern methodology. The choice of the term "gamification," which is the main tool of our research, is also based on these factors. The term gamification was first used in 2002 by the American programmer and inventor Nick Pelling. However, in 2011 Sebastian Deterding provided the most appropriate definition of gamification, explaining it as "the use of game elements in non-game contexts." Today, it has become popular in various fields (business, employee management, education) and is intended to find solutions to different types of problems. To freely apply gamification technologies in lessons and to create them independently, it is necessary to understand the systematic components that determine the characteristics of games. Kevin Werbach proposes the elements of games in the form of three parts of a pyramid. At the top of the pyramid is dynamics, in the middle part mechanics, and in the lower part components. At the dynamics layer, the conceptual elements of the game are located, which preserve the hidden system of the game. Under their influence, game impressions are created, and they possess harmony and sequence. Under gamification dynamics lie the elements that encourage players to move from one stage to another. Dynamics is a broad aspect of the gamified system and is never directly included in the game itself, but it is always a present component. Dynamics are the conceptual elements of the game and represent its hidden structure. They integrate the impressions and experiences obtained through the game into a unified, consistent, and harmonious whole.

This layer includes the following:

• Constraints. Every game has limitations, rules, and regulations, and they restrict players' freedom by presenting meaningful choices and problems.

• Emotions. Awakening sufficient emotional mechanisms to enrich experience or impressions makes the game more engaging.

• Chronology (Narrative). A feature responsible for ensuring that the parts of the game form a whole and have a coherent system. A good game has a logical chain and motivates the player by moving them from one level to another.

• Progression. The non-static nature of games—that is, the expansion and change of game contours and the existence of staged levels—gives the game a growth characteristic.

• Relationships. Since every game is social, discussions, debates, and agreements among players strengthen relationships within the group and between groups.

The mechanics layer is the element of the game that adapts it to the context and serves the function of limiting players' experiences. This layer includes the following:

• Challenges – tasks or puzzles set in order to test the competence and skills of players within a certain period of time.

• Chance – the generation of random luck parameters, which is the unpredictable and surprising part of game design.

• Competition – a structure that ensures that some players win in the game while others do not.

• Cooperation – the possibility of achieving goals through collaboration among players that cannot be achieved individually.

• Feedback – information given to players during the game that evaluates their actions.

• Resource Acquisition – this is the process of collecting useful items during the game and later converting them into points.

• Rewards – these are the points or gifts received after completing game tasks.

• Transactions – buying, selling, or exchanging something within the game.

• Turns / Sequence – participating in the game in turns.

• Winning – victory achieved by completing the given task.

The components layer shows how the dynamics and mechanics of the game are implemented and includes the following sections:

• Achievements — bonuses, incentives, badges, points, and other rewards given after completing a certain stage.

• Avatars — the graphical representation of the user, used to distinguish players from one another.

• Badges — the visual representation of achievements and an effective method of rewarding.

• Collections — a set of virtual objects, resources, or elements that the user can collect within the game system.

• Unlocking New Content — new game elements, tasks, or opportunities that become available when players complete certain tasks or meet specific conditions.

• Gifts and Gifting — rewards, bonuses, or resources given to users by other players or by the system. Gifts strengthen social connections and increase motivation during the game process.

• Leaderboards / Rankings — the visual representation of players' achievements and success. The leaderboard determines the position and status that players occupy within a particular community.

• Levels — levels related to growth are an integral part of gamification. In electronic games, levels classify logically structured topics and lessons according to their level of difficulty. Levels perform the functions of showing the speed of progress and providing feedback to the player.

• Points / Scores — the numerical expression of game processes and one of the main game elements.

• Quests — this method includes a set of tasks with a specific storyline and is aimed at overcoming obstacles collectively as a team.

• Social Graphs — a visual representation of social relationships that displays a graph showing the results of players and their competitors.

• Teams — a group of players organized to achieve specific goals.

• Virtual Goods and Assets — valuable game assets that can often be converted into real-world value. This is usually implemented by allowing players to pay real money for them or by enabling players to sell virtual products through online exchange.

Gamification has several important advantages that make it convenient for application in the educational process. First of all, through mechanisms typical of games—such as collecting points, receiving rewards, and unlocking achievements—it encourages students to achieve predetermined goals. In addition, since motivation plays a decisive role in the learning process, gamification is considered an effective method that helps students become more active and strive for higher results.

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THE INTERDISCIPLINARY NATURE OF PHONOSTYLISTICS

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Abstract. The text considers phonostylistics as an interdisciplinary field combining phonetics, stylistics, and related disciplines. It focuses on how sound elements of language—such as intonation, rhythm, alliteration, and assonance—contribute to meaning, expressiveness, and communication in different types of discourse. The study highlights the role of phonostylistic features across functional styles and emphasizes their importance in speech perception and interpretation.

Keywords: phonostylistics, phonetics, stylistics, intonation, prosody, alliteration, assonance, functional styles, expressiveness, communication.

Annotatsiya. Mazkur matn fonostilistika fanini fonetika, stilistika va boshqa tegishli sohalarni birlashtiruvchi interdistsipliner yo‘nalish sifatida ko‘rib chiqadi. U tilning tovush elementlari — intonatsiya, ritm, aliteratsiya va assonans kabi vositalar — turli nutq turlarida ma’no, ifodali xususiyat va kommunikatsiyaga qanday ta’sir qilishini tahlil qiladi. Tadqiqot fonostilistika xususiyatlarining funksional uslublar bo‘yicha rolini yoritadi va ularning nutqni qabul qilish va talqin qilishdagi ahamiyatini ta’kidlaydi.

Kalit so‘zlar: fonostilistika, fonetika, stilistika, intonatsiya, prozodiya, aliteratsiya, assonans, funksional uslublar, ifodali xususiyat, kommunikatsiya.

Аннотация. В тексте рассматривается фоностилистика как междисциплинарная область, объединяющая фонетику, стилистику и смежные дисциплины. Основное внимание уделяется тому, как звуковые элементы языка — такие как интонация, ритм, аллитерация и ассонанс — влияют на смысл, выразительность и коммуникацию в различных типах дискурса. Исследование подчеркивает роль фоностилистических особенностей в функциональных стилях и их значение в восприятии и интерпретации речи.

Ключевые слова: фоностилистика, фонетика, стилистика, интонация, просодия, аллитерация, ассонанс, функциональные стили, выразительность, коммуникация.

Phonostylystics occupies a unique position among linguistic disciplines, occupying a unique position at the intersection of phonetics, stylistics, psycholinguistics, and rhetoric. Its central focus is the study of the sound resources of language and their stylistic functions in various types of speech. By exploring the influence of language’s sound organization on expressiveness, perception, and communicative intent, phonostylystics extends beyond purely linguistic description, encompassing the fields of speech perception, aesthetics, and communication theory. As M. Jobert (2018) notes, "phonostylystics lies at the intersection of phonetics and stylistics and explores how sound influences meaning and stylistic effect" (Jobert, 2018: 254–270).

Phonostylistics is based on the general linguistic principle formulated by Ferdinand de Saussure, according to which language is a social phenomenon and belongs to a community. Hence its interdisciplinary nature. It is closely linked with phonetics, stylistics, lexicology, psycholinguistics, sociolinguistics, communicative

linguistics, textual linguistics, literary text theory, interpretation theory, variation theory, intonation, and accentual accentuation (Saparova, 2006: 12).

On the other hand, phonostylistics is increasingly being considered within the framework of semiotics, allowing for the interpretation of the sound elements of language as signs possessing their own level of signification. In this context, alliteration, assonance, or intonation patterns can act as symbols motivating not only the emotional perception of a text but also its interpretation in a cultural and pragmatic context. Research at the intersection of phonostylistics and semiotics allows for a deeper understanding of how the acoustic layer of speech interacts with other levels of linguistic and speech representation—graphic, lexical-syntactic, and pragmatic (Potapova, Potapov, Pomerantsev, 2022: 74-82).

Traditionally, phonetics studies the physical and articulatory characteristics of sounds, as well as intonation and rhythmic structures, while stylistics focuses on the expressive means of language and their functional role in various styles. Phonostylistics unites these fields, exploring not only which sound means are used, but also why and how they are realized in a specific communicative context. This makes phonostylistics an interdisciplinary field, integrating knowledge from various fields (Dzhusupov, Saparova, 2024: 895-913).

An example of this approach is the analysis of a literary text. Here, sound organization—alliteration, assonance, onomatopoeia, rhythm—becomes an integral part of the artistic image, enhancing its emotional and aesthetic impact on the reader. A linguist working within the framework of phonostylistics goes beyond merely describing sounds, analyzing their expressive function, how they influence the perception of the text, what associations they evoke, and how they relate to the content and intonation. Such an analysis requires the use of methods from literary studies and psycholinguistics (Koyanbekova, Zhamambetova, Utegenova, 2023: 93-101).

In colloquial speech, intonation, tempo, pauses, and increases or decreases in volume serve as means of conveying the speaker’s subjective attitude, emotional state, level of confidence, and other pragmatic characteristics of the utterance. Analysis of such characteristics is impossible without considering psychological and sociolinguistic factors, which emphasizes the interdisciplinary nature of phonostylistics (Haydarov, Mansurova, 2023: 24-28).

In public and political speech (within the journalistic style), sound plays a crucial role in persuading and influencing the audience. Here, phonostylistics closely intertwines with rhetoric and communicative stylistics, as effective verbal influence often relies on intonation techniques, sound expressiveness, and phonetic repetitions that enhance the rhythm and suggestibility of the text (Ulanova, 2011: 45-49).

Finally, in the official business style, phonostylistic devices, on the contrary, are subordinated to the goal of neutrality and precision. Here, the minimization of sound effects and emotional intonation serves to achieve objectivity and logical

clarity. Analysis of such speech strategies requires consideration of pragmatics, sociolinguistics, and text theory (Vocabulary and Phraseology of the Official Business Style, 2017).

As noted above, phonostylistics as a science does not exist in isolation. It integrates data and methods from disciplines such as phonetics, stylistics, rhetoric, psycholinguistics, literary studies, and communication theory. This makes it a tool for analyzing language in its functional and expressive dimensions (Dzhusupov, Saparova, 2024). Its interdisciplinary nature allows for a deeper understanding of how the sound aspect of speech influences the formation of meaning, emotion, and stylistic direction, revealing the richness and flexibility of the linguistic system in different contexts. As noted in the presentation "Phonostylistics, its aims, subjects and methods of investigation" (Phonetic Stylistics, ppt-online), phonostylistics examines the functional role of sound and prosodic means, taking into account extralinguistic factors such as psychological and sociolinguistic conditions.

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TALABALARNI STEAM TEXNOLOGIYASIDAN FOYDALANISH IMKONIYATLARINI TAKOMILLASHTIRISH

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Annotatsiya: *Mazkur maqolada oliy ta'lim muassasalari talabalarining ta'lim jarayonida STEAM texnologiyalaridan foydalanish imkoniyatlarini takomillashtirish masalalari yoritilgan. Tadqiqotda STEAM yondashuvining mazmuni, uning zamonaviy ta'limdagi o'rni hamda talabalarning kreativ va tanqidiy fikrlashini rivojlantirishdagi ahamiyati tahlil qilingan. Shuningdek, oliy ta'lim tizimida STEAM texnologiyalarini qo'llash orqali talabalar kompetensiyalarini rivojlantirish, innovatsion fikrlashni shakllantirish hamda amaliy ko'nikmalarni oshirish yo'llari ko'rib chiqilgan.*

Kalit so'zlar: *STEAM ta'limi, oliy ta'lim, innovatsion texnologiyalar, talaba kompetensiyalari, fanlararo ta'lim, kreativ fikrlash, tanqidiy fikrlash, raqamli ta'lim, ta'lim innovatsiyasi, zamonaviy o'qitish metodlari.*

Abstract: *This article discusses the improvement of opportunities for university students to use STEAM technologies in the educational process. The study analyzes the essence of the STEAM approach, its role in modern education, and its importance in developing students' creative and critical thinking skills. In addition, the article examines ways to develop students' competencies, form innovative thinking, and improve practical skills through the application of STEAM technologies in higher education.*

Key words: *STEAM education, higher education, innovative technologies, student competencies, interdisciplinary learning, creative thinking, critical thinking, digital education, educational innovation, modern teaching methods.*

Zamonaviy ta'limda keng qo'llanilayotgan yondashuvlardan biri bu STEAM texnologiyasidir. STEAM ta'limi fan, texnologiya, muhandislik, san'at va matematika fanlarini integratsiyalashgan holda o'qitishni nazarda tutadi. Bu yondashuv talabalarni nazariy bilimlar bilan bir qatorda amaliy ko'nikmalar bilan ham ta'minlaydi.

Oliy ta'lim muassasalarida STEAM texnologiyalarini joriy etish talabalarning mustaqil fikrlashini rivojlantirish, ilmiy-tadqiqot faoliyatiga qiziqishini oshirish va ularni zamonaviy kasbiy faoliyatga tayyorlashda muhim ahamiyatga ega.

STEAM ta'limi – bu fanlararo integratsiya asosida tashkil etilgan ta'lim modeli hisoblanadi. Ushbu model quyidagi komponentlardan tashkil topgan:

Science – tabiiy fanlar
Technology – texnologiya
Engineering – muhandislik
Art – san'at va kreativlik
Mathematics – matematika

Mazkur komponentlar o'zaro integratsiyalashgan holda talabalarda kompleks bilim va ko'nikmalarni shakllantirishga xizmat qiladi. STEAM ta'limining asosiy maqsadi talabalarni real hayotiy muammolarni hal qila oladigan mutaxassislar sifatida tayyorlashdir. STEAM yondashuvi an'anaviy ta'limdan farqli ravishda talabalarning faol ishtirokini ta'minlaydi. Talabalar tajriba o'tkazish, loyiha yaratish, muammolarni tahlil qilish orqali bilimlarni mustaqil ravishda egallaydilar.

Oliy ta’lim tizimida STEAM texnologiyalaridan foydalanish bir qator muhim afzalliklarga ega.

- ✓ Talabalarda tanqidiy fikrlash ko‘nikmalarini rivojlantiradi.
- ✓ Amaliy bilimlarni oshiradi.
- ✓ Fanlararo integratsiyani ta’minlaydi.
- ✓ Innovatsion g‘oyalar yaratishga undaydi.
- ✓ Talabalarni zamonaviy kasblarga tayyorlaydi.

Bugungi kunda ko‘plab rivojlangan davlatlarning ta’lim tizimida STEAM texnologiyalari keng joriy etilmoqda. Bu esa talabalarni global mehnat bozoriga tayyorlashda muhim rol o‘ynaydi. Talabalarning STEAM texnologiyalaridan foydalanish imkoniyatlari keng tarqalgan. Oliy ta’lim muassasalarida talabalar STEAM texnologiyalaridan quyidagi yo‘nalishlarda foydalanishlari mumkin:

- ilmiy loyihalar yaratish
- laboratoriya tajribalarini o‘tkazish
- robototexnika bilan ishlash
- dasturlash va raqamli texnologiyalarni o‘rganish
- kreativ dizayn va modellashtirish

Bunday faoliyat talabalarda ijodkorlikni rivojlantirish bilan bir qatorda ularning muammolarni mustaqil hal qilish ko‘nikmalarini ham oshiradi. Oliy ta’lim muassasalarida STEAM yondashuvini samarali joriy etish uchun quyidagi usullardan foydalanish maqsadga muvofiqdir; Loyiha asosida o‘qitish, interfaol ta’lim metodlari, raqamli texnologiyalarni qo‘llash, amaliy laboratoriya mashg‘ulotlari, fanlararo integratsiya va boshqalar. Bu usullar talabalarning o‘quv jarayonidagi faolligini oshirishga hamda bilimlarni samarali o‘zlashtirishga yordam beradi.

STEAM ta’limining pedagogik imkoniyatlari bir qancha bo‘lib, STEAM texnologiyalari pedagogik jarayonda quyidagi imkoniyatlarni yaratadi:

- talabalarning mustaqil ta’lim olish ko‘nikmasini rivojlantirish;

- kreativ fikrlashni shakllantirish;

- innovatsion loyihalarni ishlab chiqish;

- jamoada ishlash ko‘nikmalarini rivojlantirish.

Bu yondashuv o‘qituvchilar uchun ham yangi pedagogik metodlarni qo‘llash imkoniyatini yaratadi. STEAM texnologiyalarini joriy etishda ayrim muammolar ham uchrab turadi. Jumladan: moddiy-texnik bazaning yetarli emasligi, malakali mutaxassislarning kamligi, o‘quv dasturlarining moslashmaganligi kabi. Ushbu muammolarni hal qilish uchun bir qancha choralarni amalga oshirish zarur: zamonaviy laboratoriyalar tashkil etish, o‘qituvchilar malakasini oshirish, STEAM asosidagi o‘quv dasturlarini ishlab chiqish,

Xulosa qilib aytganda, STEAM texnologiyalari oliy ta’lim tizimini modernizatsiya qilishda muhim ahamiyatga ega. Ushbu yondashuv talabalarni zamonaviy kasbiy faoliyatga tayyorlash, ularning kreativ va tanqidiy fikrlash

ko‘nikmalarini rivojlantirishga xizmat qiladi. Oliy ta’lim muassasalarida STEAM texnologiyalaridan samarali foydalanish orqali ta’lim jarayonining sifatini oshirish, innovatsion muhitni shakllantirish hamda raqobatbardosh mutaxassislarni tayyorlash mumkin.

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TABIIY FANLARDA STEAM TEXNOLOGIYASINI O‘QITISHGA O‘RGATISH MAZMUNI VA TEXNOLOGIYALARI

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Annotatsiya: Ushbu maqola ta`lim tizimini rivojlantirishda, mamlakatimizda olib borilayotgan innovatsion jarayonlar va STEAM ta’limining umumiy rivojlanish imkoniyatlari, ularni amalga oshirishda oliy ta’lim va boshlang`ich ta`lim tizimida olib borilayotgan ishlar. Mamlakatimiz Prezidentining Farmoniga binoan oliy ta’lim tizimini 2030 yilgacha rivojlantirish konsepsiyasi tasdiqlanganligi haqida ma`lumotlar berilgan.

**Kalit so`zlar:** STEAM, yonashuv, ijod, texnologiya, kompetensiya, xalqaro tadqiqot, intellektual, boshlang‘ich sinf, hamkor, so‘rovnoma, axborot resurslari, mustaqil ta`lim, uzluksiz ta`lim, pedagogik texnologiya, muammoli vaziyat

Abstract This article is about the development of the educational system, the innovative processes and general development trends of STEAM education in our country, the work being carried out in the higher education and primary education system in their implementation. According to the Decree of the President of our country, the concept of the development of the higher education system until 2030 has been approved.

Key words: STEAM, approach, creativity, technology, competence, international research, intellectual, primary class, partner, survey, information resources, independent education, continuous education, pedagogical technology, problem situation

Аннотация: В данной статье речь идет о развитии образовательной системы, инновационных процессах и общих тенденциях развития STEAM-образования в нашей стране, работе, проводимой в системе высшего и начального образования по их реализации. Согласно Указу Президента нашей страны утверждена Концепция развития системы высшего образования до 2030 года.

Ключевые слова: STEAM, подход, творчество, технология, компетентность, международные исследования, интеллектуальный, начальный класс, партнер, опрос, информационные ресурсы, самостоятельное образование, непрерывное образование, педагогическая технология, проблемная ситуация

Hozirgi kunda texnik yo‘nalishga ustuvor ahamiyat berilmoqda. Ko‘pgina bolalar muassasalarida: boshlang‘ich ta’limida, to‘garaklarda, maktablarda IT texnologiyalari bo‘yicha sinflar, STEAM laboratoriyalari va LEGO markazlari yaratilmoqda. Bolalar uchun tashil etilayotgan qo‘shimcha ta’lim va tarbiya formati o‘zgarmoqda. STEAM ta’lim modelining mazmuni bugungi kunda amalga oshirilayotgan ko‘plab loyihalarning muhim tarkibiy qismidir, lekin ko‘p jihatdan butun ta’lim tizimining yangi predmetli-makonli muhitini yaratishga, uning mazmuni, dasturiy ta’minoti va uslubiy ta’minotini yangilashga bog‘liq. Lekin ko‘plab muassasalarda STEAM laboratoriyalari mavjud bo‘lmaganligi tufayli bolalarga yetarlicha bilimlar berish murakkablashmoqda.

STEAM – ta’lim texnologiyasining maqsadi zamonaviy axborot kommunikatsiya texnologiyalaridan foydalangan holda, bolalarni ilmiy va texnik ijodkorlikka jalb qilish imkoniyati bilan intellektual qobiliyatini rivojlantirishdir. STEAM texnologiyasi AQSH singari Rossiya, Germaniya mamlakatlarida ham qo‘llaniladi.

3-7 yosh maktabgacha yoshdagi bola rivojlanishning muhim bosqichidir. Maktabgacha yoshdagi bolalar bilan ishlaydigan tarbiyachilar maktabgacha yoshdagi bolalarda bilimga qiziqish uyg‘otish, ularni turli manbalardan idrok etishga va ma’lumotlardan foydalanishga o‘rgatish, atrofdagi voqelikka qiziqqan savollarga mustaqil ravishda javob topish qanchalik muhimligini tushunadilar. Maktabgacha yoshdagi bolalarda mustaqil ravishda tengdoshlar va kattalar bilan hamkorlikda harakat qilish qobiliyatini rivojlantirish muhimdir. Shunday qilib, pedagoglar, tarbiyachilarda savol tug‘iladi.

STEAM-ta’lim o‘quvchilar ilmiy usullarni amalda qanday qo‘llashni tushunishga kirishadigan aralash muhitni nazarda tutadi. Ushbu dastur bo‘yicha talabalar, matematika va fizika bilan bir qatorda, o‘z robotlarini ishlab chiqadigan va ishlab chiqaradigan robotlarni o‘rganadilar. Darslarda maxsus texnologik uskunalar ishlatiladi.

1. Tabiiy fanlar, muhandislik ijodkorligi, matematika, raqamli texnologiyalar va hokazolarning turli sohalarini o‘zaro uyg‘unlashtirishga asoslangan zamonaviy muammolarni hal qilishning integratsiyalashgan yondashuvi ushbu integratsiyaning markazida badiiy izlanishlarga va faoliyat natijasi sifatida muayyan haqiqiy mahsulotga ega bo‘lgan loyihalar usuliga asoslangan.

2. Bilim-tadqiqot faoliyati jarayonida nafaqat intellektual qobiliyatlarni rivojlantirish, balki bolalarni ilmiy-texnikaviy ijodga jalb qilishga qaratilgan, zamonaviy dunyoda, kelajakda hayotning yuqori sifati uchun sharoit yaratish, o‘z-o‘zini anglashga yordam berish.

STEAM dasturida asosiy g‘oya - “hech qanday so‘z yoki vizual tasvirlar aqlning rivojlanishi uchun asos bo‘la olmaydi. Bola barchasini laboratoriyada bajarib ko‘rishi kerak”. STEAM dasturi orqali tashkil etiladigan faoliyatlarda bola faol bo‘ladi. Chunki faoliyatda manipulyatsiyalash va integratsiyalashgan haqiqiy zamonaviy muhit va uning axborot-kommunikatsiya qismi, jumladan, programlanadigan robot qurilmalari bilan tajriba o‘tkazish bolani jalb etadi.

STEAM dasturida bolalar bilan tajribalar tashkil etish elementar faoliyatlar orqali tashkil etilib, oddiydan murakkabga qarab boradi. Shu tamoyilga amal qilinsa, bola qiyin tajribalarni tashkil etishda, labaratoriyada mustaqil ishlay olishga qiynalmaydi.

«STEM-boshlang‘ich maktab yoshidagi bolalarni tarbiyalash” dasturining moduli maktabgacha ta’limning namunaviy asosiy ta’lim dasturining tavsiyalari bilan belgilanadi va maktabgacha ta’lim jarayonining umumiy modelini taqdim etish orqali ta’lim muassasalari, yoshni rivojlantirish normativlarini belgilash ta’lim faoliyatining tarkibi va besh ta’lim sohasidagi bolaning rivojlanish yo‘nalishlari bilan aniqlanadi. Dastur mazmunini taqdim etishning modulli tabiati boshlang‘ich ta’limning asosiy ta’lim dasturini keng doiradagi ta’lim materiallarida yaratishga imkon beradi.

STEAM dasturi ta’lim dasturi, klublar, studiyalar va to‘garaklar, intellektual va ijodiy musobaqalar, ilmiy-texnik ijod va loyiha-tadqiqot faoliyatini tashkil etish, turli bo‘limlar tizimi orqali bolalarning qobiliyatlarini aniqlash va rivojlantirishni o‘z ichiga oladi.

STEAM dasturi maktabgacha va boshlang‘ich maktab yoshidagi bolalar uchun moslashtirilgan asosiy ta’lim dasturlari, shuningdek, nogiron bolalar uchun moslashuvchan, asosiy universal dastur bo‘lib, ularning integratsiyasi psixologik va pedagogik tuzatish amaliyotida keng qo‘llanilishi mumkin.

Dasturni rivojlantirishning kutilgan natijalari

“STEM-maktabgacha va boshlang‘ich maktab yoshidagi bolalarni tarbiyalash”dasturining maqsadi bolalarning bilim faoliyati jarayonida intellektual qobiliyatlarini rivojlantirish va ilmiy va texnologik ijodkorlikka jalb qilishdir. Kattalar va tengdoshlar bilan o‘zaro munosabatlarda bola faol ravishda qiziqish bilan namoyon bo‘ladi savollar berish va o‘z-o‘zidan so‘rash- natijada, sabab-ta’sir munosabatlarini o‘rnatadi.

Bola tomosha qilish, tajriba qilish, jonli tabiat, tabiatshunoslik, matematika va boshqa sohalardan boshlang‘ich g‘oyalarni faol ravishda shakllantirishga moyil. Boshlang‘ich rejalashtirish faoliyati, reja tuzish, tanlash qobiliyati tarbiyachi va bola hamkorligida amalga oshirilishi mumkin.

STEAM dasturida bola turli tadbirlarda o‘z bilim va ko‘nikmalariga tayanib, o‘z qarorlarini qabul qilishga, turli faoliyatda — o‘yin, muloqot, bilim va tadqiqot faoliyati, dizayn va hokazolarda mustaqillikni ko‘rsatishga qodir.

Frebel xilma-xil bolalar faoliyati turlari va mashg‘ulotlarni taklif etgan, bular: mozaika, munchoqlar, cho‘plar, qog‘ozlar, bo‘yoqlar bilan ishlash, rasm chizish, qog‘ozdan to‘qish, qog‘ozni qirqish, loydan narsalar yasash. Origamiga katta e’tibor qaratilgan (ya’ni qaychidan foydalanmasdan turib, qog‘ozdan shakllar yasash). Shuningdek, olimning bog‘chasida arqonli o‘yinlar; qum o‘ynash, konstruksiyalar yasash uzviy mashg‘ulotlar hisoblagan. Bular ijodiy qobiliyatni o‘stirish, intellektni shakllantirish, dunyoni abstrakt holda qabul qila olish, noan’anaviy qarorlar qabul qilish layoqatini rivojlantirishga ko‘maklashadi. O’yin jarayonida bolalar bilan suhbatlashish ham ko‘zda tutilgan. Suhbat mavzusi Frebelning fikricha, avvaldan tayyorlanib, bolaning faoliyat bilan shug‘ullanish va boshqa bolalar bilan muloqot qilishga bo‘lgan ehtiyojini qondirish uchun, uni tengdoshlari jamoasida tarbiyalash kerak. Ushbu g‘oyani u chuqur pedagogik asos bilan mustahkamladi va uni keng ommalashtirish bo‘yicha ko‘p ishlarni amalga oshirdi. Frebel jamoaviy tarbiyani insoniyat asosi, deb bilgan. Shu sababli u bolani majburiy tartibda jamoaviy faoliyatga jalb qilish, ya’ni uning bolalar bog‘chasiga qatnashi zarur, deb hisoblagan. U bolaning tanasini rivojlantirish zarur, tashqi hissiyot sezgilarini mashq qildirish, ularni odamlar va tabiat bilan tanishtirish kerak, deb hisoblagan. Shu kabi o’yin jarayonida bolani maktabga tayyorlash, bog‘dagi o‘simliklar kabi, ularga rivojlanishida yordamlashish kerak, deb bilgan. Ayni paytda har bir bolaning individualligini yodda tutishga da’vat etgan. Shu sababli bog‘da katta gullar to‘plami bo‘lgan, bolalar gullarni guruh bo‘lib parvarish qilgan, ayni paytda bitta bolaga biriktirilgan o‘simlik ekilgan tuvak ham bo‘lgan. F.Frebel uslubiyotining g‘oyasi - barcha narsalar bolalarga. Olim bolalarga hayvonlar haqidagi voqealarni aytib bergan, zero bolalar hayvonlarni yaxshi ko‘rishini tashungan. So‘ngra bolalarning gullarga mehri balandligini anglagan. Shu sababli uning tarbiyalanuvchilari gullarni mustaqil parvarishlay boshlagan. Asta-sekin musiqaning

bolalarga ijobiy ta’sir ko‘rsatishini sezgan. Shundan kelib chiqib, bolalar ashula ayta boshlagan va «bog‘bon qizlar»ning (ya’ni, tarbiyachilarning) shulalarini tinglagan. F. Frebel jazolarga, bolalarga nisbatan har qanday shavqatsizlik namoyishlariga qarshi bo‘lgan. Fridrix Frebel haqida so‘z ketganda uning «tuhfalarini» alohida eslatish kerak.

Shu tarzda Frebel bo‘yicha bolalar bog‘chasining maqsadi va tamoyillarini quyidagilar tashkil qiladi:

- faoliyatning 3 ta turiga - o‘yin, o‘quv, mehnatga yo‘naltirilganlik;
- bola hissiyotlarini rivojiantirish;
- bolaning tanasi va ruhini mustahkamlash;
- ko‘rgazmali usul yordamida tabiat bilan tanishish va dunyoni anglash;
- odamlar bilan muloqot qilish;
- bolaning tabiiy xislatlarini rivojlantirish;
- bolalarga cheksiz mehr-muhabbat ko‘rsatish.

F. Frebelning ulkan yutuqlari bilan birga, tarixdan ma’lumki, uning pedagogik yondashuvlari K.D. Ushinskiy, E.A. Flyorina, G.N. Vodovozova kabi olimlar tomonidan tanqid qilingan. Frebel nazariyasida kamchiliklar ham bor, va ular, avvalo, quyidagilar:

- bolaning bevosita atrofdagi olam bilan tanishuvi «tuhfalar» tizimiga almashtirilgan;
- bolaning hayoti didaktik material bilan chegaralanadi;
- bolaning hayoti haddan ziyod tartibga solinadi;
- bolaning erkin ijodi cheklanadi va h.z. Shunga qaramay, F. Frebel fanga katta hissa qo‘shgan, zero u nazariya va amaliyotni birlashtirdi, uning maqsadi - bolaning ijodiy salohiyatini namoyon bo‘lishiga ko‘maklashadigan sharoitni ta’minlovchi muhitni yaratish bo‘lgan. Ayni paytda bu bolada noan’anaviy ijodiy fikrlash qobiliyatini, fantaziyani rivojlantiradi, masalalarni hal etishga noan’anaviy yondashuvni shakllantiradi.

Muammoli ta’limdan foydalanish mavjud natijalarni baholash tizimining "hayoti to‘g‘risida" bo‘linadi. Ayrim fanlar bo‘yicha imtihon hech qanday tarzda loyiha faoliyati bilan birlashtirilmaydi, bundan tashqari, o‘rta maktab o‘quvchilari imtihonda bo‘lmagan narsalarni qilishdan bosh tortishadi. Ular to‘g‘ridan-to‘g‘ri: "ha, qiziq, lekin universitetga kirish uchun bizga yuqori ball kerak", deyishadi. o‘qituvchilar bunday yondashuvlarni faqat darsdan tashqari mashg‘ulotlar doirasida yoki boshlang‘ich maktabda qo‘llaydilar, bu erda bolalar Oge/use yordamida o‘lchanadigan aniq natijalarga unchalik e’tibor bermaydilar. Shuning uchun, zamonaviy sharoitda muammoli ta’lim boshlang‘ich va asosiy maktabda qo‘llanilishi mumkin.

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PROJECT-BASED LEARNING AS A TOOL FOR FOSTERING INTERCULTURAL AWARENESS IN CONTEMPORARY CLASSROOMS

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Abstract. *In the era of globalization, intercultural awareness has become an essential component of foreign language education. Modern classrooms require innovative teaching approaches that not only develop linguistic competence but also foster cultural understanding. Project-Based Learning (PBL) is considered one of the most effective student-centered methodologies that promotes active learning, collaboration, and intercultural interaction. This article examines the role of PBL in enhancing intercultural awareness in contemporary educational settings. The study analyzes theoretical foundations of intercultural communication and highlights practical strategies for integrating project-based tasks into EFL classrooms. The findings suggest that PBL significantly contributes to the development of students' intercultural sensitivity, critical thinking, and communicative competence.*

Key words: *Project-Based Learning, intercultural awareness, EFL, communicative competence, collaborative learning, globalization.*

Annotatsiya. *Globallashuv davrida madaniyatlararo xabardorlik chet tillarini o'qitishning muhim tarkibiy qismiga aylandi. Zamonaviy sinflarda nafaqat til kompetensiyasini, balki madaniy tushunchani ham rivojlantiradigan innovatsion pedagogik yondashuvlar talab etiladi. Loyiha asosida o'qitish (PBL) faol o'qitishni, hamkorlikni va madaniyatlararo muloqotni rivojlantiruvchi talabaga yo'naltirilgan metodlardan biri hisoblanadi. Ushbu maqolada loyiha asosida o'qitishning zamonaviy ta'lim muhitida madaniyatlararo xabardorlikni rivojlantirishdagi roli tahlil qilinadi.*

Kalit so'zlar: *Loyiha asosida o'qitish, madaniyatlararo xabardorlik, chet tili, kommunikativ kompetensiya, hamkorlikda o'qitish, globallashuv.*

Аннотация. *В эпоху глобализации межкультурная осведомленность стала важным компонентом обучения иностранным языкам. Современные классы требуют инновационных педагогических подходов, которые развивают не только языковую компетенцию, но и культурное понимание. Обучение на основе проектов (Project-Based Learning, PBL) считается одним из наиболее эффективных студентоцентрированных методов, способствующих активному обучению, сотрудничеству и межкультурному взаимодействию. В данной статье анализируется роль проектного обучения в развитии межкультурной осведомленности в современной образовательной среде.*

Ключевые слова: *Проектное обучение, межкультурная осведомленность, иностранный язык, коммуникативная компетенция, совместное обучение, глобализация*.

Introduction. The modern world demands more than just grammar and vocabulary from language learners; it requires the ability to navigate diverse cultural contexts. Intercultural communicative competence (ICC), as introduced by Byram, highlights attitudes, knowledge, skills, and critical cultural awareness as its core components. Project-Based Learning has been strongly influenced by the educational philosophy of John Dewey, who believed that learning should be experiential and student-centered. According to contemporary researchers, PBL enhances collaboration, autonomy, and critical thinking — all of which are essential for intercultural development.

Methodology. This study applies a qualitative analysis of project-based activities implemented in EFL classrooms. To evaluate the effectiveness of this method, several intercultural projects were designed and conducted, including:
Cultural comparison presentations: Comparing local traditions with target language cultures.
Virtual exchange projects: Using online platforms to communicate with peers abroad.
International holiday research: Investigating the origins and practices of global celebrations.
Cross-cultural interview assignments: Interviewing native speakers or experts on cultural nuances.

Results and Discussion

The findings demonstrate that Project-Based Learning positively impacts students' intercultural awareness. The results of the study are summarized in Table 1 below:

Table 1. Impact of PBL on Intercultural Awareness Components

Components of Awareness	Before PBL Integration	After PBL Integration	Observed Improvement
Cultural Sensitive	Low awareness of nuances	High empathy and respect	Significant
Stereotype Reduction	Generalizations existed	Critical analysis of myths	High
Communicative Confidence	Hesitant in interaction	Proactive and fluent	Moderate to high
Collaborative Skills	Individualistic approach	Team -oriented mindset	Very high

As illustrated in the table, the integration of project-based tasks led to a measurable shift in students' attitudes. Learners showed increased openness toward different cultures and improved communicative confidence. PBL provided authentic communicative situations that encouraged students to analyze cultural differences respectfully and constructively.

The data reveals a transformative shift in students' intercultural competence. Prior to the project integration, many students viewed cultural differences through the lens of stereotypes. However, after engaging in collaborative research, there was a marked transition towards cultural empathy. One of the most notable findings is the "Very High" improvement in Collaborative Skills. This suggests that when students work towards a common goal, they are forced to negotiate meaning and resolve conflicts, which mirrors real-world intercultural communication.

Furthermore, the increase in Communicative Confidence indicates that project-based tasks reduce foreign language anxiety. By focusing on the "content" rather than just the "grammar", students feel more empowered to express their ideas fluently. This confirms that PBL is not just a teaching method but a bridge that connects linguistic knowledge with global citizenship.

Conclusion. Project-Based Learning is an effective pedagogical tool for fostering intercultural awareness in contemporary classrooms. By engaging students in collaborative, real-life tasks, educators can create meaningful learning

experiences that combine language development with cultural understanding. Integrating PBL into EFL curricula contributes to forming globally competent and culturally sensitive individuals.

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DEVELOPING INTERCULTURAL COMMUNICATIVE COMPETENCE THROUGH MODERN INTERACTIVE TEACHING METHODS

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***Abstract**: This paper investigates the role of modern interactive teaching approaches in fostering intercultural communication skills in students. The study examines a variety of effective methods, including communicative language education, task-based learning, cooperative learning, project-based learning, and role-playing exercises. These strategies promote active student participation and facilitate meaningful communication and cultural interaction in the classroom. The essay also emphasizes the role of digital technologies, such as online communication platforms, virtual simulations, and digital storytelling, in promoting intercultural learning. In addition, the study covers assessment procedures and potential obstacles associated with the introduction of interactive approaches in language instruction. The findings indicate that combining interactive pedagogical approaches with technology-enhanced learning environments helps students strengthen their communicative talents, cultural awareness, and readiness for effective interaction in global situations.*

***Keywords:** Intercultural communicative competence (ICC), interactive teaching methods, communicative language teaching, task-based learning, cooperative learning, project-based learning, role-play activities, digital technologies in education, cultural awareness, language education.*

Annotatsiya. Mazkur maqolada zamonaviy interaktiv o‘qitish yondashuvlarining talabalarda madaniyatlararo kommunikatsiya ko‘nikmalarini rivojlantirishdagi roli o‘rganiladi. Tadqiqot kommunikativ til o‘qitish, vazifaga asoslangan o‘rganish, hamkorlikka asoslangan o‘rganish, loyiha asosida o‘rganish va rol o‘yinlari kabi samarali metodlarni tahlil qiladi. Ushbu strategiyalar talabalarning faol ishtirokini rag‘batlantiradi va sinfda mazmunli muloqot hamda madaniy interaktsiyani ta’minlaydi. Shuningdek, maqolada onlayn kommunikatsiya platformalari, virtual simulyatsiyalar va raqamli hikoya yaratish kabi raqamli texnologiyalarning madaniyatlararo o‘rganishni rivojlantirishdagi roli ta’kidlangan. Tadqiqotda interaktiv yondashuvlarni til o‘qitish jarayoniga joriy qilish bilan bog‘liq baholash usullari va mumkin bo‘lgan to‘siqlar ham ko‘rib chiqilgan. Natijalar shuni ko‘rsatadiki, interaktiv pedagogik yondashuvlarni texnologiyalar bilan boyitilgan o‘quv muhitlari bilan birlashtirish talabalarning kommunikativ qobiliyatlarini, madaniyatlararo ongini va global vaziyatlarda samarali muloqotga tayyorligini mustahkamlaydi.

Kalit so‘zlar: Madaniyatlararo kommunikativ kompetentsiya (ICC), interaktiv o‘qitish metodlari, kommunikativ til o‘qitish, vazifaga asoslangan o‘rganish, hamkorlikka asoslangan o‘rganish, loyiha asosida o‘rganish, rol o‘yinlari, ta’limda raqamli texnologiyalar, madaniy ong, til ta’limi.

***Аннотация.** В данной статье исследуется роль современных интерактивных методов обучения в развитии у студентов навыков межкультурной коммуникации. Исследование рассматривает различные эффективные подходы, включая коммуникативное обучение языкам, обучение на основе задач, кооперативное обучение, проектное обучение и ролевые игры. Эти стратегии способствуют активному участию студентов и обеспечивают содержательную коммуникацию и культурное взаимодействие в классе. В статье также подчеркивается роль цифровых технологий, таких как онлайн-платформы для общения, виртуальные симуляции и цифровое повествование, в развитии межкультурного обучения. Кроме того, исследование охватывает процедуры оценки и потенциальные препятствия, связанные с внедрением интерактивных методов в преподавание языков. Результаты показывают, что сочетание интерактивных*

педагогических подходов с технологически усиленными образовательными средами помогает студентам укреплять коммуникативные навыки, культурную осведомленность и готовность к эффективному взаимодействию в глобальных ситуациях.

Ключевые слова: *межкультурная коммуникативная компетенция (ICC), интерактивные методы обучения, коммуникативное обучение языкам, обучение на основе задач, кооперативное обучение, проектное обучение, ролевые игры, цифровые технологии в образовании, культурная осведомленность, языковое образование.*

Introduction. What is intercultural communicative competence? How it is connected to the modern interactive teaching methods? To answer these questions human beings should know their importance. Developing communicative competence helps to increase education through interactive teaching methods.
Intercultural communication competence refers to the ability to interact successfully and appropriately with people from other cultures. It encompasses language understanding, cultural awareness, tolerance, and the ability to understand and appreciate cultural differences. Learners who master this skill can prevent misconceptions and establish effective communication in multicultural settings.

In today's globalized society, communication between representatives from other cultures has grown more widespread. Students who learn foreign languages should be able to communicate effectively with persons from diverse cultures. As a result, increasing intercultural communication skills has become one of the primary goals of modern education.

Modern interactive education approaches offer effective opportunities to improve intercultural communicative competence. Group conversations, role plays, project-based learning, and collaborative assignments enable students to practice communication in real-world scenarios. These strategies help students not only enhance their language abilities, but also get a better understanding of cultural variety.

The works of many authors are devoted to the development of mastership communicative competence. So, N. D. Galskova pays great attention to intercultural factor as "the human capacity for intercultural communication on foreign language level and adequate interaction with other cultures" [1, p. 46]. A. G. Kancur focuses on the creation of new knowledge and concepts in the process of communication [2, p. 4]. V. G. Kostomarov and O. D. Mitrofanova consider communications in relation to the social factors [3]. E.V. Makarova allocates rhetorical aspect in the development of monologue speech skills [4].

Despite the necessity of intercultural communication, many traditional education methods still emphasize grammar and academic knowledge. As a result, pupils may know the language but struggle to communicate with people from other cultures. As a result, modern education necessitates innovative teaching practices that promote active involvement and cultural understanding.

Interactive teaching methods allow students to practice communication skills in real-world scenarios. Discussions, simulations, role plays, and collaborative projects help students enhance not just their language skills, but also their multicultural awareness and critical thinking ability. During this process, the teacher serves as a facilitator, guiding pupils in improving communication skills and

recognizing cultural variety. Teachers can foster cooperation, openness, and respect for diverse cultures in the classroom by incorporating interactive tactics.

Communicative language instruction is one of the most successful techniques to establishing intercultural communicative competence. This approach emphasizes meaningful communication and encourages students to apply language in real-life situations. Communicative exercises help learners build both linguistic and intercultural skills.

Another important method is task-based approach. Task-based language instruction is another major strategy in modern education. Students use this strategy to complete significant tasks like problem solving, topic discussion, and presentation preparation. These activities help students practice communication skills and understand diverse cultural viewpoints.

Cooperative learning enables students to cooperate in small groups to achieve shared learning objectives. Collaboration allows students to communicate their thoughts, respect opposing viewpoints, and develop communication skills that are necessary for multicultural interaction.

Students can deepen their understanding of cultural subjects through project-based learning. Learners improve academic knowledge and multicultural awareness through research, presentation preparation, and collaborative work.

Role-playing and simulation activities offer realistic communication scenarios in which students can practice engaging with people from various cultural backgrounds. These activities assist students build empathy, adaptability, and cross-cultural understanding.

Studies by Godwin-Jones (2018) and Warschauer (2010) demonstrated that using videos, online cultural exchanges, virtual simulations, and interactive platforms allows learners to experience authentic intercultural interactions beyond the traditional classroom environment. These resources provide access to diverse linguistic and cultural contexts, thereby supporting the acquisition of both communicative and intercultural skills. In particular, the use of digital storytelling, video conferencing, and online discussion forums has been shown to improve students' engagement, critical thinking, and ability to negotiate meaning across cultures (Peterson,2014; Sercu,2005).

In addition to digital tools, authentic cultural resources can make a substantial contribution to the development of intercultural communication skills. Films, podcasts, news articles, and literary texts provide students with real-world language experience and cultural viewpoints. Analyzing these materials helps students get a better knowledge of diverse cultures' social conventions, traditions, and communication techniques. Such exposure enables students to compare their own cultural background to that of others, resulting in a more open-minded approach towards cultural diversity.

Furthermore, the role of the instructor is critical in promoting intercultural learning. Teachers should serve not only as lecturers, but also as facilitators, guiding pupils in discovering cultural differences and similarities. Teachers foster a friendly and inclusive classroom climate in which students can voice their viewpoints, ask questions, and engage in meaningful intercultural discourse. This technique

encourages students to acquire tolerance, understanding, and respect for different cultural identities.

Reflective learning is a key part of establishing intercultural communicative ability. Students should be encouraged to think about their experiences during intercultural communication exercises. Reflection enables students to assess their communication skills, identify cultural misunderstandings, and enhance their future encounters.

Overall, combining modern interactive teaching methods, digital technologies, and culturally rich learning materials results in an effective setting for developing intercultural communicative skills. These approaches not only help students improve their language skills, but also equip them to communicate effectively in multicultural and global settings.

Although modern interactive teaching methods have numerous benefits for building international communication ability, their implementation in the classroom may pose a number of obstacles. One of the primary challenges is pupils' insufficient experience to actual intercultural conversation. In many educational settings, students have little opportunity to connect with persons from diverse cultural backgrounds, limiting their capacity to practice intercultural communication in real-world scenarios.

Another issue is the prevalence of cultural preconceptions and misunderstandings among pupils. Learners may have preexisting notions about foreign cultures, which influence their attitudes during communication. These misconceptions can prevent productive contact and diminish the openness required for successful intercultural discussion. As a result, teachers should provide activities that stimulate critical reflection and help students challenge their beliefs about different cultures. Time constraints and curricular requirements may also restrict the usage of interactive teaching methods. In some circumstances, teachers are forced to focus primarily on grammar and exam preparation, limiting the amount of time available for communicative and intercultural activities. As a result, educators must plan ahead of time and be adaptable when incorporating intercultural learning into language teaching.

Despite these limitations, interactive teaching approaches are still one of the most effective strategies to enhance international communicative ability. By gradually incorporating intercultural tasks, conversations, and collaborative activities into the learning process, educators can assist students in developing the information, skills, and attitudes required for effective communication in multicultural settings.

Assessing intercultural communication ability is a crucial step in the language learning process. Unlike traditional language assessment, which focuses mostly on grammar and vocabulary, assessing intercultural competence necessitates a more comprehensive approach. Teachers must examine not only pupils' linguistic talents, but also their attitudes, cultural awareness, and capacity to interact effectively in intercultural settings. Performance-based activities are an excellent technique of assessing intercultural competence. Role plays, group discussions, presentations, and intercultural projects enable teachers to see how pupils interact

and react to cultural differences. These activities offer useful insights on students' communication methods, cultural knowledge, and ability to collaborate with others. Reflective assessment might also help evaluate intercultural learning. Students may be invited to write reflective notebooks, learning diaries, or brief essays about their experiences with intercultural communication exercises. Reflection enables learners to assess their own conduct, identify cultural misunderstandings, and get a better grasp of intercultural communication processes.

Another effective assessment method is peer and self-assessment. When students analyze their own participation as well as the contributions of their peers, they take greater responsibility for their learning and develop critical thinking abilities. This technique encourages students to think about their communication styles, attitudes, and relationships with persons from various cultural backgrounds. Overall, a good assessment of intercultural communicative ability should include a variety of methodologies, such as observation, reflection tasks, collaborative projects, and performance evaluation. This approach enables educators to more completely assess students' progress and promotes the development of communicative and intercultural abilities.

Conclusion. To summarize, the development of intercultural communicative ability has become a critical goal of modern language education. In today's globalized world, students require not only linguistic understanding but also the ability to effectively communicate with people from various cultural backgrounds. Intercultural communicative competency allows students to comprehend cultural differences, accept different points of view, and prevent communication misunderstandings.

The adoption of current interactive teaching methods is crucial in reaching this goal. Approaches such as communicative language education, task-based learning, cooperative learning, project-based learning, and role-playing exercises promote meaningful conversation and cultural inquiry in the classroom. These strategies promote active student participation and assist learners in developing both language competency and intercultural awareness.

Furthermore, integrating digital technologies and authentic cultural resources improves the learning process by exposing students to real-life intercultural situations. Effective assessment approaches, such as performance-based tasks, reflective exercises, and collaborative projects, help to evaluate students' intercultural growth.

Despite certain limitations in applying interactive approaches, the benefits to language acquisition and intercultural understanding are obvious. As a result, educators should continue to use new teaching methods and technologies to create compelling learning environments that prepare students for successful communication in multicultural and global settings.

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GAMIFICATION AS A MEANS OF INCREASING EDUCATIONAL EFFICIENCY

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Abstract. *This article examines the integration of gamification into modern education as a tool to enhance student motivation, engagement, and cognitive activity. It highlights how game mechanics, dynamics, and rewards influence the brain's dopamine system, support iterative learning, and optimize feedback processes. The study emphasizes that gamification should serve as an instrumental complement to traditional pedagogical methods rather than replace the content of learning. Key elements, such as progress visualization, badges, and ranking systems, are analyzed in terms of their impact on student behavior, cognitive load, and intrinsic motivation. The findings indicate that gamification can significantly increase learning efficiency if balanced properly with educational objectives, providing a structured and engaging path for mastery, complexity, and development.*

Keywords: *gamification, educational motivation, game-based learning, cognitive engagement, reward system, progress visualization, badges, ranking systems, pedagogical innovation, intrinsic motivation.*

Annotatsiya. *Mazkur maqolada zamonaviy ta'limda talabalarning motivatsiyasini, ishtirokini va kognitiv faoliyatini oshirish vositasi sifatida gamifikatsiyaning integratsiyasi o'rganiladi. Maqolada o'yin mexanikasi, dinamikasi va mukofot tizimlarining miyadagi dopamin tizimiga ta'siri, iterativ o'rganishni qo'llab-quvvatlashi va fikr-mulohaza jarayonlarini optimallashtirishi tahlil qilinadi. Tadqiqot shuni ta'kidlaydiki, gamifikatsiya an'anaviy pedagogik metodlarning mazmunini almashtirmasdan, qo'shimcha vosita sifatida ishlatilishi lozim. Rivojlanish jarayoni, mukofot belgilari (badges) va reyting tizimlari talabalarning xatti-harakatlariga, kognitiv yuklamaga va ichki motivatsiyaga ta'sir jihatidan tahlil qilinadi. Natijalar shuni ko'rsatadiki, gamifikatsiya ta'lim maqsadlari bilan muvofiqlashtirilgan holda qo'llansa, o'quv jarayonini samarali va qiziqarli qilib, "egallash-murakkablik-rivojlanish" tsiklini yaratadi.*

Kalit so'zlar: *gamifikatsiya, ta'lim motivatsiyasi, o'yin asosidagi o'rganish, kognitiv faoliyat, mukofot tizimi, rivojlanish ko'rsatkichlarini vizualizatsiya qilish, badges, reyting tizimlari, pedagogik innovatsiya, ichki motivatsiya.*

Аннотация.*В статье рассматривается интеграция геймификации в современное образование как инструмент повышения мотивации, вовлеченности и когнитивной активности студентов. Анализируется влияние игровых механик, динамики и систем награждения на дофаминовую систему мозга, поддержку итеративного обучения и оптимизацию процессов обратной связи. Подчеркивается, что геймификация должна использоваться как инструментальное дополнение к традиционным педагогическим методам, а не заменять содержание обучения. Рассматриваются такие элементы, как визуализация прогресса, значки (badges) и рейтинговые системы, и их влияние на поведение студентов, когнитивную нагрузку и внутреннюю мотивацию. Результаты показывают, что при правильном сочетании с образовательными целями геймификация значительно повышает эффективность обучения, обеспечивая структурированный и увлекательный путь через цикл «овладение – сложность – развитие».*

Ключевые слова: *геймификация, мотивация в обучении, обучение на основе игр, когнитивная активность, система награждения, визуализация прогресса, значки (badges), рейтинговые системы, педагогические инновации, внутренняя мотивация.*

The modern education system is often seen as a factor that undermines students' intrinsic motivation due to its static nature and traditional pedagogical

approaches. The lack of personalization of didactic processes, the one-sidedness of information transfer, and the delays in assessing results have turned learning activities into more of a mechanical obligation than a creative process. In such conditions, the student loses his/her activity as a subject and becomes a passive consumer, which in turn negatively affects the effectiveness of cognitive processes.

In order to overcome this crisis, the concept of "gamification" is being integrated into the composition of pedagogical technologies. From an academic perspective, gamification is a strategy for increasing student engagement and motivation by using game mechanics, dynamics, and aesthetics in a non-game learning environment. This approach is not just about transforming didactic material into a game, but also about optimizing feedback mechanisms, changing the attitude towards failure, and moving the learning process to an iterative development trajectory. While gamification tools, particularly reward systems and leveled tasks, aim to stimulate cognitive activity by satisfying the neurobiological needs of the learner, their pedagogical effectiveness is directly dependent on the balance between the learning objective and the game mechanics.

In the educational process, the effectiveness of gamification is largely determined by the ability of the brain to directly influence the reward system (reward system). On the basis of this mechanism lies the neuromediator — dopamine. Dopamine is released not only when a reward is received, but also during the process of striving for an expected reward. The success of platforms like Duolingo lies in their ability to optimize this connection between "expected outcome" and "operational confirmation." The effect of unexpected rewards and small victories on the brain is explained by the theory of "reward prediction error" (reward prediction error). When a student completes a task, achieving a goal or encountering an unexpected positive outcome triggers a surge of dopamine in the brain. This situation reinforces the "reward" feeling in the brain, increasing the tendency to repeat the behavior. However, in education, this mechanism is double-edged: on the one hand, it maintains interest, but on the other hand, it can create a dependence on constant external incentives.

Visualizing progress (progress bars, level charts) satisfies the psychological need of a person to visually monitor their progress. According to cognitive psychology, breaking down complex tasks into small, measurable steps reduces the cognitive load on the brain and allows the learner to feel a sense of accomplishment consistently. This makes the learning process a non-linear, but rather a step-by-step system.

The pedagogical effectiveness of a gamification system is determined by the scope of the psychological impact of its components on student behavior. These mechanisms serve to regulate cognitive activity and control motivation through an external reward system.

The rating system is based on social comparison theory. By encouraging students to monitor their position on a common table, the system fosters a healthy competitive environment. This mechanism satisfies the learner’s natural need to evaluate themselves within the team and compare their success with others. Badges or "bejes" are a means of materializing and making visible the successes of the

learning process. From an academic perspective, badges are a form of "external validation," announcing to society or the system that a learner has mastered a particular skill. The system of ranks fully corresponds to Vygotsky’s theory of the "zone of near Development". Gradually increasing the complexity of the learning process protects the student from being under excessive cognitive load (cognitive load). Each new level represents a new challenge and a new set of opportunities for the student. This mechanism transforms the learning process from a linear one to a cycle of "mastery-complexity-development," creating a foundation for the learner to constantly expand their boundaries.

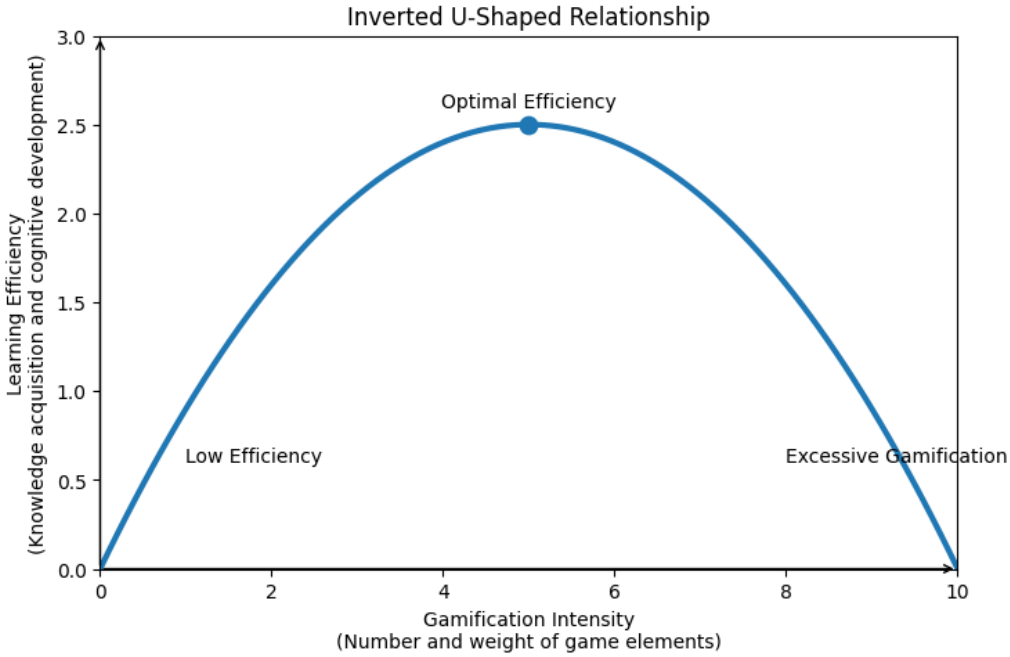


Figure 1. The relationship between learning efficiency and gameplay elements

This graph shows that gamification tools give the highest efficiency when applied at a point where the student’s internal motivation decreases. If game elements begin to overshadow the learning content, the cognitive connection between "play" and "learning" is broken, and the learning process becomes a mechanical activity focused solely on scoring.

Gamification has served as an important tool in the history of pedagogical innovation in democratizing the educational process and systematically stimulating the motivation of students. However, the analysis shows that the elements of the game should have only an instrumental character. While they serve as the initial motivation for engaging the learner in cognitive activities (engagement), they cannot suppress the content of education and the need to work on themselves (metacognition). Gamification is a powerful catalyst for the future of education, but it does not guarantee the quality of education on its own. Future education is about pedagogical models that find the delicate balance between the fun of game dynamics and the depth of fundamental knowledge and critical thinking. To avoid falling into the dopamine trap, the game element should not replace the learner’s independent exploration and metacognitive development, but rather provide a foundation for it.

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4-SHO‘BA. TIL TA’LIMI VA GUMANITAR FANLARDA SUN’IY INTELLEKT.
SECTION 4. ARTIFICIAL INTELLIGENCE IN LANGUAGE EDUCATION AND THE HUMANITIES
4-СЕКЦИЯ. ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В ЯЗЫКОВОМ ОБРАЗОВАНИИ И ГУМАНИТАРНЫХ НАУКАХ

CHATGPT – THE RULE FOR AUTOMATING TASKS AND IMPROVING EFFICIENCY

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Abstract. *Teacher burnout has become a serious issue in schools today, mainly because of too much work and too many administrative duties. This paper looks at how ChatGPT, a modern language model, can help reduce teacher stress by doing time-consuming tasks such as grading papers, preparing lessons, and talking to students. Using ChatGPT in daily school hometasks can help teachers save their time, feel less overwhelmed, and focus more on engaging with students and encouraging creativity. In this way, teachers can improve their well-being, and the quality and efficiency of education can also increase.*

Keywords: *Teacher burnout, ChatGPT, AI in education, automation of tasks, educational technology, artificial intelligence, workload reduction, teacher health, improving efficiency, AI-based teaching.*

Annotatsiya. *Bugungi kunda o‘qituvchilarning charchashi jiddiy muammolardan biridir, ayniqsa ortiqcha ish yuklari va ma’muriy vazifalar sababli. Ushbu maqolada ChatGPT kabi zamonaviy til modeli o‘qituvchilarga vaqt oladigan ishlarni, masalan, dars tekshirish, reja tuzish va talabalar bilan aloqa qilishni avtomatlashtirish orqali qanday yordam berishi mumkinligi ko‘rib chiqiladi. Agar ChatGPT ni kundalik ta’lim faoliyatiga qo‘shsak, o‘qituvchilar o‘z ishlarini yengillashtiradi, stress kamayadi va talabalar bilan ishlashga, ijodkorlikka ko‘proq vaqt ajrata oladilar. Bu yondashuv o‘qituvchining salomatligini yaxshilashga yordam beradi va umumiy ta’lim sifati va samaradorligini oshiradi.*

Kalit so‘zlar: *O‘qituvchi charchoqligi, ChatGPT, ta’limda sun’iy intellekt, vazifalarni avtomatlashtirish, ta’lim texnologiyasi, AI, ish yukini kamaytirish, o‘qituvchi salomatligi, samaradorlikni oshirish, sun’iy intellekt yordamida o‘qitish.*

Teacher burnout is becoming an extreme issue in today’s education system. It often includes emotional exhaustion, feelings of detachment, and a reduced sense of achievement. Many teachers are exhausted by responsibilities such as planning lessons, grading assignments, managing administrative tasks, and responding to diverse student needs. These demands can lead to significant stress and low job satisfaction, which contributes to high turnover rates and negatively affects the quality of education. In this paper, I will discuss how ChatGPT—a popular AI language model—can help reduce teacher burnout by increasing efficiency and improving overall teacher well-being.

In recent days, Artificial Intelligence (AI) has gained attention in the education sector for its potential to solve some of the challenges teachers face. One

of the most promising AI tools is ChatGPT. It can be used to help automate repetitive tasks such as grading and lesson planning. When teachers use ChatGPT to handle routine responsibilities, they can dedicate more energy to meaningful work, such as helping students learn and grow.

Teaching is considered one of the highly respected professions because it shapes future generations. However, many teachers experience high levels of stress. The American Federation of Teachers (AFT) conducted a survey in 2017 and found that 61% of teachers felt "often" or "always" stressed due to their job demands. This clearly shows that workload and administrative duties are causing significant burnout among teachers (AFT, 2017).

AI, defined as computer systems designed to perform tasks usually requiring human intelligence, offers promising tools to improve the teaching experience. Examples include virtual assistants, automated grading systems, and smart learning platforms. According to research by Chanel and Chen (2020), AI tools such as adaptive learning platforms can reduce administrative responsibilities, allowing teachers to focus more on teaching itself.

One of the main benefits of AI is that it can help reduce teachers' workload. Many time-consuming tasks like grading and analyzing data can now be done by AI-powered systems. This allows educators to spend more time preparing lessons or offering individual support to students. For instance, the California Education Review (2021) reported that AI-assisted grading systems helped teachers save up to 30% of their time, giving them more opportunities for meaningful interaction with students and lowering stress levels. ChatGPT can be used to check essays for grammar, organization, and clarity, reducing the burden of grading and freeing up time for teachers to offer more detailed feedback.

Real-life and world examples support these findings. In one case, a school district in California introduced an AI-driven learning platform that gave personalized feedback to students. As a result, teachers could manage their classrooms more efficiently and experienced reduced stress levels. According to EdTech Magazine (2022), the teachers in this district reported feeling more satisfied with their jobs and way away from burned out.

However, while the benefits of AI are promising, there are concerns. Some critics argue that relying too much on AI might weaken the personal connection between teachers and students. Binns (2021) and Moorhead (2022) have both pointed out that AI should enhance—not replace—human relationships in the classroom. After all, the human touch is essential for motivating and understanding students. There are also concerns related to privacy and data security, which must be addressed to ensure ethical and safe use of AI tools in schools.

Aside from reducing workload, AI can also contribute to a better work-life balance for teachers. Automating repetitive administrative tasks gives teachers more free time outside of the classroom. This can improve their mental health and increase job satisfaction. According to a 2021 report by the National Education Association (NEA), teachers who used AI tools said their work-life balance improved, which helped their overall well-being (NEA, 2021).

As AI continues to develop, its potential to transform teaching goes up as well. Tools such as intelligent tutoring systems and virtual reality (VR) could make teaching more efficient while also enhancing student learning. Huang and Wang (2020) found that intelligent tutoring systems can adapt to each student's individual needs and provide personalized feedback. This reduces the amount of support teachers need to offer manually and lowers their workload. Still, clear policies and ethical guidelines must be created to ensure AI is used properly and doesn't damage the student-teacher relationship.

Generative AI tools like ChatGPT have the potential to greatly improve teachers' lives. They can make the time less spent on grading, lesson planning, and administrative work. It helps teachers focus on what really matters: guiding, mentoring, and inspiring their students. However, it is important to use AI tools thoughtfully. While AI can support the educational process, it cannot and should not replace the vital role teachers play in students' intellectual and personal development.

OpenAI's ChatGPT EDU, designed specifically for schools and universities, is an example of how AI can benefit both teachers and students. This tool can assist with student orientation, career advice, and help create more interactive classroom discussions. It even offers 24/7 academic support, which is especially helpful for students in remote or underfunded areas. Still, experts like Binns (2021) emphasize that we must be careful not to replace human interaction entirely, since social engagement and critical thinking skills are best developed through personal connections. To balance the benefits of AI with the need for human mentorship, schools must ensure AI is used to complement teaching—not take over. Teachers provide emotional support, encourage curiosity, and help students think independently. These qualities cannot be replaced by machines. In my view, AI should be used to improve teaching but never substitute the important role that educators play.

Another issue that needs attention is ethics. Data privacy and academic honesty are serious concerns when using AI in schools. Educational institutions must have strict policies in place to protect student data and prevent AI tools from being used to cheat. A 2021 report from the U.S. Department of Education stressed the need for strong security practices, especially as AI becomes more common in classrooms. Also, we must make sure all students have equal access to these tools. Without proper planning, AI could increase educational inequality, especially in low-income areas (NEA, 2021).

Over the last few years, the pressure on teachers has increased, especially after the COVID-19 pandemic. While educators were praised during the pandemic, many returned to classrooms facing teacher shortages and continued stress. According to HMH's 9th Annual Educator Confidence Report (2021), 82% of educators said they needed a better workload balance. Jamie Lewsadder, a school technology leader, pointed out that society often underestimates the complexity of teaching today, especially with the rise of diverse student backgrounds and learning needs (Lewsadder, 2021).

AI is being explored as a solution to ease these pressures. A report by McKinsey & Company (2020) estimated that 20% to 40% of teachers' tasks—such as lesson planning, grading, and record-keeping—could be automated using AI. Francie Alexander, the Chief Research Officer at HMH, outlined four main ways AI supports teachers: increasing productivity, improving communication, managing data, and providing instructional support (Alexander, 2020).

Many popular platforms like Microsoft 365 and Google Workspace for Education now include AI features. Microsoft's Reading Coach, for example, creates custom reading programs for students. Google's tools help automate things like class creation and reminders. Other tools like GoGuardian and Merlyn Mind use AI to create personalized learning experiences and spot gaps in student understanding, which helps teachers tailor their instruction. Merlyn Mind is another helpful AI assistant for teachers. It works with classroom hardware to allow teachers to control devices using voice commands, saving time and keeping the focus on students. David Miyashiro, a superintendent in California, emphasized the importance of giving teachers access to tools that keep up with modern tech standards. According to the California Education Review (2021), schools that used AI platforms saw a 30% reduction in teachers' time spent on admin tasks, improving both job satisfaction and performance. Of course, data privacy remains a serious issue. Parents and teachers worry about student information being exposed or misused. Tools like Merlyn Mind and SchoolJoy address these concerns by using private, secure language models that protect student data (Lewsadder, 2021).

Real-World Examples of ChatGPT in Classrooms. Many teachers have already started using ChatGPT in their classrooms with encouraging results. For example, a high school English teacher in New York used ChatGPT to create writing prompts that matched students' personal interests. This made writing assignments more engaging and sparked creativity. A history teacher in California used ChatGPT to simplify dense readings for students who were still learning English, making it easier for them to understand the content.

In science classes, teachers used ChatGPT to generate analogies and metaphors to explain complicated topics like DNA or gravity. This helped students with different learning styles grasp difficult concepts more easily. Educators also reported saving several hours a week by using AI for lesson planning, giving them more time for student support and professional development.

At universities, professors have used ChatGPT to simulate real-life situations. For example, law students can practice conversations with a "client" played by ChatGPT. Medical students can simulate discussing symptoms with a "patient." This helps students improve their communication and problem-solving skills in a safe, controlled environment.

Future Outlook and Recommendations. Looking ahead, it's clear that AI will play a bigger role in education. Tools like ChatGPT will become even more advanced, eventually integrating fully with school systems and classroom platforms. This will allow for even more personalized and efficient learning experiences.

To make this possible, school leaders and policymakers need to invest in infrastructure, teacher training, and responsible innovation. Teachers should be

involved in decisions about how AI is used in classrooms, and schools should test new tools carefully before using them widely. This ensures that technology actually helps teachers rather than creating new problems.

Supporting teachers with smart tools like ChatGPT is not just a nice idea—it's necessary. When we reduce teacher burnout, we create better classrooms for everyone.

Final Reflection. In conclusion, while artificial intelligence is often viewed through the lens of student outcomes or technological innovation, its most transformative role may lie in its ability to humanize the teaching profession. When used ethically and thoughtfully, AI tools like ChatGPT offer an opportunity to restore balance to a system that has stretched teachers too thin for too long. By giving educators the time and support they need, we allow them to bring their full creativity, empathy, and expertise to the classroom. This not only elevates their professional experience but also ensures that students receive the kind of inspired, attentive instruction that can shape their futures. Now more than ever, it is time to embrace AI as a partner in the noble and essential mission of education.

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SOHAVIY TERMINLARNI NUTQDA QO‘LLASHNING ASOSIY OMILLARI

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Annotatsiya. *Ushbu maqolada menejment yo‘nalishlarida ta’lim olayotgan talabalar uchun ingliz tilini bilishi har tomonlama rivojlangan va malakali mutaxassisni shakllantirishda katta ahamiyatga ega ekanligi va kasbga yo‘naltirilgan terminologik lug‘atlar, leksik birliklar, mashqlar va matnlar ustida ishlash jarayonida talabalar yangi ma’lumotlarni oladilar va o‘zlarining lug‘at boyliklarini terminlar bilan muntazam ravishda to‘ldiradilari borasida fikr yuritiladi.*

Kalit so‘zlar: Matn, *termin,* ***interferensiya, transpozitsiya,*** *retseptiv, produktiv.*

Abstract. *This article discusses the importance of English language proficiency for students studying in management fields in the formation of a well-rounded and qualified specialist, and the fact that in the process of working on terminological dictionaries, lexical units, exercises and texts aimed at the profession, students receive new information and regularly replenish their vocabulary with terms.*

Keywords: *Text, term, interference, transposition, receptive, productive.*

Psixologik, pedagogik, psixolingvistik va metodikaga oid adabiyotlarni tahlil qilish asosida biz “Menejment” mutaxassisligi uchun Shuningdek, sohaviy terminlarni nutqda qo‘llashning beshta asosiy omillarini o‘rganib chiqib, ularni quyidagicha talqin etdik:

Sohaviy terminlarni nutqda qo‘llashning beshta (5) asosiy omillari ifodalangan bo‘lib, ular:

Ta’lim sifatini oshirish: menejment sohasiga oid terminologiyaning to‘g‘ri va sistematik qo‘llanilishi; talabalarning fan doirasidagi fikrlash doirasini kengaytiradi; ilmiy nutqni shakllantiradi; kasbiy kompetensiyalarni rivojlantiradi; sohani anglashga bo‘lgan yondashuvni chuqurlashtiradi; zamonaviy kasbiy tilga moslashuvni tezlashtiradi.

Kasbiy imij va ishonchni oshirish: kasbiy imij va ishonchni o‘stirish bir-biri bilan chambarchas bog‘liq bo‘lib, ular birgalikda professional muvaffaqiyatga erishish uchun zarurdir. Tashqi ko‘rinish, malaka, muloqot madaniyati, vaqtni boshqarish kabi elementlar kasbiy imijni shakllantiradi. O‘z qobiliyati asosida tajriba, bilimlarni oshirish va salbiy fikrlarni yengish esa kasbiy ishonchni mustahkamlashga xizmat qiladi. Bu ikki omilni muvaffaqiyatli boshqarish, har bir mutaxassisning o‘z sohasida yuqori natijalarga erishishiga yordam beradi.

Globallashuv bozoriga integratsiyalashuv: globallashuv sharoitida menejment ta’limini olgan mutaxassislar xalqaro miqyosda faoliyat yuritishi mumkin. Turli madaniyatlar va tillar orasida samarali muloqot qila olish uchun terminologiyani aniq va to‘g‘ri qo‘llash qobiliyati ularning kasbiy muvaffaqiyatini ta’minlaydi.

Professional kommunikatsiyani yaxshilash: chet tilida muloqot aniq va to‘g‘ri ifodalanishi, menejerlar va boshqa kasb egalari o‘rtasida samarali hamkorlik qilish uchun zarurdir. Sohaviy terminlarni to‘g‘ri qo‘llash orqali talabalar murakkab tushunchalarni aniq va qisqa qilib izohlay olishadi, bu esa muloqotdagi tushunmovchiliklarni kamaytiradi va ish samaradorligini oshiradi.

Amaliy ko‘nikmalarni rivojlantirish: kasbiy aloqalar va muloqotlar nafaqat ishni samarali boshqarish, balki jamoaning motivatsiyasini oshirish, muvaffaqiyatli hamkorliklar o‘rnatish va ishonchli imij yaratishda ham muhim ahamiyatga ega. Bu jarayonda to‘g‘ri muloqot qilish, nutq madaniyati va amaliy ko‘nikmalarni o‘rganish zarur.

Bu omillar nafaqat sohaga oid terminlarni o‘zlashtirishga, balki bo‘lajak mutaxassislarning strategik fikrlashi, muloqot madaniyati va liderlik salohiyatini ham oshirishga xizmat qiladi.

Tadqiqot ishi doirasida olib borilgan qiyinchiliklar tipologiyasini aniqlashning amaldagi islohotlari quyidagilardan iborat.

Chet tilida matnni o‘qish, ayniqsa menejment yo‘nalishi talabalariga ingliz tilini samarali o‘zlashtirishda **interferensiya** va **transpozitsiya** hodisalari muhim metodik masalalardan biri hisoblanadi.

Interferensiya – bu ona tili va o‘rganilayotgan til o‘rtasidagi farqlardan kelib chiqadigan xatoliklar yoki chalkashliklar bo‘lib, uni aniqlash va bartaraf etish chet tilini o‘rgatishda asosiy vazifalardan biridir.

Transpozitsiya – bu tarjima yoki chet tilidagi gapni tuzishda *so‘z tartibini, grammatik shakl yoki so‘z turkumini* o‘zgartirish orqali mazmunini saqlab qolish usulidir.

Kasbga yo‘naltirilgan akademik matnlar ustida ishlash jarayonida talabalar yangi ma’lumotlarni oladilar va o‘zlarining lug‘at boyliklarini terminlar bilan va sohaga oid bilimlar bilan muntazam ravishda takomillashtirib boradilar.

Matn – bu til orqali ifodalangan, og‘zaki yoki yozma shaklda bayon qilingan, muayyan mavzuga oid mantiqiy-tarkibiy birlikdir. Matnlar til o‘rganuvchi uchun bilim manbai, ijtimoiy-madaniy axborot yetkazuvchi vosita sifatida xizmat qiladi.

Matnlar quyidagi shakllarda taqdim etilishi mumkin:

Ovozli shakl*:* jonli nutq, radio, telefon suhbati, telekonferensiya va boshqalar;

Yozma shakl: elektron pochta, CD-disklar, kompyuterli materiallar, kitoblar, gazetalar, jurnal va ilmiy maqolalar;

Audiovizual shakl*:* kinofilmlar, prezentatsiyalar, ijtimoiy tarmoqlardagi kontentlar.

Matnlar bilan ishlash jarayonida talabalar faqat lingvistik bilimlar bilan emas, balki **ijtimoiy-madaniy, madaniyatlararo va intellektual ko‘nikmalar** bilan ham

boyitadi. Ular yangi kasbiy bilimlarni egallaydi, terminologiya bazasini kengaytiradi hamda kasbiy sohadagi muloqot kompetensiyasini shakllantiradi.

Menejment yo‘nalishida ta’lim olayotgan talabalarning ingliz tilini o‘rganish mobaynida muloqot madaniyatini shakllantirishida sohaga oid **matn**lar bilan ishlashda terminlarni o‘zlashtirishdagi qiyinchiliklarga duch keldik.

1) Menejment sohasiga oid mutaxassislik matnlarda qisqartirilgan terminlar ham bor. Ayniqsa, bu ingliz tilidagi terminlarga xos xususiyat bo‘lib, ingliz tilida oxirgi yillarda so‘zlarni tejashga intilish ko‘zga tashlanmoqda: *PM – Project Manager; QA - Quality Assurance; UI – User Interface, B2B – Business to Business; B2C - Business to Customer; KPI – Key Perfoming Indicators; ROI – Return on Investment; IMC – International Marketing Centre; TBD – To be Discussed, C.C. – Cash credit* – naqd pul, *Cert – certificate* – guvohnoma; *ISO*– International Standartisation of Organisation – xalqaro standard tashkiloti, *FOC – free of charge* – bepul, bepul transport xizmati va b.

2) Shuni ta’kidlash joizki, menejment sohasiga oid sodda terminlar odatda *prefiks* yoki *suffiks* orqali yasaladi.

Kasbiy-sohaga oid terminlarni yasalish jarayonida *de-, dis-, in-, non-, sur-, sub-, re-* sermahsul *prefikslar* hisoblanadi. Ular yordamida quyidagi yasama terminlar hosil bo‘lgan. Masalan: *deregulation* – tartibga solishni bekor qilish, *disagriment* – kelishmovchilik, *disadvantage* – kamchilik, *ineffective* – chegirmasiz narx, *surtax – subcontract* – subshartnoma, *subvention* – subvensiya, *subsystem*– kichik tizim, *rereview* – qayta ko‘rib chiqish, *reorganization* – qayta tashkil etish, *reduce* – kamaymoq va boshqalar.

Bundan tashqari, quyidagi *suffikslar* yordamida ko‘plab menejment terminlari yasalganini kuzatishimiz mumkin. Masalan: *-able, -tion, -sion, -er, -or, -ing: achievable* – erishish mumkin; *profitable* – foydali,daromadli; motivation – rag‘batlantirish; *negotiations* – muzokaralar; *internal communication* – ichki kommunikatsiya, *managerial desion* – rahbar qarori; *leader* – rahbar, *controller* – nazoratchi, *lender* - qarz beruvchi, kreditor; *budgeting* – byudjet tizish; *planning* – rejalashtirish suffikslari ishtirokida bir va ko‘p tarkibli terminlar yasalgan.

Yuqoridagi fikrlardan kelib chiqib, matn borasida o‘z xulosamizni bermoqchimiz: talabalarni ma’lum bir matn bilan tanishtirishdan oldin, o‘qituvchi ushbu matnni ma’lumotlilik darajasi va til nuqtayi nazaridan nechog‘lik ahamiyatga ega ekanligini baholab olishi talab etiladi. Matn qiziqarli, ma’noli, ma’lumotga boy va talabalarning til bilimi darajasiga mos bo‘lishi lozim. Agar talabalar nofilologik OTMda ta’lim olsa, matn ularning kelajakdagi mutaxassisligi mavzusiga mos bo‘lishi kerak. Matnni tanlash tilni o‘rganishga bo‘lgan motivatsiyani oshirishga va kommunikativ kompetensiyani takomillashtirishga qaratiladi.

Bizning kuzatishlarimiz natijasi shuni ko‘rsatdiki, o‘rganilayotgan nutq sohaga oid maxsus terminlarni o‘zlashtirish jarayonidagi qiyinchiliklarni yuqorida sanab o‘tilgan xususiyatlarini to‘liq bilmaslik, so‘z va so‘z birliklarini, sohaviy terminlarni

ishlatishda eng ko‘p uchraydigan qiyinchiliklarni keltirib chiqaradi. Ya’ni, talabalar ko‘pincha sohaviy terminlarning muhim bo‘lgan gapdagi qo‘llanilishi to‘g‘ri bo‘lgan xususiyatlarini anglamaydilar. Bu esa muloqot yuritishda *retseptiv* va *produktiv* o‘zlashtirishda qiyinchiliklar paydo bo‘lishiga sabab bo‘ladi.

Demak, yuqoridagi tahlillar natijasi shuni ko‘rsatadiki, mavjud qiyinchiliklar, bo‘lajak mutaxassislarning sohaga oid terminlarni nutqda erkin qo‘llashda to‘siq bo‘lishi muammolarini bartaraf etishni ta’minlovchi, maxsus metodika ishlab chiqishni taqozo etmoqda. Buning uchun til materialini o‘zlashtirish darajasini yanada takomillashtirishga yordam beruvchi maxsus mashqlar tizimini yaratish lozim bo‘lmoqda.

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AGRARIAN CRISIS AND THE STRUGGLES OF FARMERS IN JOHN STEINBECK'S THE GRAPES OF WRATH

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Abstract. *This article examines the multifaceted agrarian crisis depicted in John Steinbeck's* The Grapes of Wrath*, with particular emphasis on the socio-economic, environmental, and moral struggles of farmers during the Great Depression. By analyzing the experiences of the Joad family and other migrant workers, the study explores the themes of land dispossession, ecological disaster, labor exploitation, and the erosion of human dignity. The research argues that Steinbeck not only documents historical realities but also constructs a powerful critique of capitalist structures that marginalize vulnerable populations. Furthermore, the article highlights the enduring relevance of the novel in contemporary discussions about inequality, migration, and rural hardship.*

Keywords: *Agrarian crisis, displacement, Dust Bowl, labor exploitation, human dignity, migration, social injustice, capitalism, Steinbeck*

Annotatsiya. *Ushbu maqolada John Steinbeck'ning The Grapes of Wrath asarida tasvirlangan ko'p qirrali agrar inqiroz tahlil qilinadi, xususan Buyuk Depressiya davridagi dehqonlarning ijtimoiy-iqtisodiy, ekologik va axloqiy kurashlariga alohida e'tibor qaratiladi. Joad oilasi va boshqa migrant ishchilarning tajribalarini tahlil qilish orqali maqola yerdan mahrum bo'lish, ekologik falokat, mehnat ekspluatatsiyasi va inson qadr-qimmatining pasayishi kabi mavzularni o'rganadi. Tadqiqot shuni ta'kidlaydiki, Steinbeck nafaqat tarixiy haqiqatlarni hujjatlashtiradi, balki kapitalistik tuzilmalarni tanqid qiluvchi kuchli asar yaratadi, bu esa zaif aholini cheklaydi. Shuningdek, maqola asarning tengsizlik, migratsiya va qishloq xo'jaligi qiyinchiliklari haqidagi zamonaviy muhokamalarda dolzarbligini yoritadi.*

Kalit so'zlar: *Agrar inqiroz, ko'chirish, Dust Bowl, mehnat ekspluatatsiyasi, inson qadr-qimmati, migratsiya, ijtimoiy adolatsizlik, kapitalizm, Steinbeck.*

Аннотация. *В данной статье рассматривается многогранный аграрный кризис, изображённый в романе Джона Стейнбека The Grapes of Wrath, с особым акцентом на социально-экономические, экологические и моральные трудности фермеров во время Великой депрессии. Анализируя опыт семьи Джоад и других мигрантов, исследование освещает темы лишения земли, экологической катастрофы, эксплуатации труда и утраты человеческого достоинства. Исследование утверждает, что Стейнбек не только документирует исторические реалии, но и создаёт мощную критику капиталистических структур, маргинализирующих уязвимые слои населения. Кроме того, статья подчёркивает устойчивую актуальность романа в современных дискуссиях о неравенстве, миграции и сельских трудностях.*

Ключевые слова: *Аграрный кризис, выселение, Dust Bowl, эксплуатация труда, человеческое достоинство, миграция, социальная несправедливость, капитализм, Стейнбек.*

John Steinbeck's *The Grapes of Wrath* (1939) remains one of the most influential literary representations of the American agrarian crisis during the Great Depression. The novel is deeply rooted in the historical context of the 1930s, when a combination of economic collapse and environmental catastrophe devastated rural communities across the United States. Steinbeck's narrative focuses on the experiences of tenant farmers who were displaced from their lands due to mechanization, bank foreclosures, and ecological decline. At the center of the novel

is the Joad family, whose journey from Oklahoma to California symbolizes the mass migration of thousands of farming families. However, Steinbeck's work extends beyond a single family's story; it offers a broader critique of systemic injustice embedded within economic and social institutions. This paper aims to analyze the key farmer-related issues presented in the novel and to evaluate their significance within both historical and modern frameworks.

One of the most critical issues explored in the novel is land dispossession. Farmers who had cultivated their land for generations were forcibly removed due to economic pressures and institutional decisions. Banks and large agricultural corporations replaced traditional farming systems with mechanized production, prioritizing efficiency and profit over human livelihoods. Steinbeck portrays banks as impersonal and almost monstrous entities, emphasizing their lack of moral accountability. The famous depiction of the bank as a "monster" that must continue to grow reflects the dehumanizing nature of capitalist systems. Farmers are rendered powerless, unable to resist eviction or negotiate their survival. The loss of land is not merely an economic displacement; it represents a profound identity crisis. For many farmers, land was deeply tied to heritage, culture, and self-worth. Its loss signifies the breakdown of community structures and traditional ways of life. Steinbeck effectively illustrates how economic systems can dismantle not only livelihoods but also the very essence of human identity.

The Dust Bowl serves as a central element in shaping the experiences of farmers in the novel. Prolonged drought, combined with unsustainable farming practices, led to massive dust storms that rendered agricultural land infertile. Steinbeck's vivid descriptions of the dust storms create a haunting image of environmental devastation. Importantly, the novel suggests that the ecological crisis was not entirely natural. Human actions—such as over-plowing and poor land management—contributed significantly to the disaster. This perspective introduces an early environmental consciousness, highlighting the consequences of exploiting natural resources without regard for sustainability.

The Dust Bowl not only destroys crops but also forces families into migration, thereby linking environmental issues with social and economic displacement. Steinbeck demonstrates that environmental crises disproportionately affect vulnerable populations, a theme that continues to resonate in modern discussions about climate change. The westward migration to California is portrayed as both a journey of hope and a descent into further hardship. For displaced farmers, California represents the promise of employment and stability. However, upon arrival, they encounter a harsh reality characterized by unemployment, exploitation, and discrimination. Steinbeck exposes the mechanisms of labor exploitation through the oversupply of workers. Landowners deliberately advertise jobs to attract large numbers of migrants, only to reduce wages due to increased competition. This strategy ensures a constant supply of cheap labor while maintaining the power imbalance between employers and workers.

The migrants' living conditions further reflect their marginalization. They reside in overcrowded camps with inadequate sanitation and limited access to resources. These conditions underscore the systemic neglect of migrant workers and highlight the failure of institutions to protect vulnerable populations. Labor exploitation is one of the most pervasive themes in the novel. Migrant farmers are subjected to extremely low wages, long working hours, and unsafe conditions. They are treated as expendable resources rather than as human beings with rights and dignity.

Steinbeck critiques the capitalist system that enables such exploitation. The absence of labor protections allows employers to manipulate workers without consequence. Attempts to organize or demand fair wages are often met with violence or suppression. The novel also illustrates how fear and desperation prevent collective resistance. Workers are often pitted against one another, creating divisions that benefit those in power. This dynamic reflects broader patterns of economic injustice, where systemic structures perpetuate inequality and hinder social mobility.

The migrants in *The Grapes of Wrath* face not only economic hardship but also social discrimination. They are labeled as "Okies" and viewed as inferior by local populations. This stigmatization reinforces their marginalization and limits their opportunities. Steinbeck portrays a society deeply divided along class lines. Wealthy landowners and corporations hold significant power, while migrant farmers struggle for survival. Law enforcement and local authorities often side with the elite, further entrenching inequality. The novel suggests that social injustice is not accidental but systemic. Institutions designed to maintain order often serve the interests of the powerful, leaving vulnerable populations without protection. Steinbeck's critique extends beyond individual actions to address the structural nature of inequality. Despite the overwhelming challenges they face, the characters in the novel demonstrate remarkable resilience and a commitment to preserving their dignity. Ma Joad, in particular, emerges as a symbol of strength and moral integrity. Her leadership and determination help sustain the family through their struggles.

Steinbeck emphasizes the importance of community and solidarity among migrant workers. Shared experiences of suffering foster a sense of unity that transcends individual differences. This collective identity becomes a source of strength and resistance.

The concept of human dignity is central to the novel's message. Steinbeck argues that dignity is not determined by economic status but by one's ability to maintain compassion, empathy, and moral values in the face of adversity. This perspective offers a hopeful counterpoint to the otherwise bleak portrayal of social conditions.

In conclusion John Steinbeck's *The Grapes of Wrath* provides a profound exploration of the agrarian crisis and the struggles of farmers during the Great Depression. Through its detailed depiction of land dispossession, environmental

catastrophe, labor exploitation, and social injustice, the novel offers a comprehensive critique of systemic inequality. The issues presented in the novel remain highly relevant in contemporary society. Economic disparity, environmental challenges, and labor rights continue to affect agricultural communities worldwide. Steinbeck's work serves as both a historical document and a timeless call for social justice and human dignity. Ultimately, the novel underscores the resilience of the human spirit and the importance of collective action in the face of adversity. It challenges readers to reflect on the ethical implications of economic systems and to consider the value of compassion in building a more just society.

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ARTIFICIAL INTELLIGENCE IN LANGUAGE TEACHING PRACTICE: EFFECTIVENESS AND ANALYSIS

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Annotatsiya. *Ushbu ilmiy tezisda lingvistik ta'lim jarayoniga sun'iy intellekt (SI) yechimlarini integratsiya qilishning metodologik asoslari tadqiq etiladi. Tadqiqot davomida SI vositalari yordamida o'quv traektoriyasini shaxsiylashtirish, til o'rganishdagi psixologik to'siqlarni bartaraf etish va talabalarning nutqiy faolligini oshirish masalalari tahlil qilingan. Muallif tomonidan SIning o'qituvchi bilan hamkorlikdagi yangi modeli va raqamli pedagogika istiqbollari taklif etiladi.*

Kalit so'zlar: *raqamli lingvodidaktika, intellektual agentlar, ta'lim transformatsiyasi, neyrolingvistika, individual o'qitish tizimi.*

Abstract. *This article analyzes the effectiveness and pedagogical potential of applying Artificial Intelligence (AI) technologies in language teaching practices. It examines the role of key AI domains—such as machine learning, Natural Language Processing (NLP), and adaptive learning systems—in language education. Based on empirical studies and statistical data from global research, the paper evaluates both the advantages and limitations of AI tools when used by language teachers and learners.*

Keywords: *artificial intelligence, language learning, adaptive learning, NLP, machine learning, chatbot, speaking skills, automated assessment, CALL technologies.*

Аннотация. *В данной статье анализируется эффективность и педагогический потенциал применения технологий искусственного интеллекта (ИИ) в практике преподавания языков. Рассматривается роль ключевых областей ИИ, таких как машинное обучение, обработка естественного языка (NLP) и адаптивные обучающие системы, в языковом образовании. На основе эмпирических исследований и статистических данных мировых исследований статья оценивает как преимущества, так и ограничения инструментов ИИ при их использовании преподавателями и учащимися.*

Ключевые слова: *искусственный интеллект, изучение языков, адаптивное обучение, NLP, машинное обучение, чат-бот, навыки устной речи, автоматизированная оценка, технологии CALL.*

Introduction: In the 21st century, the rapid development of digital technologies has had a profound impact on the education system. In particular, AI-based programs and platforms are opening a new chapter in language teaching methodology. Research conducted by leading universities such as the Massachusetts Institute of Technology (MIT), Stanford University, and the University of Oxford demonstrates that the integration of AI tools in language education significantly enhances learning outcomes.

According to global statistics from 2023, more than 1.5 billion people are learning English as a second language (EF Education First, 2023). Meeting such a high demand through traditional teaching methods alone has become increasingly difficult. Consequently, AI-powered platforms such as Duolingo, Babbel, Rosetta

Stone, and ChatGPT have become widely adopted as alternative solutions in language education.

The aim of this article is to provide a scientific analysis of AI applications in language teaching practice and to evaluate their effectiveness based on existing research, statistical data, and practical experiences.

Literature Review: The application of AI in education has been extensively studied by scholars and developers. Computer-Assisted Language Learning (CALL) has evolved since the 1960s, initially consisting of basic drills and vocabulary exercises. In the 1990s, it expanded with the integration of the internet and multimedia, and in the 2000s, adaptive systems further enhanced its capabilities. Warschauer and Healey (1998) categorize the development of CALL into three stages: behaviorist, communicative, and integrative.

Currently, AI technologies represent the fourth stage—Intelligent CALL (ICALL). Graesser et al. (2005) describe AI as an intelligent tutor in education, while Warschauer (2004) emphasizes the integration of computers and language instruction. John de Jong (2022), Director at Cambridge Assessment English, notes that AI-based assessment systems can provide up to 40% more accurate results compared to traditional testing methods.

Krashen's (1982) Input Hypothesis aligns with AI-driven personalization, where systems deliver content slightly above the learner's current level (i+1). Similarly, Swain's (1985) Output Hypothesis is reflected in AI-supported interactive communication exercises.

Intelligent Tutoring Systems (ITS) monitor learners in real time and adapt instruction accordingly. VanLehn (2011) found that ITS can improve learning outcomes by an average of 0.76 standard deviations compared to traditional instruction, which is significant in relation to Bloom's (1984) "2 Sigma Problem."

A study by Duolingo (Vesselinov & Grego, 2020) revealed that 34 hours of learning on the platform is equivalent to a university semester course. As of 2023, Duolingo has over 500 million registered users.

Automatic Speech Recognition (ASR) technology enables real-time evaluation of learners' pronunciation. Google's Speech-to-Text system achieved 97% accuracy in 2022 (Google AI, 2022). Godwin-Jones (2023) found that ASR technologies can improve pronunciation accuracy by up to 31%.

According to Warschauer and Yim (2024), students using generative AI tools for writing practice produced 28% more written output and demonstrated 35% more effective error correction than control groups.

A meta-analysis by Ma et al. (2014), covering 45 studies, found that ITS improves learning outcomes by an average effect size of 0.66. Notably, learners at lower and intermediate levels benefit the most from AI-assisted learning.

Table 1. Comparative Analysis of AI Tools in Language Education

Researcher (Year)	AI Tool Type	Sample size	Effective size (ES)	Key outcome
VanLehn (2011)	ITS	n = 8,239	ES = 0.76	Learning outcomes

Researcher (Year)	AI Tool Type	Sample size	Effective size (ES)	Key outcome
Ma et al. (2014)	ITS (45 studies)	Meta-analysis	ES = 0.66	Academic performance
Warschauer & Yim (2024)	Generative AI	n = 312	+28% writing	Writing skills
Duolingo Research (2023)	Adaptive LLM	n = 2.1 million	+40% vocabulary	Lexical development
Godwin-Jones (2023)	ASR technology	n = 890	+31% pronunciation	Pronunciation accuracy

In Uzbekistan, the updated "Digital Uzbekistan–2030" strategy (2023) identifies the integration of AI technologies in education as a key priority. According to the Ministry of Education, over 1,200 schools and higher education institutions implemented digital learning tools between 2022 and 2024.

In China, a study conducted by TAL Education Group in 2022 (n = 15,000 students) found that learners using AI-based language programs scored 12 points higher in the English section of the Gaokao exam. In South Korea, AI-based language learning systems were introduced in 70% of secondary schools in 2021, resulting in a 7-point increase in average TOEFL scores within three years.

The Duolingo English Test (DET) is now accepted by more than 4,500 universities worldwide (Duolingo, 2023). A study by Vasbieva et al. (2023) involving 240 university students in Uzbekistan showed that using Duolingo for three months increased vocabulary by 43% and grammatical accuracy by 29%.

A study conducted in collaboration between Babbel and the City University of New York (Vesselinov, 2020) demonstrated that 15 hours of learning on Babbel is equivalent to one semester of university-level language instruction, with statistical significance ($p < 0.001$).

Conclusion. The analysis of literature and statistical data presented in this article demonstrates that Artificial Intelligence technologies offer substantial opportunities in language teaching practice. In particular, AI-based adaptive systems have been scientifically proven to improve learning outcomes by approximately 0.63–0.89 standard deviations (Kulik & Fletcher, 2016; VanLehn, 2011).

NLP and ASR technologies are highly effective in developing writing and pronunciation skills, with the ability to detect grammatical errors with up to 94% accuracy. Generative AI platforms not only enhance writing skills by 28–35% but also provide learners with continuous, individualized practice environments.

However, the effective implementation of AI tools depends on teacher preparedness, adequate infrastructure, and ongoing pedagogical supervision.

For Uzbekistan, the following directions are recommended: systematic integration of AI-based language learning platforms into school and university curricula; development of teacher training programs focused on digital

competencies; and expansion of research initiatives aimed at creating NLP models adapted to local languages such as Uzbek, Tajik, and Russian.

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TALABALARNING INGLIZ TILIDA MUSTAQIL YOZISH KO‘NIKMALARIGA AI VOSITALARIDAN FOYDALANISHNING TA’SIRI

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Annotatsiya: *Ushbu tadqiqot sun’iy intellekt (AI) vositalarining talabalarning ingliz tilida chet tili sifatida mustaqil yozish ko‘nikmalariga ta’sirini o‘rganadi. U oliy o‘quv yurtlari talabalari o‘rtasida o‘tkazilgan so‘rov natijalariga asoslangan bo‘lib, u darslardagi pedagogik kuzatishlar va yozma topshiriqlar tahlilini ham o‘z ichiga oladi. Talabalarning sun’iy intellekt vositalaridan foydalanish odatlarini tahlil qilishda qo‘llaniladigan tadqiqot usullari sifat va miqdoriy jihatdan aralash bo‘lib, topilmalar shuni ko‘rsatadiki, AI vositalari yozish jarayonini osonlashtiradi, ammo haddan tashqari ishonish ularning mustaqil yozish va fikrlash qobiliyatlarini kamaytirishi mumkin. Natijalar o‘quvchilarning yozish ko‘nikmalari va metakognitiv ongni rivojlantirishda yo‘naltirilgan Aidan foydalanish muhimligini ta’kidlaydi.*

Kalit so‘zlar: *innovative texnologiya, AI vositalari, AI-integratsiya, yozma vazifa, AI dan maqsadli foydalanish, moslashish, mustaqil yozish ko‘nikmalari*

Аннотация: *Данное исследование изучает влияние инструментов искусственного интеллекта (AI) на навыки самостоятельного письма студентов, изучающих английский язык как иностранный. Оно основано на результатах опроса, проведенного среди студентов университета, а также включает педагогические наблюдения за уроками и анализ письменных заданий. Методы исследования, используемые для анализа привычек студентов в использовании инструментов ИИ, представляют собой сочетание квалитативных и квантитативных подходов, и результаты показывают, что инструменты ИИ облегчают процесс письма, однако чрезмерная зависимость от них может снизить навыки самостоятельного письма и мышления. Результаты подчеркивают важность целенаправленного использования ИИ для развития навыков письма и метакогнитивной осведомленности студентов.*

Ключевые слова: *Инновационные технологии, инструменты AI, интеграция AI, письменные задания, целенаправленное использование AI, адаптивные, навыки самостоятельного письма*

Abstract: *This research examines the impact of artificial intelligence (AI) tools on students’ independent writing skills in English as a foreign language. It is based on the results of a survey conducted among university students, and it also incorporates pedagogical observations from lessons and analysis of writing assignments. Research methods used to analyze students’ habits of using AI tools are mixed of qualitative and quantitative, and findings indicate that AI tools facilitate the writing process, however, excessive reliance may reduce their independent writing and thinking skills. The results highlight the importance of guided AI use in developing students’ writing skills and metacognitive awareness.*

Key words: *innovative technologies, AI tools, AI-integrated, writing task, guided AI use, adaptive, independent writing skills*

KIRISH

Rivojlanib borayotgan sun’iy intellect texnologiyalardan til o‘qitishda unumli foydalanish va ular orasida AI vositalarini ta’lim jarayoniga tadbiq etish hamda maqsadli qo‘llash yuzasidan turli izlanishlar, tahlillar, tajribalar ko‘lami tobora kengayib bormoqda. Ta’limga AI ni integratsiya qilish jarayoni o‘sib borayotganiga qaramay bu sohada, xususan, xorijiy tillarni o‘qitishdagi yozma ko‘nikmalarda

talabaning AI dan mustaqil foydalana olishlariga ko‘rsatma beradigan izlanishlar hali olib borilmagan va bu sun’iy ntellect tadqiqot uchun bo‘shliq borligini ko‘rsatadi. Ushbu ilmiy maqolada talabalarning ingliz tilida mustaqil yozish ko‘nikmalariga AI vositalaridan foydalanishning ta’siri muammosi shaxsiy sun’iy ntellect kuzatuvlar va Diplomat Universitetining bir guruh talabalari orasida o‘tkazilgan so‘rovnomalarga asoslanib atroflicha o‘rganib chiqiladi, bunda kvalitativ metodi qo‘llaniladi va natija sifatida muammoga yechim tavsiya etiladi. Ilmiy ishda muvozanatli tahlil yondashuviga asosan AI-integratsiyasidan olinadigan samarali foydalar ham ko‘rsatilib ijobiy tomonlari tahlil qilinadi.

ADABIYOTLAR TAHLILI

Ingliz tilini xorijiy til sifatida o‘qitish ta’lim jarayoni o‘ta dinamik va muntazam yangiliklar kiritishni talab etadigan yo‘nalish bo‘lib, faqat shu yo‘l bilan talabalarga moslashish mumkin. Mana shu sababdan bugungi kunda dolzarb o‘ringa chiqqan jarayon bu AI ga asoslangan til ta’limini olib sun’iy intelle masalasi bo‘lib, AI ning bu sohada inqilobga sabab bo‘la oladigan imkoniyat ekani qator ilmiy ishlarda e’tirof etilgan [1], [2]. Adabiyotlarda ko‘tariladigan yana bir muhim masala bu ilm egallayotgan yoshlarga AI dan o‘rinli foydalanish, plagiat talablarini inobatga olish, etikaga amal qilish va bunga tayyor bo‘lishlari hamda bu jarayonda pedagogning roliga qaratilgan ekanidir [3].

Til ta’limida sun’iy intellect sun’iy texnologiyalardan va AI vositalaridan foydalanish haqida umumiy izlanishlar ko‘p manbalarda uchraydi [1], [2], [3], [4], biroq ingliz tilini xorijiy til sifatida o‘qitishda hamda AI’dan tinglash, o‘qish, so‘zlashish va yozish kabi til ko‘nikmalarini shakllantirishda foydalanish yuzasidan yetarli ilmiy va amaliy ishlar olib borilmagani manbalarda e’tirof etiladi [5], [6]. Bu tahlillarga tayangan holda ushbu tadqiqot talabalarning ingliz tilida mustaqil yozish ko‘nikmalariga AI vositalaridan foydalanishning ta’siri yuzasidagi bo‘shliqni to‘ldirishni maqsad qiladi.

METODOLOGIYA

Ushbu ilmiy maqola uchun talabalarning ingliz tilida mustaqil yozish ko‘nikmalariga AI vositalarining ta’siri kvalitativ va kvantitativ metodlarini birlashtirilgan holda o‘rganildi. Tadqiqotning birinchi bosqichi shaxsiy sun’iy intellect kuzatuv bo‘lib, dars jarayonida talabalarning AI dan foydalanish odatlari va mustaqil yozish faoliyati qayd etildi. Ikkinchi bosqichda, talabalar orasida so‘rovnoma o‘tkazilib, AI dan foydalanish chastotasi, vazifalardagi yondashuv va ta’siri tahlil qilindi. Shu bilan birga, talabalarning yozma ishlarini AI ishlatilgan va ishlatilmagan holatlarda solishtirish orqali mustaqil fikr, ifoda aniqligi va grammatika xatoliklari baholandi. Olingan ma’lumotlar asosida AI vositalaridan sun’iy intellect jihatdan unumli foydalanish strategiyalari ishlab chiqildi. Bu yondashuv tadqiqotga ilmiy asoslangan va amaliy natija berish imkonini yaratadi.

NATIJALAR VA MUHOKAMA

So‘nggi yillarda ingliz tilini xorijiy til sifatida o‘rganayotgan talabalarning yozma vazifalarni bajarishda AI vositalariga haddan ziyod tayanishlari kuzatilmoqda. Bu esa shaxsiy kuzatuvlar natijasida ularning mustaqil fikrlashiga, o‘zlariga bo‘lgan ishonchga salbiy ta’sir ko‘rsatishi mumkinligini ko‘rsatadi. Kuzatuvlar shuni ko‘rsatadiki, ayrim talabalar oddiy gap tuzish topshiriqlarini ham

AI vositalaridan foydalanib bajaradilar, yoki shaxsan tuzgan gaplarini AI vositalarida tekshiruvdan o‘tkazmay turib topshirmaydilar. Bu shuni ko‘rsatadiki, ayni damda darslarda AI ni taqiqlash emas, balki pedagog undan to‘g‘ri foydalanishni o‘rgatishga e’tibor qaratishi kerak bo‘ladi.

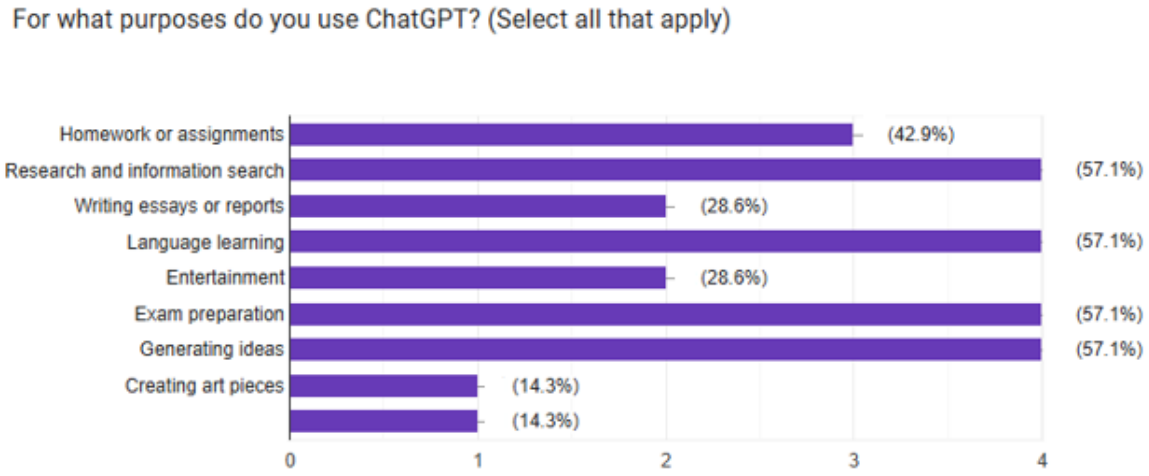
Tajribalar 5-10 yil oldin bilim darajasi past bo‘lgan talabalar ko‘pincha topshiriqlarni mustaqil bajara olmas va yon-atrofdagi talabalardan ko‘chirishni 222ntel bilishar edi. Hozirgi tendensiyalar esa, talabaning mustaqilligi va atrofdan ko‘mak istashi AI orqali bartaraf etilganiga isbotdir. Bilim darajasi past talabalarga bu jarayonda AI tuzgan gaplarni ko‘rishi, o‘qishi va qayta yozishining o‘zi ham ko‘nikma berishi va rivojlantirishi mumkin. AI texnologiyalari o‘zining ayni onda kechadigan analiz qilish, muloqot qiluvchiga moslashish, va ilgari so‘ralgan ma’lumotlar jamlanmasiga tayangan holda shaxsiy yechim topishi til o‘rganuvchilarga kuchli imkoniyatlar taqdim etadi [7].

AI vositalari talabalarning yozma topshiriqlarni bajarish jarayonini osonlashtirishi bilan birga ularning haddan tashqari qo‘llanilishi talabalarning mustaqil yozish ko‘nikmalarini susaytirishi va salbiy ta’sir ko‘rsatishi ehtimoli ham mavjud.

Tadqiqotda kvalitativ va kvantitativ usullarni birlashtirgan holda talabalarning ingliz tilida mustaqil yozish ko‘nikmalariga AI vositalaridan foydalanish odatlari kuzatildi, so‘rovnoma yordamida o‘rganib tahlil qilindi. Shaxsiy olib borilgan o‘quv mashg‘ulotlar chog‘ida yozma ishlarda ba’zan mustaqil, turli vositalarsiz, ba’zan esa AI ishlatib yozishlari so‘raldi. Natijalar qiyoslanganda, ko‘plab talabalarning AI ishlatmang deb so‘ralgan yozma matnlarida ham AI yordami mavjudligi kuzatildi, AI yordamida yozish buyurilgan mustaqil yozma ishlarda esa sifat darajasi oshgani kuzatildi.

Ingliz tilini chet tili sifatida o‘rganayotgan talabalarga yozish ko‘nikmalarini o‘rgatish, to‘g‘ri yozma talaffuz, grammatik qoidalar, o‘z so‘zi bilan ifodalash, va manbalarning mazmunini qisqa bayon qilish kabi topshiriqlarni bajarishlarida ChatGPT, Grammarly va Quillbot kabi AI vositalari katta yordam berishini manbalar ko‘rsatadi [5], [6], [8]. Quyida ChatGPT dan foydalanish maqsadlari ko‘rsatilgan Grafik 1 da keltirilgan natijalarga ko‘ra, 18-20 yosh orasidagi 50 nafar talaba yigit qizlar ChatGPT dan nima maqsadlarda foydalanishlarini aniqlash maqsadida o‘tkazilgan so‘rovnoma natijasidan ilm olish maqsadi foizi yuqori ekanini ko‘rish mumkin. Taxminan 29 nafar (57.1%) talaba tadqiqot, ma’lumot olish, til o‘rganish va imtixonga tayyorgarlik ko‘rish sabablarini ko‘rsatadilar. Talabalarning 21 nafari (42.9%) uyga berilgan topshiriqlarni ChatGPT yordamida bajarishlarini bildirib o‘tganlar. Yozish uchun berilgan bayon yoki hisobotlarni tayyorlashda ChatGPTdan foydalanidagan talabalar soni esa 28.6 foizni tashkil etgani ma’lum bo‘ldi. Ko‘ngilochar ehtiyojlar sun’iy intell’at yaratish maqsadlariga ChatGPTdan foydalanish miqdori nisbatan kamsonli. Bu ko‘rsatkichlar talabalarning maqsadlari asosan fikr olish va yozishda AI vositalariga ko‘proq murojaat etishlarini isbotlaydi.

Grafik 1. ChatGPT dan foydalanish maqsadlari.



Olingan natijalar asosida AI dan sun’iy intellect jihatdan unumli foydalanish uchun strategiyalar ishlab chiqildi. Quyida tajribalardan kelib chiqib ishlab chiqilgan yechim taklif etiladi:

1. Aidan qo‘llanma sifatida foydalanish. Bu taklifga ko‘ra ingliz tili darsi topshirig‘ida talabaga mavzuga doir so‘zlar uchun, yoki bir qancha berilgan lug‘at ni qo‘llab AI ga buyruq berish, tuzgan gaplarini muhokama qilish, orasidan maqsadga muvofiqini tanlash kabi bosqichlar amalga oshiriladi. Bunday yondashuv talabaning metakognitiv qobiliyatlarini shakllantiradi, AI-integratsiyali topshiriqlarni mustaqil va to‘g‘ri bajara olishiga ko‘mak beradi.

2. Tahrirda AI bilan hamkorlik. Yozish ko‘nikmalarini shakllantirishda muhim bo‘lgan jarayon bu tayyor matn tahriri bo‘lib, an’anaviy talabalarning o‘zaro tahlili birmuncha qiyin kechadigan jarayondir. Bu vazifaga AI hamkorligini ilova qilish orqali talaba kengroq imkoniyatlarga ega bo‘ladi. Tavsiya har bir talabadan mustaqil holda, hatto AI vositasi yordamida ham chet tilida gaplar tuzish yoki matn yozish bosqichi, so‘ng bu bosqich natijalarini guruhdagi boshqa talaba bilan almashish va yakunida AI yordamida tahrir qilish, turli buyruqlar berib matnni sayqallash kabilarni nazarda tutadi.

3. AI va gradatsiyalangan mashq. Ushbu tavsiyaga ko‘ra pedagog talabaga mustaqil yoki AI vositasidan foydalanib tuzilgan gaplarni bosqichma-bosqich kengaytirib sun’iy intellekt vazifasini beradi. Misol uchun, oddiy gap tuzishga buyruq beradi, tuzilgan gapga sifat so‘z qo‘sh degan ko‘rsatma beriladi, so‘ngra yana bir sifat so‘z, ravish, va hokazo. Davom etish uchun endi boshqa sifat va ravishlarga almashtir, kabi turli vazifa va topshiriqlar bilan yozish ko‘nikmalarini mashq qildiradi.

4. AI va og‘zaki javob. Bu oddiy tavsiya bo‘lsada, plagiatdan qochish, AI vositasidan maqsadli foydalanish yo‘lida eng oson usul deb qarash mumkin. Talaba AI yozgan matnni avval o‘zi o‘qiydi, so‘ngra ovoz chiqarib o‘qib beradi. Keyingi bosqich esa mustaqil yoki AI yordamida matnni soddalashtirib, qisqartirib so‘ngra og‘zaki so‘zlab beradi.

Yuqorida keltirilgan barcha vazifalarni pedagog nazoratida yoki guruhlarga bo‘lib o‘z-o‘zini nazorat qildirgan holda amalga oshirish mumkin. Bunday takliflarga AI vositalaridan talabalarni uzoqlashtirish, yoki ularni AI dan darslarda foydalanganliklari uchun chora ko‘rish kabilarga alternativ sifatida qarash mumkin.

Shuningdek, qo‘shimcha sifatida, talabalarning yozish ko‘nikmalariga AI vositalaridan foydalanilganda ijobiy psixologik ta’sir ham kuzatildi. Yozish jarayonlarida tortinchoq, savol bera olmaydigan bir qancha talabalarda, vaqt o‘tishi bilan o‘ziga ishonch va faol qatnashish ishtiyoqi oshgani ularning istalgan vaqtlarida AI vositalariga suyanishlari mumkin bo‘lgani bilan izohlash mumkin. Bu esa tajribalar AI ning talabaga o‘ziga ishonchni oshira olishida ko‘mak beradigan vosita deb qarashlarini ham izohlaydi.

AI qo‘llab-quvvatlashini maksimal foyda olib ishlatib, kerak vaqtda chegarani belgilash uchun pedagog talabaga AI ga bir qo‘llanma, kitob deb qarashlarini tushuntirishi lozim. AI dan oladigan barcha ma’lumot talaba buyrug‘I asosida shakllanishi, uning buyrug‘I asosida ozgarib moslashishi tavsiya etilgan yechimlar kabi strategiyalar asosida amaliy ko‘rsatib boriladi. Rasmiy imtihonlar chog‘ida, an’anaviy tarzda, kitob yoki lug‘at kabilarni ishlatishga ruxsat etilmaganidek, AI vositalari ham bilim sinoviga tayyorgarlik ko‘rishda ruxsat etilib, biroq sinovda mumkin bo‘lmasligini bilishlari ushbu vositadan maqsadli foydalanishlariga zamin yaratadi.

XULOSA

Xulosa qilib aytganda, zamonaviy ta’lim jarayonida AI vositalarini til o‘qitish jarayonida samarali integratsiya qilish masalasi muhim ahamiyat kasb etmoqda. Ushbu tadqiqotda AI integratsiyasining ijobiy jihatlari va uning yozma nutq ko‘nikmalarini rivojlantirishdagi imkoniyatlari ko‘rsatib berildi. Natijalar AI vositalaridan to‘g‘ri va maqsadli foydalanish talabalarning mustaqil yozish hamda metakognitiv fikrlash ko‘nikmalarini rivojlantirishga yordam berishi mumkin. Kelgusida ushbu yo‘nalishda yanada kengroq tajribalar o‘tkazish va turli darajadagi talabalar bilan ishlash, hamda bu jarayonda AI vositalaridan samarali foydalanish bo‘yicha metodik tavsiyalar ishlab chiqarish reja qilindi.

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN MODERN ENGLISH EDUCATION

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Abstract. *This article examines the role of Artificial Intelligence (AI) in modern English education and highlights its growing significance in language learning. It explores how AI technologies contribute to personalized learning, instant feedback, pronunciation improvement, and interactive communication practice. The article also discusses the supportive function of AI for teachers, particularly in automating administrative tasks and analyzing student performance data. In addition, it considers the accessibility and flexibility that AI-powered platforms provide for diverse learners. While emphasizing the advantages of AI integration, the article also addresses potential challenges, including overdependence on technology, limited emotional intelligence, and data privacy concerns. Overall, the Abstract underscores that AI should function as a complementary tool that enhances, rather than replaces, human instruction in English language education.*

Key words: *AI-powered platforms, personalized learning, developing speaking skills, powerful support tool, AI platforms, AI technology, modern English education, monitoring progress, AI technology with teacher guidance, problem-solving abilities, AI tools for grammar correction, virtual assistants, effective learning outcomes, a mixed-methods design.*

Annotatsiya. *Ushbu maqolada sun’iy intellektning (SI) zamonaviy ingliz tili ta’limidagi roli 226ntell o‘rganishdagi o‘sib borayotgan ahamiyati tahlil qilinadi. Maqolada SI texnologiyalari shaxsiylashtirilgan o‘qish, tezkor fikr-mulohaza, talaffuzni yaxshilash va interaktiv muloqot amaliyotini qanday qo‘llab-quvvatlashi ko‘rib chiqiladi. Shuningdek, SI o‘qituvchilar uchun qo‘llab-quvvatlovchi vosita sifatida, xususan, ma’muriy vazifalarni avtomatlashtirish va talabalarning o‘quv natijalarini tahlil qilishda qanday yordam berishi muhokama qilinadi. Maqolada turli xil o‘quvchilar uchun SI asosidagi platformalar taqdim etadigan qulaylik va moslashuvchanlik ham ko‘rsatib o‘tiladi. SI integratsiyasining afzalliklari ta’kidlanish bilan birga, texnologiyaga haddan tashqari qaramlik, cheklangan emotsional 226 ntellect va ma’lumotlar xavfsizligi kabi potentsial muammolar ham ko‘rib chiqiladi. Umuman olganda, maqola SI inson tomonidan beriladigan ta’limni almashtirmasdan, uni qo‘llab-quvvatlovchi vosita sifatida ishlatilishi lozimligini ta’kidlaydi.*

Kalit so‘zlar: *SI platformalari, shaxsiylashtirilgan o‘qish, og‘zaki ko‘nikmalarni rivojlantirish, kuchli qo‘llab-quvvatlovchi vosita, SI platformalari, SI texnologiyalari, zamonaviy ingliz tili ta’limi, rivojlanishni monitoring qilish, o‘qituvchi rahbarligida SI texnologiyasi, muammoni hal qilish qobiliyati, grammatikani tuzatish uchun SI vositalari, virtual yordamchilar, samarali o‘qish natijalari, aralash metodologiya.*

Аннотация. *В статье рассматривается роль искусственного интеллекта (ИИ) в современном обучении английскому языку и подчеркивается его растущая значимость в изучении языков. Исследуется, как технологии ИИ способствуют персонализированному обучению, мгновенной обратной связи, улучшению произношения и интерактивной практике общения. Также обсуждается поддерживающая функция ИИ для преподавателей, в частности, автоматизация административных задач и анализ данных об успеваемости студентов. Кроме того, рассматривается доступность и гибкость платформ с поддержкой ИИ для различных учащихся. При этом подчеркиваются преимущества интеграции ИИ, а также рассматриваются возможные проблемы, включая чрезмерную зависимость от технологий, ограниченный эмоциональный интеллект и вопросы конфиденциальности данных. В целом, аннотация подчеркивает,*

что ИИ должен функционировать как вспомогательный инструмент, который улучшает, но не заменяет человеческое обучение английскому языку.

***Ключевые слова**: платформы с поддержкой ИИ, персонализированное обучение, развитие навыков устной речи, мощный инструмент поддержки, платформы ИИ, технологии ИИ, современное обучение английскому языку, мониторинг прогресса, технологии ИИ под руководством преподавателя, навыки решения проблем, инструменты ИИ для исправления грамматики, виртуальные помощники, эффективные результаты обучения, смешанный методический дизайн.*

Introduction. In recent years, Artificial Intelligence (AI) has become one of the most influential innovations in education. From personalized learning platforms to intelligent tutoring systems, AI is reshaping how students learn English around the world. In modern English education, AI does not replace teachers; rather, it enhances the learning experience by making it more personalized, interactive, and accessible.

One of the most significant contributions of AI in English education is personalized learning. Traditional classrooms often follow a fixed pace, which may not suit every learner. Some students progress quickly, while others need more time to understand grammar rules or develop speaking confidence. AI-powered systems analyze learners' performance, identify their strengths and weaknesses, and adjust lessons accordingly. For example, if a student struggles with verb tenses, the system can provide additional practice and explanations. This adaptive approach allows students to learn at their own speed, making the process more efficient and motivating.

Another important role of AI is providing instant feedback. In language learning, immediate correction is crucial for improvement. AI tools can automatically check grammar, spelling, sentence structure, and even writing coherence. Students no longer need to wait for a teacher to review their assignments. Similarly, speech recognition technology can evaluate pronunciation and fluency, helping learners refine their speaking skills. This real-time feedback encourages learners to practice more frequently and independently.

AI also plays a valuable role in developing speaking skills. Many English learners feel anxious when speaking in front of others. AI-powered chatbots and virtual assistants create a safe environment where students can practice conversations without fear of judgment. These systems simulate real-life situations, such as ordering food, attending an interview, or participating in a discussion. As a result, learners build confidence and improve their communication skills in a practical way.

For teachers, AI offers significant support. Administrative tasks such as grading quizzes, tracking attendance, and monitoring progress can be automated. AI-generated analytics help educators understand student performance trends and identify areas that require attention. This allows teachers to dedicate more time to creative lesson planning, interactive activities, and personalized support. In this sense, AI acts as a teaching assistant rather than a replacement.

Artificial Intelligence (AI) has become a powerful support tool in language learning. Its main benefits lie in personalization, instant feedback, increased practice

opportunities, and accessibility. When used properly, AI can significantly improve the speed and quality of language acquisition.

AI systems analyze learners' performance and adapt lessons to their level. If a student struggles with grammar, the system provides extra exercises. If vocabulary is weak, it suggests targeted practice. It is called Personalized Learning Experience Students learn at their own pace, which increases motivation and efficiency.

Although AI is a powerful tool in English education, it should be used as a supportive resource rather than a complete replacement for human teaching. A balanced approach that combines AI technology with teacher guidance and real communication practice ensures the most effective learning outcomes.

Disadvantages of Using Artificial Intelligence in Learning English

While Artificial Intelligence (AI) offers many advantages in English language learning, it also presents several limitations and challenges that should be carefully considered.

Overdependence on Technology

Students may become too reliant on AI tools for grammar correction, translation, or essay writing. This can reduce critical thinking and independent language production skills. Learners might stop analyzing their own mistakes and depend entirely on automated corrections.

Limited Human Interaction

Language learning is not only about grammar and vocabulary; it also involves communication, emotions, and cultural understanding. AI lacks emotional intelligence and cannot fully replace real human interaction, which is essential for developing natural conversation skills.

Reduced Critical Thinking

When AI provides ready-made answers, ideas, or corrections, students may not engage deeply with the learning process. This can negatively affect creativity, problem-solving abilities, and analytical skills.

Inaccurate or Contextually Weak Feedback

Although AI systems are advanced, they are not perfect. Sometimes feedback may be incorrect, overly general, or not fully appropriate for specific cultural or contextual situations.

Data Privacy and Security Concerns

AI platforms collect user data to personalize learning experiences. This raises concerns about:

Data protection

Confidentiality

Ethical use of student information

Educational institutions must ensure responsible data management.

Inequality in Access

Not all students have equal access to:

High-speed internet

Modern devices

Paid AI learning tools

This digital divide can increase educational inequality.

Decreased Teacher Authority

Overuse of AI tools might reduce the teacher's role in the classroom. Students may trust AI feedback more than their teachers, which can affect classroom dynamics.

Lack of Cultural and Emotional Sensitivity

AI cannot fully understand humor, sarcasm, emotions, or cultural nuances in communication. This limitation can impact advanced language learning.

Methods and analyses of literatures

A range of methods are introduced in this article. One of them is Research Design method. This study uses a mixed-methods approach to examine how AI tools influence English language teaching and learning. A mixed-methods design is suitable because AI in language education affects both measurable outcomes (e.g., vocabulary growth, writing quality, test scores) and human factors (e.g., motivation, confidence, teacher attitudes, ethical concerns). Recent reviews in language education also show that mixed-methods designs are commonly used in this field.

Another one is Research Objectives method.

The study aims to:

identify how AI tools are used in modern English education,

evaluate their impact on learners' language development,

examine teachers' perceptions of usefulness and challenges,

analyze ethical and practical concerns (privacy, bias, overreliance, transparency).

This focus is consistent with current international guidance emphasizing a human-centered, ethically guided use of generative AI in education.

Participants and Setting

The study may include:

English language learners (secondary school, university, or adult learners),

English teachers/instructors, and

optionally, administrators or curriculum coordinators.

This is important because current evidence shows that research has often focused on higher education and EFL settings, so clearly stating the educational context strengthens the study's value.

Data Collection Methods

Pre-test and post-test (reading, writing, vocabulary, grammar, speaking rubrics)

Student survey (Likert-scale items on motivation, confidence, usefulness, ease of use)

Teacher survey (AI literacy, frequency of use, perceived effectiveness, concerns)

Learning analytics (if available): task completion, revision frequency, time-on-task, feedback usage

Conclusion. In conclusion, Artificial Intelligence offers significant benefits in language learning by providing personalized instruction, instant feedback, and flexible access to practice. It helps learners improve their grammar, vocabulary, pronunciation, and communication skills more efficiently and independently.

However, AI should be viewed as a supportive tool rather than a replacement for teachers. The most effective language learning occurs when advanced technology is combined with human guidance, interaction, and cultural understanding. A balanced integration of AI and traditional teaching methods ensures meaningful and successful language development.

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ARTIFICIAL INTELLIGENCE AND ACADEMIC INTEGRITY: THE PROBLEM OF PLAGIARISM AND ITS SOLUTIONS

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Abstract: *It is well known that in the modern 21st century, in the era of new technologies, artificial intelligence has become one of the important topics widely spread among the public and has led to various views and experiences. This article provides a detailed explanation of the impact of artificial intelligence (AI) technologies on the educational process, its opportunities, causes, and possible problems that may arise. The role of AI in digital technologies, adaptive learning, academic assessment, academic integrity, and personalized education processes is analyzed. At the same time, the impact of AI on scientific ethics, the decrease of the human factor, its negative aspects, and most importantly the risk of plagiarism are also critically examined. Based on the research results, opinions and considerations on convenient and safe mechanisms for the use of artificial intelligence in the development of science are presented.*

Keywords: *AI, ChatGPT, gamma, Kimi, article integrity, assessment, copywriter, rule, plagiarism.*

Annotatsiya. *Yangi texnologiyalar davrida, XXI asrda sun'iy intellekt (SI) jamoatchilik orasida keng tarqalgan va turli fikrlar va tajribalarni yuzaga keltirgan muhim mavzulardan biri sifatida tanilgan. Ushbu maqolada sun'iy intellekt texnologiyalarining ta'lim jarayoniga ta'siri, uning imkoniyatlari, sabablar va yuzaga kelishi mumkin bo'lgan muammolar batafsil tahlil qilinadi. SI ning raqamli texnologiyalar, adaptiv o'qish, akademik baholash, akademik halollik va shaxsiylashtirilgan ta'lim jarayonlaridagi roli ko'rib chiqiladi. Shu bilan birga, SI ning ilmiy etikaga ta'siri, inson omilining kamayishi, salbiy jihatlari va eng muhimi plagiat xavfi ham tanqidiy nuqtai nazardan tahlil qilinadi. Tadqiqot natijalariga asoslanib, ilm-fanni rivojlantirishda sun'iy intellektni qulay va xavfsiz ishlatish mexanizmlari bo'yicha fikrlar va tavsiyalar berilgan.*

Kalit so'zlar: *SI, ChatGPT, gamma, Kimi, maqola halolligi, baholash, copywriter, qoida, plagiat.*

Аннотация. *В современном XXI веке, в эпоху новых технологий, искусственный интеллект (ИИ) стал одной из значимых тем, широко обсуждаемых в обществе, вызывая различные мнения и опыт. В данной статье подробно рассматривается влияние технологий ИИ на образовательный процесс, его возможности, причины и возможные проблемы, которые могут возникнуть. Анализируется роль ИИ в цифровых технологиях, адаптивном обучении, академической оценке, академической честности и персонализированных образовательных процессах. Одновременно критически рассматривается влияние ИИ на научную этику, снижение роли человеческого фактора, его негативные стороны и, что особенно важно, риск плагиата. На основе результатов исследования представлены мнения и рекомендации относительно удобных и безопасных механизмов использования искусственного интеллекта для развития науки.*

Ключевые слова: *ИИ, ChatGPT, гамма, Kimi, честность статьи, оценка, копирайтер, правило, плагиат.*

The us e of term AI (artificial intelligence) is developing all over the world, and this development is significantly influencing the educational process. In particular, AI-based programs and platforms help students, teachers, and even

school pupils to find information, create texts, prepare slides, translate, and even write scientific works (diploma papers, articles and similar works). However, it is also necessary to take into account the important issue of academic integrity. Especially, due to the misuse of artificial intelligence, plagiarism problems may increase and the need for more solutions may grow.

Plagiarism- is presenting another person's idea, text, or creative work as one's own without indicating the source. This is considered a theft of copyright. From the perspective of the academic environment, plagiarism is a tool that contradicts scientific ethics and the law and damages the reputation of students. Along with the development of artificial intelligence, new forms of plagiarism are also emerging. For example, during scientific research or even in the ordinary daily educational process, a student or teacher may create ready-made slides with the help of AI and present them as their own independent work. This may inevitably lead to distrust between teachers and students.

In order to prevent such problems and ensure academic integrity, several legal norms, that is, rules and regulations, have been introduced in man countries. Among them measure to combat plagiarism are also being implemented in Uzbekistan. In particular, the Law of the Republic of Uzbekistan "On copyright and related rights", adopted on March 23,2006, is aimed at protecting the author's property when copyright is appropriated. According to this law, using the author's work without their permission or taking it without indicating the source is considered a violation of the law. In addition, in higher educational institutions, scientific articles or course papers are currently being checked under special plagiarism control.

The table below presents platforms that can serve as examples of artificial intelligence (AI):

№	AI platforms	Function
1	Google	Finds information on the internet
2	ChatGPT	Answers questions and helps write texts
3	Gamma	Creates presentations and slides with AI
4	Kimi	Reads and analyzes long documents answers questions
5	Kahoot	Creates interactive quizzes and learning games

The platforms mentioned above are the most popular and widely used tools today, and they have already reached and engaged people all over the world. There are also many other examples of AI, but these can be considered some of the most famous ones. As technology continues to develop, the role of AI in education, work, and everyday life is becoming even more significant.

Artificial intelligence also has beneficial aspects. For example, when students are in hurry, they use types of AI to quickly find information and understand complex topics. However, if it used incorrectly, it may harm the principles of academic integrity.

Just there are effective aspects, there are also negative sides. Instead of expressing their personal opinions freely or demonstrating their abilities, students may use AI and face the problem of plagiarism, which can lead to academic problems. Furthermore, no one can guarantee that the information obtained using AI is always 100% correct. This is because it does not have one main source, and this can negatively affect the quality of the work.

In conclusion, artificial intelligence is creating new opportunities in the education system and strengthening functions that can attract attention. However, it is necessary to know the correct ways using it. Is a person does not know the correct way and does not use it for beneficial purposes, it is better not use it. This is because there is a serious plagiarism problem involved. Therefore, when using AI, strict adherence to academic integrity and copyright is an important factor in maintaining the quality of education.

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ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В ЯЗЫКОВОМ ОБРАЗОВАНИИ И ГУМАНИТАРНЫХ НАУКАХ

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Аннотация. *В данной статье рассматривается роль искусственного интеллекта в языковом образовании и гуманитарных науках. Анализируется применение технологий искусственного интеллекта для персонализации обучения, развития языковых навыков и обработки текстовой информации. Также в работе поднимаются актуальные проблемы, включая зависимость от цифровых технологий, снижение уровня критического мышления и вопросы защиты персональных данных.*

Ключевые слова: *искусственный интеллект, языковое образование, гуманитарные науки, цифровые технологии, анализ текста, образовательные платформы.*

Annotatsiya. *Ushbu maqolada sun'iy intellektning til ta'limi va gumanitar fanlardagi roli ko'rib chiqilgan. Sun'iy intellekt texnologiyalarini o'quv jarayonini shaxsiylashtirish, til ko'nikmalarini rivojlantirish va matnlarni qayta ishlashda qo'llash tahlil qilingan. Shuningdek, maqolada raqamli texnologiyalarga bog'liqlik, tanqidiy fikrlashning pasayishi va shaxsiy ma'lumotlarni himoya qilish masalalari kabi dolzarb muammolar ko'tarilgan.*

Kalit so'zlar: *sun'iy intellekt, til ta'limi, gumanitar fanlar, raqamli texnologiyalar, matn tahlili, ta'lim platformalari.*

Abstract. *This article examines the role of Artificial Intelligence in language education and the humanities. It analyzes the use of AI technologies for personalized learning, the development of language skills, and text processing. The study also addresses current issues, including dependence on digital technologies, the decline of critical thinking, and data privacy concerns.*

Keywords: *Artificial Intelligence, language education, humanities, digital technologies, text analysis, educational platforms.*

Введение. В XXI веке стремительное развитие цифровых технологий существенно изменяет систему образования и научных исследований. Одной из наиболее значимых инноваций является искусственный интеллект, который активно внедряется в различные сферы общественной жизни. По данным аналитической компании Statista, мировой рынок технологий искусственного интеллекта в образовании в 2023 году превысил 5 миллиардов долларов, а к 2030 году ожидается его рост до более чем 20 миллиардов долларов[5]. В последние годы искусственный интеллект становится важным инструментом в языковом образовании. Современные образовательные платформы используют алгоритмы машинного обучения и обработки естественного языка для анализа уровня знаний учащихся и создания персонализированных

учебных программ [2]. Исследования показывают, что применение интеллектуальных обучающих систем может повысить эффективность изучения иностранных языков примерно на 30–40% [2][4], а также значительно сократить время усвоения учебного материала. Кроме того, искусственный интеллект играет важную роль в развитии гуманитарных наук. Технологии анализа больших данных позволяют ученым обрабатывать огромные массивы текстовой информации [1], включая литературные произведения, исторические документы и научные публикации. Современные алгоритмы способны анализировать миллионы текстов за короткое время, что открывает новые возможности для лингвистических, культурологических и исторических исследований. По данным международных исследований, более 60% университетов мира уже внедряют цифровые технологии и элементы искусственного интеллекта в образовательный процесс [4]. Это свидетельствует о том, что использование интеллектуальных технологий становится важным фактором повышения качества образования и эффективности научных исследований.

Основная часть. Применение искусственного интеллекта в языковом образовании:

В последние годы искусственный интеллект активно используется в сфере языкового образования. Современные образовательные платформы и цифровые системы обучения используют технологии машинного обучения и обработки естественного языка для повышения эффективности учебного процесса. По данным международных исследований, более 70% онлайн-платформ для изучения языков применяют алгоритмы искусственного интеллекта для анализа успеваемости студентов и формирования индивидуальных программ обучения [2]. Одним из важных преимуществ использования искусственного интеллекта является персонализация обучения. Интеллектуальные системы способны анализировать уровень знаний учащегося, выявлять его слабые стороны и автоматически подбирать соответствующие задания. Согласно исследованиям образовательных технологий, персонализированное обучение с использованием искусственного интеллекта может повысить эффективность усвоения учебного материала на 25–35% [2]. Кроме того, технологии искусственного интеллекта позволяют улучшить навыки произношения и разговорной речи. Специальные программы распознавания речи анализируют произношение учащегося и дают рекомендации по его улучшению. По оценкам специалистов, использование таких технологий может сократить время изучения иностранного языка примерно на 20–30% [3].

Роль искусственного интеллекта в гуманитарных науках: Искусственный интеллект также играет важную роль в развитии гуманитарных наук. Современные технологии анализа данных позволяют исследователям работать с большими массивами текстовой информации. Например, алгоритмы обработки естественного языка способны анализировать миллионы текстовых документов за несколько минут, выявляя закономерности, особенности стиля и частотность использования определённых слов [1]. В лингвистических

исследованиях искусственный интеллект используется для автоматического анализа языковых структур, определения семантических связей и машинного перевода текстов. По данным аналитических исследований, точность современных систем машинного перевода уже достигает 85–90% при работе с популярными языками [3]. Кроме того, технологии искусственного интеллекта широко применяются в цифровой гуманитарной сфере. Они помогают ученым исследовать исторические архивы, оцифровывать рукописи и анализировать культурное наследие. По данным международных научных проектов, в настоящее время уже более 100 миллионов исторических документов были оцифрованы и обработаны с использованием технологий искусственного интеллекта [4].

Преимущества и проблемы использования искусственного интеллекта: Использование искусственного интеллекта в образовании и гуманитарных исследованиях имеет ряд преимуществ. Среди них можно выделить повышение скорости обработки информации, улучшение качества анализа данных и расширение доступа к образовательным ресурсам. По статистике, внедрение цифровых образовательных технологий может повысить общую эффективность обучения примерно на 30% [4]. Однако существуют и определенные проблемы. Одной из них является зависимость от технологий и снижение уровня самостоятельного анализа информации у студентов. Также важным вопросом остаётся защита персональных данных пользователей и обеспечение этических норм при использовании искусственного интеллекта. Несмотря на существующие трудности, большинство специалистов считают, что развитие технологий искусственного интеллекта будет продолжаться. По прогнозам экспертов, к 2030 году более 80% образовательных учреждений мира будут использовать интеллектуальные цифровые системы в учебном процессе [5].

Заключение. Таким образом, искусственный интеллект становится важным инструментом развития языкового образования и гуманитарных наук. Современные технологии позволяют значительно повысить эффективность обучения, автоматизировать анализ больших объемов текстовой информации и создавать персонализированные образовательные программы. Использование интеллектуальных систем способствует развитию цифровых образовательных платформ, улучшению качества перевода текстов и расширению возможностей научных исследований. Статистические данные показывают, что внедрение искусственного интеллекта в образовательную сферу может повысить эффективность обучения на 30–40% [4], а также значительно ускорить обработку и анализ научных данных. В условиях стремительного развития цифровых технологий роль искусственного интеллекта в образовании будет только возрастать. Вместе с тем важным остается вопрос рационального и этичного использования данных технологий. Необходимо учитывать возможные риски, связанные с защитой персональной информации и чрезмерной зависимостью от цифровых систем.

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ADVANTAGES AND CHALLENGES OF ARTIFICIAL INTELLIGENCE IN LANGUAGE EDUCATION AND HUMANITIES STUDIES

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Abstract. *Artificial intelligence has become an important technological innovation in modern education and research. In recent years, AI technologies have been increasingly integrated into language learning and humanities studies. These tools assist students and researchers in analyzing texts, improving language skills, and accessing large amounts of information. However, the growing use of artificial intelligence also raises concerns about technological dependence, reduction of human interaction, and possible inaccuracies in automated systems. The purpose of this study is to examine the advantages and disadvantages of artificial intelligence in language education and humanities research. The article discusses how AI technologies influence learning processes, research practices, and educational environments. The findings suggest that artificial intelligence can significantly enhance educational efficiency when used responsibly, but it should remain a supportive tool rather than a replacement for human guidance.*

Keywords: *artificial intelligence, language education, digital learning, humanities research, educational technology*

Annotatsiya. *Sun'iy intellekt zamonaviy ta'lim va tadqiqotlarda muhim texnologik innovatsiyaga aylandi. So'nggi yillarda sun'iy intellekt texnologiyalari til o'rganish va gumanitar fanlar tadqiqotlariga tobora ko'proq joriy etilmoqda. Bu vositalar talabalar va tadqiqotchilarga matnlarni tahlil qilish, til ko'nikmalarini rivojlantirish va katta hajmdagi ma'lumotlarga kirish imkonini beradi. Biroq sun'iy intellektdan foydalanishning kengayishi texnologik qaramlik, insonlar o'rtasidagi muloqotning kamayishi va avtomatlashtirilgan tizimlardagi ehtimoliy xatolar kabi xavotirlarni ham keltirib chiqaradi. Ushbu tadqiqotning maqsadi til ta'limi va gumanitar fanlar tadqiqotlarida sun'iy intellektning afzalliklari va kamchiliklarini o'rganishdan iborat. Maqolada AI texnologiyalarining o'quv jarayonlari, tadqiqot amaliyoti va ta'lim muhitiga qanday ta'sir ko'rsatishi muhokama qilinadi. Natijalar shuni ko'rsatadiki, sun'iy intellekt mas'uliyat bilan qo'llanilganda ta'lim samaradorligini sezilarli darajada oshirishi mumkin, ammo u inson rahbarligining o'rnini bosuvchi emas, balki qo'llab-quvvatlovchi vosita sifatida qolishi kerak.*

Kalit so'zlar*: sun'iy intellekt, til ta'limi, raqamli ta'lim, gumanitar tadqiqotlar, ta'lim texnologiyasi.*

Аннотация. *Искусственный интеллект стал важной технологической инновацией в современном образовании и научных исследованиях. В последние годы технологии искусственного интеллекта всё активнее внедряются в изучение языков и гуманитарные исследования. Эти инструменты помогают студентам и исследователям анализировать тексты, улучшать языковые навыки и получать доступ к большим объёмам информации. Однако растущее использование искусственного интеллекта также вызывает определённые опасения, связанные с технологической зависимостью, сокращением человеческого взаимодействия и возможными неточностями в автоматизированных*

системах. Цель данного исследования — изучить преимущества и недостатки использования искусственного интеллекта в языковом образовании и гуманитарных исследованиях. В статье рассматривается влияние технологий ИИ на процессы обучения, исследовательскую практику и образовательную среду. Результаты показывают, что искусственный интеллект может значительно повысить эффективность образования при ответственном использовании, однако он должен оставаться вспомогательным инструментом, а не заменой человеческого руководства.

***Ключевые слова**: искусственный интеллект, языковое образование, цифровое обучение, гуманитарные исследования, образовательные технологии.*

Introduction. The rapid development of digital technologies has transformed many aspects of modern education and research. One of the most significant innovations in recent years is artificial intelligence. AI technologies are increasingly used in educational environments to support language learning, analyze textual data, and facilitate access to information.

In language education, artificial intelligence tools provide automated grammar correction, translation systems, speech recognition, and personalized learning platforms. These technologies allow students to receive immediate feedback and improve their language skills more effectively (Ellis, 2015, p. 42). AI-based educational tools also help researchers in the humanities analyze large amounts of textual information and identify linguistic patterns that might be difficult to detect manually.

Despite these advantages, the increasing use of artificial intelligence raises important concerns. Some educators argue that excessive reliance on technological tools may reduce students' ability to think critically and learn independently. Language learning involves communication, cultural awareness, and social interaction, which cannot be fully replaced by artificial intelligence systems (Leech, 2014, p. 18).

Therefore, it is important to examine both the benefits and the limitations of AI integration in education. This article explores the role of artificial intelligence in language education and humanities research and analyzes its impact on modern learning environments.

Main Body. Artificial intelligence has significantly influenced modern language education and humanities research. One of the main advantages of AI technologies is their ability to provide personalized learning. AI-powered platforms can analyze students' performance and adapt learning materials according to individual needs. This allows students to learn at their own pace and focus on areas that require improvement. Personalized learning systems also help teachers monitor students' progress and provide targeted feedback.

Another important benefit of artificial intelligence is the automation of linguistic analysis. Researchers in the humanities often work with large amounts of textual data. AI tools can process and analyze these texts quickly, identifying linguistic patterns, semantic relations, and stylistic features. Such technologies

improve research efficiency and help scholars explore language data more effectively (Ellis, 2015, p. 85).

Artificial intelligence also increases access to educational resources. Online AI-based platforms provide grammar correction, translation support, and vocabulary development tools. These technologies make language learning more accessible for students from different educational and cultural backgrounds. Digital learning environments supported by AI can provide instant feedback, which helps learners recognize mistakes and improve their language skills more efficiently.

However, despite these advantages, artificial intelligence also presents several challenges in education. One of the main problems is technological dependence. Students may rely too heavily on AI tools for translation, grammar correction, or writing assistance. As a result, they may not develop strong independent language skills.

Another disadvantage is the reduction of human interaction in the learning process. Language learning is closely connected with communication, social interaction, and cultural understanding. According to Brown and Levinson (1987), communication involves politeness strategies and social norms that depend on context (Brown & Levinson, 1987, p. 61). Artificial intelligence systems cannot fully replicate these aspects of human interaction.

Furthermore, AI technologies may sometimes produce inaccurate or misleading information. Automated translation systems may incorrectly interpret idioms, metaphors, or culturally specific expressions. Pragmatic meaning often depends on context and speaker intention, which may be difficult for AI systems to interpret correctly (Culpeper, 2011, p. 37).

Discussion. The findings of this study show that artificial intelligence has both positive and negative implications for language education and humanities research. On one hand, AI technologies improve the efficiency of learning and research through personalized learning systems, automated feedback, and advanced data analysis (Ellis, 2015, p. 103).

On the other hand, the rapid integration of AI into education raises pedagogical and ethical questions. While AI systems can process large amounts of information quickly, they cannot fully replicate human creativity, critical thinking, and cultural understanding. Communication and politeness strategies are deeply connected with social context and human interaction (Brown & Levinson, 1987, p. 74).

Moreover, the use of AI tools may influence students' motivation and learning strategies. Some learners may become overly dependent on automated systems instead of developing analytical and communicicative skills. Therefore, educators should integrate artificial intelligence technologies carefully while maintaining the central role of human interaction in the learning process (Leech, 2014, p. 92).

Conclusion. Artificial intelligence is transforming language education and humanities research. Modern AI technologies provide new opportunities for

improving the learning process, analyzing linguistic data, and accessing educational resources. These tools support students and researchers by offering instant feedback, personalized learning, and efficient analysis of textual information. However, the use of artificial intelligence should be balanced. Overreliance on AI technologies may reduce independent thinking and creativity. Language learning involves communication, cultural awareness, and human interaction, which cannot be fully replaced by automated systems (Leech, 2014, p. 105). Therefore, artificial intelligence should be used as a supportive educational tool rather than a substitute for teachers. A balanced integration of technological innovation and human guidance is essential for effective learning and research.

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BOSHLANG‘ICH SINFLARDA INGLIZ TILINI O‘QITISHDA STEAM VA SUN’IY INTELLEKT INTEGRATSIYASI: PSIXOLOGIK YONDASHUV

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Annotatsiya: *Mazkur maqolada boshlang‘ich sinflarda ingliz tili o‘qitishda STEAM (Science, Technology, Engineering, Art, Mathematics) yondashuvi sun’iy intellekt texnologiyalari va psixologik yondashuvlar bilan integratsiya qilingan holda tahlil qilinadi. Tadqiqotda STEAM va sun’iy intellektning ta’lim jarayonidagi o‘rni, o‘quvchilarning kognitiv va emotsional rivojlanishiga ta’siri hamda ingliz tili darslariga integratsiya qilish mexanizmlari yoritilgan.*

Kalit so‘zlar: *STEAM ta’limi, sun’iy intellekt, ta’lim psixologiyasi, boshlang‘ich ta’lim, ingliz tili o‘qitish, adaptiv ta’lim, loyiha asosida o‘qitish, motivatsiya, kognitiv rivojlanish.*

Аннотация: *В данной статье анализируется подход STEAM (наука, технологии, инженерия, искусство, математика) к преподаванию английского языка в начальной школе, интегрированный с технологиями искусственного интеллекта и психологическими подходами. В исследовании освещается роль STEAM и искусственного интеллекта в образовательном процессе, их влияние на когнитивное и эмоциональное развитие учащихся, а также механизмы их интеграции в уроки английского языка.*

Ключевые слова: *STEAM-образование, искусственный интеллект, педагогическая психология, начальное образование, преподавание английского языка, адаптивное обучение, проектное обучение, мотивация, когнитивное развитие.*

Abstract: *This article analyzes the STEAM (Science, Technology, Engineering, Art, Mathematics) approach to teaching English in primary schools, integrated with artificial intelligence technologies and psychological approaches. The study highlights the role of STEAM and artificial intelligence in the educational process, their impact on the cognitive and emotional development of students, and the mechanisms for integrating them into English lessons.*

Keywords: *STEAM education, artificial intelligence, educational psychology, primary education, English language teaching, adaptive learning, project-based learning, motivation, cognitive development.*

XXI asr ta’limi o‘quvchidan nafaqat bilim egallashni, balki uni real hayotiy vaziyatlarda qo‘llay olishni, mustaqil fikrlashni va muammolarni hal etishni talab etadi. Ayniqsa, boshlang‘ich sinflarda ingliz tilini o‘qitishda bu jarayonni samarali tashkil etish o‘quvchilarning psixologik xususiyatlarini chuqur hisobga olishni talab qiladi.

Zamonaviy ta’limda STEAM yondashuvi bilan bir qatorda sun’iy intellekt texnologiyalarining jadal rivojlanishi ta’lim jarayonini individuallashtirish va optimallashtirish imkonini bermoqda. Ushbu ikki yo‘nalishning integratsiyasi o‘quvchilarning kognitiv, emotsional va ijtimoiy rivojlanishiga kompleks ta’sir ko‘rsatadi.

Zamonaviy ta’limda keng qo‘llanilayotgan STEAM (Science, Technology, Engineering, Art, Mathematics) yondashuvi fanlararo integratsiyani ta’minlash orqali o‘quvchilarda kompleks bilim va ko‘nikmalarni shakllantirishni maqsad qiladi. STEAM konsepsiyasi dastlab AQSh ta’lim tizimida shakllangan bo‘lib,

keyinchalik ko‘plab rivojlangan mamlakatlar ta’lim amaliyotiga tatbiq etildi. Ushbu yondashuv o‘quvchini passiv bilim oluvchidan faol tadqiqotchi va yaratuvchiga aylantirishga xizmat qiladi.

Boshlang‘ich ta’lim bosqichida o‘quvchilar tafakkuri obrazli va amaliy faoliyatga moyil bo‘lgani sababli ingliz tilini o‘qitishda tajriba, modellashtirish, loyiha ishlari va ijodiy topshiriqlardan foydalanish yuqori samaradorlik beradi. STEAM elementlarini ingliz tili darslariga integratsiya qilish orqali til real hayotiy kontekstda qo‘llanadi, bu esa kommunikativ kompetensiyaning shakllanishiga ijobiy ta’sir ko‘rsatadi. Masalan, “Tabiat hodisalari”, “Shakllar”, “O‘lchov birliklari” kabi mavzularni o‘rganishda fanlararo bog‘liqlikni ta’minlash o‘quvchilarning lug‘at boyligini kengaytirish va nutqiy faolligini oshirish imkonini beradi.

STEAM ta’limi bilimlarni alohida fanlar doirasida emas, balki o‘zaro bog‘liq tizim sifatida o‘rganishni nazarda tutadi. Uning asosiy g‘oyasi — real hayotiy muammolarni hal etish jarayonida bir nechta fan elementlarini uyg‘unlashtirishdir. Shu jihatdan STEAM yondashuvi konstruktivistik ta’lim nazariyasiga asoslanadi. Konstruktivizmga ko‘ra, bilim tayyor shaklda berilmaydi, balki o‘quvchi tomonidan faol faoliyat jarayonida quriladi.

Zamonaviy ta’lim tizimida STEAM (Science, Technology, Engineering, Art, Mathematics) yondashuvi hamda sun’iy intellekt (SI) texnologiyalari ta’lim samaradorligini oshirish, o‘quvchilarning kompleks rivojlanishini ta’minlash va individual ta’lim trayektoriyalarini shakllantirishda muhim nazariy asos sifatida qaraladi. Ushbu ikki yo‘nalish integratsiyasi o‘quv jarayonini innovatsion, moslashuvchan va shaxsga yo‘naltirilgan tizimga aylantiradi.

STEAM yondashuvi fanlararo integratsiya tamoyiliga asoslanib, bilimlarni alohida predmetlar doirasida emas, balki o‘zaro bog‘liq tizim sifatida o‘rganishni nazarda tutadi. Uning nazariy poydevori bir qator pedagogik konsepsiyalar bilan uzviy bog‘liqdir.

STEAM asosida ingliz tili o‘qitish zamonaviy ta’lim talablariga mos ravishda o‘quvchilarning nafaqat til ko‘nikmalarini, balki keng qamrovli kompetensiyalarini ham rivojlantirishga xizmat qiladi. Ushbu yondashuvning bir qator pedagogik va metodik afzalliklari mavjud.

Avvalo, STEAM integratsiyasi tilni real hayotiy kontekstda qo‘llash imkonini yaratadi. An’anaviy darslarda o‘quvchilar ko‘proq grammatik qoidalar va lug‘at birliklarini yodlashga yo‘naltirilsa, STEAM yondashuvida ular tajriba o‘tkazish, model yaratish yoki loyiha ustida ishlash jarayonida ingliz tilidan muloqot vositasi sifatida foydalanadilar. Bu esa kommunikativ kompetensiyaning tabiiy shakllanishiga olib keladi.

Ikkinchidan, mazkur yondashuv o‘quvchilarning motivatsiyasini sezilarli darajada oshiradi. Boshlang‘ich sinf o‘quvchilari uchun amaliy faoliyat, ijodiy topshiriqlar va guruhli ishlash jarayoni qiziqarli hisoblanadi. STEAM asosidagi darslar interaktiv va dinamik tusga ega bo‘lib, o‘quvchilarning darsga bo‘lgan qiziqishini kuchaytiradi. Natijada ular til o‘rganishga ongli va faol munosabat bildiradilar.

Uchinchidan, STEAM yondashuvi tanqidiy va ijodiy fikrlashni rivojlantiradi. Muammoli vaziyatlar yaratish, tajriba o‘tkazish va loyiha ishlab chiqish jarayonida o‘quvchilar mustaqil qaror qabul qilish, tahlil qilish va xulosa chiqarish ko‘nikmalarini egallaydilar. Bu jarayon tilni faqat o‘rganish emas, balki uni fikr ifodalash vositasiga aylantirishga yordam beradi.

To‘rtinchidan, mazkur model jamoaviy hamkorlik va ijtimoiy ko‘nikmalarni shakllantiradi. Guruhli loyiha ishlari davomida o‘quvchilar o‘zaro muloqot qiladi, vazifalarni taqsimlaydi va natijani birgalikda taqdim etadi. Bu esa ingliz tilida muloqot qilish ko‘nikmasini rivojlantirish bilan birga, ijtimoiy moslashuvchanlikni ham oshiradi.

Beshinchidan, STEAM integratsiyasi fanlararo bog‘liqlikni ta’minlaydi. Til boshqa fanlar bilan uyg‘unlikda o‘rganilganda, bilimlar tizimli xarakter kasb etadi. Masalan, matematika yoki tabiiy fan elementlari bilan birlashtirilgan ingliz tili darsi o‘quvchilarga bilimlarni kompleks tarzda idrok etish imkonini beradi.

Shuningdek, STEAM yondashuvi individual qobiliyatlarni rivojlantirishga yordam beradi. San’at elementi orqali ijodkorlik, texnologiya va muhandislik elementlari orqali mantiqiy fikrlash va muammoni hal qilish ko‘nikmalari shakllanadi. Bu esa har bir o‘quvchining o‘z qobiliyatini namoyon etishiga sharoit yaratadi.

Sun’iy intellektning ta’limdagi nazariy asoslari esa asosan raqamli pedagogika, adaptiv ta’lim va ma’lumotlarga asoslangan ta’lim (data-driven education) konsepsiyalariga tayanadi.

Birinchidan, adaptiv ta’lim nazariyasi sun’iy intellekt asosidagi tizimlarning markaziy g‘oyasidir. Bu modelga ko‘ra, ta’lim jarayoni har bir o‘quvchining individual xususiyatlari — bilim darajasi, o‘rganish tezligi, qiziqishlari va kognitiv imkoniyatlariga moslashtiriladi. Sun’iy intellekt algoritmlari o‘quvchi faoliyatini tahlil qilib, unga mos topshiriqlarni taklif etadi.

Ikkinchidan, kognitiv yuklama nazariyasi (Cognitive Load Theory) sun’iy intellekt yordamida o‘qitishda muhim ahamiyatga ega. Ushbu nazariyaga ko‘ra, o‘quvchining ishchi xotirasi cheklangan bo‘lib, ta’lim materiali ortiqcha murakkab bo‘lsa, o‘zlashtirish qiyinlashadi. Sun’iy intellekt esa materialni bosqichma-bosqich va optimal darajada taqdim etish orqali o‘rganishni yengillashtiradi.

Uchinchidan, metakognitiv yondashuv ham sun’iy intellekt bilan bog‘liq muhim nazariy asoslardan biridir. Bu yondashuv o‘quvchining o‘z o‘rganish jarayonini anglash va nazorat qilish qobiliyatini rivojlantiradi. Sun’iy intellekt asosidagi tizimlar o‘quvchiga uning xatolari, yutuqlari va rivojlanish dinamikasi haqida tezkor fikr-mulohaza (feedback) beradi.

To‘rtinchidan, shaxsga yo‘naltirilgan ta’lim konsepsiyasi sun’iy intellekt texnologiyalari orqali yangi bosqichga ko‘tariladi. An’anaviy ta’limda bitta metod barcha o‘quvchilarga qo‘llansa, sun’iy intellekt yordamida har bir o‘quvchi uchun individual ta’lim yo‘li yaratiladi.

STEAM, sun’iy intellekt va ingliz tili integratsiyasi

Boshlang‘ich sinflarda ingliz tilini o‘qitishda ushbu integratsiya quyidagi yo‘nalishlarda amalga oshiriladi:

1. Science + AI + English. O‘quvchilar oddiy tajribalar o‘tkazadi va natijalarni ingliz tilida ifodalaydi. Sun’iy intellekt esa tushunishni tekshiradi va tavsiyalar beradi.

2. Technology + AI + English. Interaktiv platformalar orqali lug‘at va talaffuz o‘rganiladi. Masalan, nutqni aniqlovchi dasturlar o‘quvchining talaffuzini tahlil qiladi.

3. Engineering + English. Konstruktor yig‘ish jarayonida o‘quvchilar buyruqlar va harakatlarni ingliz tilida ifodalaydi.

4. Art + English. Rasm chizish, hikoya tuzish orqali til ko‘nikmalari rivojlanadi.

5. Mathematics + English. Sanash, o‘lchash va taqqoslash jarayonida ingliz tilidan foydalaniladi.

Boshlang‘ich sinf o‘quvchilariga ingliz tilini o‘rgatish jarayoni ularning yoshga xos psixologik xususiyatlari bilan uzviy bog‘liq holda tashkil etilishi zarur. Ushbu bosqichda o‘quvchilarda obrazli tafakkur ustun bo‘lib, ular bilimni ko‘proq sezgi, kuzatuv va amaliy faoliyat orqali o‘zlashtiradilar. Shu sababli STEAM yondashuvi asosidagi darslar, ya’ni tajriba o‘tkazish, modellashtirish, konstruktor yig‘ish va ijodiy faoliyatlar orqali o‘qitish, ularning tabiiy o‘rganish ehtiyojlariga mos keladi. Sun’iy intellekt texnologiyalari esa bu jarayonni vizual va interaktiv vositalar orqali yanada boyitib, o‘zlashtirish samaradorligini oshiradi.

O‘quvchilarning o‘rganishga bo‘lgan ichki motivatsiyasi boshlang‘ich ta’limda hal qiluvchi ahamiyatga ega. Qiziqarli va amaliy faoliyatga asoslangan STEAM darslari o‘quvchilarda o‘rganishga nisbatan ijobiy munosabatni shakllantiradi. Sun’iy intellekt asosidagi tizimlar esa o‘quvchining har bir kichik yutug‘ini qayd etib, tezkor fikr-mulohaza berish orqali muvaffaqiyat hissini yuzaga keltiradi. Natijada o‘quvchi o‘z faoliyatidan qoniqish hosil qiladi va bilim olish jarayonida faol ishtirok etadi.

Mazkur yondashuvlar o‘quvchilarning kognitiv rivojlanishiga ham sezilarli ta’sir ko‘rsatadi. Muammoli vaziyatlar, tajriba va loyiha faoliyati orqali o‘quvchilar tahlil qilish, taqqoslash, umumlashtirish va xulosa chiqarish kabi yuqori darajadagi fikrlash ko‘nikmalarini egallaydilar. Sun’iy intellekt esa o‘quvchining bilim darajasini aniqlab, unga mos murakkablikdagi topshiriqlarni taqdim etish orqali kognitiv yuklamani muvozanatlashtiradi va o‘rganish jarayonini optimallashtiradi.

Emotsional jihatdan qaralganda, o‘quvchilarda xatodan qo‘rqish holati o‘quv faolligini pasaytirishi mumkin. Sun’iy intellekt asosidagi ta’lim muhitida xatolar individual tarzda ko‘rib chiqiladi va qo‘llab-quvvatlovchi tarzda tahlil qilinadi. Bu esa o‘quvchida ishonch hissini shakllantirib, stressni kamaytiradi. STEAM faoliyatlari esa o‘yin, ijod va hamkorlik orqali ijobiy emotsional fonni yuzaga keltiradi.

Ijtimoiy-psixologik rivojlanish nuqtai nazaridan ham mazkur yondashuv muhim ahamiyat kasb etadi. Guruhli faoliyat jarayonida o‘quvchilar o‘zaro muloqotga kirishadi, fikr almashadi va birgalikda qaror qabul qiladi. Ingliz tili esa ushbu jarayonda tabiiy kommunikativ vosita sifatida qo‘llanadi. Bu esa nafaqat til ko‘nikmalarini, balki ijtimoiy moslashuvchanlikni ham rivojlantiradi.

Shu bilan birga, har bir o‘quvchining individual qobiliyati va o‘rganish uslubi inobatga olinishi ta’lim samaradorligini oshiradi. Sun’iy intellekt texnologiyalari o‘quvchilarning faoliyatini tahlil qilib, ularga moslashtirilgan topshiriqlarni taklif etadi. Bu esa har bir o‘quvchining o‘z imkoniyatlari doirasida rivojlanishiga sharoit yaratadi.

Natijada, STEAM va sun’iy intellekt integratsiyasi asosida tashkil etilgan ingliz tili darslari o‘quvchilarning nafaqat bilim darajasini, balki ularning fikrlash, muloqot qilish va o‘zini anglash qobiliyatlarini ham rivojlantiradi. Bunday yondashuv o‘quvchini faol, mustaqil va o‘ziga ishonchli shaxs sifatida shakllantirishga xizmat qiladi.

Xulosa qilib shuni aytish joizki, boshlang‘ich sinflarda ingliz tilini STEAM va sun’iy intellekt asosida o‘qitish ta’lim jarayonini samarali, interaktiv va shaxsga yo‘naltirilgan shaklga olib chiqadi. Ushbu yondashuv o‘quvchilarning til ko‘nikmalari bilan bir qatorda ularning kognitiv, emotsional va ijtimoiy rivojlanishini ham ta’minlaydi. Natijada o‘quvchilar tilni real muloqot vositasi sifatida qo‘llay oladigan, mustaqil va ijodiy fikrlovchi shaxs sifatida shakllanadi.

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INTELLEKTUAL TA’LIM MUHITINI YARATISHDA SUN’IY INTELLEKT IMKONIYATLARI

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Annotatsiya. *Ushbu maqolada intellektual ta’lim muhitini shakllantirishda sun’iy intellekt (SI) texnologiyalarining o‘rni, afzalliklari va amaliy qo‘llanilish yo‘nalishlari tahlil qilinadi. Shuningdek, ta’lim jarayonini individuallashtirish, o‘qitish samaradorligini oshirish hamda nazorat va baholash tizimini takomillashtirishda SI imkoniyatlari yoritiladi.*

Kalit so‘zlar: *sun’iy intellekt, intellektual ta’lim muhiti, raqamli ta’lim, adaptiv o‘qitish, avtomatlashtirilgan baholash, ta’lim texnologiyalari.*

Аннотация. *В данной статье анализируется роль технологий искусственного интеллекта (ИИ) в формировании интеллектуальной образовательной среды, их преимущества и направления практического применения. Также рассматриваются возможности ИИ для персонализации учебного процесса, повышения эффективности обучения, а также совершенствования систем контроля и оценки.*

Ключевые слова: *искусственный интеллект, интеллектуальная образовательная среда, цифровое обучение, адаптивное обучение, автоматизированная оценка, образовательные технологии.*

Abstract. *This article analyzes the role of Artificial Intelligence (AI) technologies in shaping an intelligent educational environment, highlighting their advantages and practical applications. The study also examines AI’s potential in personalizing the learning process, enhancing teaching effectiveness, and improving assessment and evaluation systems.*

Keywords: *Artificial Intelligence, intelligent education.*

Zamonaviy axborot-kommunikatsiya texnologiyalari jadal rivojlanib borayotgan bir davrda ta’lim tizimi ham tub o‘zgarishlarni boshdan kechirmoqda. Raqamli transformatsiya jarayonida sun’iy intellekt texnologiyalaridan foydalanish ta’lim sifatini oshirish, o‘quv jarayonini optimallashtirish va shaxsga yo‘naltirilgan yondashuvni ta’minlash imkonini bermoqda. Intellektual ta’lim muhiti deganda o‘quvchi yoki talabaning individual xususiyatlari, bilim darajasi va o‘zlashtirish sur’atini hisobga olgan holda moslashuvchan ta’lim jarayoni tushuniladi.

Sun’iy intellekt asosidagi adaptiv o‘qitish tizimlari har bir o‘quvchining bilim darajasini tahlil qilib, unga mos topshiriqlar va o‘quv materiallarini taqdim etadi. Bunday tizimlar o‘quvchining xatolarini aniqlab, ularni bartaraf etish bo‘yicha tavsiyalar beradi. Natijada ta’lim jarayoni shaxsga yo‘naltirilgan va samarali tus oladi.

SI texnologiyalari test sinovlarini avtomatik tekshirish, yozma ishlarni tahlil qilish va o‘quvchilarning o‘zlashtirish ko‘rsatkichlarini monitoring qilish imkonini beradi. Bu esa o‘qituvchining vaqtini tejaydi va baholash jarayonining obyektivligini oshiradi. Shuningdek, real vaqt rejimida o‘quvchining rivojlanish dinamikasini kuzatish mumkin bo‘ladi.

Sun’iy intellekt asosidagi virtual yordamchilar o‘quvchilarga 24/7 rejimida maslahat va tushuntirishlar berishi mumkin. Ular murakkab mavzularni soddalashtirib tushuntiradi, savollarga tezkor javob beradi hamda mustaqil ta’limni qo‘llab-quvvatlaydi.

Ta’lim jarayonida yig‘ilgan katta hajmdagi ma’lumotlarni (Big Data) tahlil qilish orqali o‘quvchilarning o‘zlashtirish darajasi, qiyinchilik tug‘dirayotgan mavzular hamda ehtimoliy akademik xavflar aniqlanadi. Bu esa profilaktik chora-tadbirlarni o‘z vaqtida ko‘rish imkonini beradi.

Bugungi kunda ko‘plab raqamli platformalar sun’iy intellekt imkoniyatlaridan foydalanmoqda. Bunday platformalar multimediya materiallari, interaktiv mashqlar va adaptiv testlar orqali o‘qitish samaradorligini oshiradi. Ular masofaviy ta’limni rivojlantirishda ham muhim ahamiyat kasb etadi.

Sun’iy intellektni ta’lim tizimiga integratsiya qilish bo‘yicha dunyoning rivojlangan mamlakatlarida keng ko‘lamli ishlar olib borilmoqda. Ushbu tajribalar intellektual ta’lim muhitini shakllantirishda muhim metodik va amaliy asos bo‘lib xizmat qilmoqda.

Amerika Qo‘shma Shtatlari ta’lim tizimida sun’iy intellekt asosidagi adaptiv o‘qitish platformalari keng qo‘llanilmoqda. Xususan, Carnegie Learning kompaniyasi tomonidan ishlab chiqilgan tizimlar matematika fanini o‘qitishda o‘quvchining bilim darajasiga mos individual topshiriqlarni shakllantiradi.

Shuningdek, Arizona State University sun’iy intellekt yordamida talabalar o‘zlashtirish ko‘rsatkichlarini tahlil qilish va akademik xavf guruhidagi talabalarni aniqlash tizimini joriy qilgan. Natijada talabalar davomati va o‘qishni tamomlash ko‘rsatkichlari sezilarli darajada oshgan.

Xitoy sun’iy intellektni ta’limga joriy etish bo‘yicha yetakchi davlatlardan biri hisoblanadi. Maktablarda “aqlli sinfxonalar” tashkil etilib, o‘quvchilarning diqqat darajasi, ishtiroki va bilim o‘zlashtirish jarayoni maxsus algoritmlar yordamida tahlil qilinadi. Bundan tashqari, Squirrel AI kompaniyasi adaptiv o‘qitish platformasini ishlab chiqib, millionlab o‘quvchilarga individual ta’lim yo‘nalishini taklif etmoqda. Bu tizim har bir o‘quvchining bilimdagi bo‘shliqlarini aniqlab, ularni bosqichma-bosqich to‘ldirishga xizmat qiladi.

Yevropa Ittifoqi doirasida raqamli ta’limni rivojlantirish bo‘yicha maxsus strategiyalar ishlab chiqilgan. “Digital Education Action Plan” dasturi sun’iy intellektni ta’lim jarayoniga mas’uliyatli va xavfsiz joriy etishni nazarda tutadi.

Finlyandiya maktablarida esa o‘quvchilarga sun’iy intellekt asoslari o‘rgatilmoqda hamda SI vositalari yordamida interaktiv ta’lim muhitlari yaratilgan. Bu esa o‘quvchilarning tanqidiy fikrlash va muammoni hal qilish ko‘nikmalarini rivojlantirishga xizmat qilmoqda.

Janubiy Koreya 2025-yildan boshlab sun’iy intellekt asosidagi raqamli darsliklarni bosqichma-bosqich joriy etishni rejalashtirgan. Ushbu tizim o‘quvchilarning bilim darajasini real vaqt rejimida tahlil qilib, individual o‘quv yo‘nalishini shakllantiradi. Natijada o‘quv jarayoni yanada moslashuvchan va samarali bo‘lmoqda.

Yuqoridagi tajribalar shuni ko‘rsatadiki:

- Sun’iy intellekt ta’limni individuallashtirish imkonini beradi.
- O‘quvchilarning bilim darajasini aniq monitoring qilish va prognozlash mumkin.
- O‘qituvchi faoliyati yengillashadi va ko‘proq metodik ishga e’tibor qaratish imkoniyati yaratiladi.

- Ta’lim sifati va samaradorligi oshadi.

Biroq barcha mamlakatlarda ma’lumotlar xavfsizligi, etik me’yorlar va raqamli tengsizlik masalalari dolzarb bo‘lib qolmoqda.

Shu bilan birga, sun’iy intellektni ta’limda qo‘llash ayrim muammolarni ham keltirib chiqaradi. Jumladan, ma’lumotlar xavfsizligi, shaxsiy axborotni himoya qilish, texnik infratuzilmaning yetarli emasligi hamda o‘qituvchilarning raqamli kompetensiyasini oshirish zarurati dolzarb masalalardan hisoblanadi. Bundan tashqari, sun’iy intellekt o‘qituvchini to‘liq almashtira olmaydi, balki uning faoliyatini qo‘llab-quvvatlovchi vosita sifatida xizmat qilishi lozim.

Xulosa. Intellektual ta’lim muhitini yaratishda sun’iy intellekt texnologiyalari katta imkoniyatlarga ega. Ular ta’lim jarayonini individuallashtirish, baholash tizimini takomillashtirish, monitoring va tahlil jarayonlarini avtomatlashtirish orqali ta’lim sifatini oshirishga xizmat qiladi. Kelajakda sun’iy intellekt asosidagi tizimlar yanada takomillashib, ta’limning ajralmas qismiga aylanishi kutilmoqda. Shu bois, ta’lim muassasalarida SI texnologiyalarini joriy etish bilan birga, ularni samarali va xavfsiz qo‘llash mexanizmlarini ishlab chiqish muhim ahamiyat kasb etadi.

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THE IMPORTANCE OF ARTIFICIAL INTELLIGENCE IN LANGUAGE LEARNING AND LANGUAGE EDUCATION

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Abstract. *This article provides a comprehensive analysis of the role and significance of artificial intelligence (AI) in language education and language learning. It explores theoretical foundations, cognitive and pedagogical implications, adaptive learning technologies, natural language processing, automated assessment systems, speech recognition tools, inclusive education practices, ethical considerations, and future prospects. The study argues that AI enhances personalization, learner autonomy, accessibility, and instructional effectiveness when integrated responsibly within pedagogically sound frameworks.*

Annotatsiya. *Mazkur maqolada sun'iy intellektning til ta'limi va til o'rganish jarayonidagi o'rni keng qamrovda tahlil qilinadi. Nazariy asoslar, kognitiv va pedagogik jihatlar, moslashuvchan ta'lim texnologiyalari, tabiiy tilni qayta ishlash, avtomatlashtirilgan baholash tizimlari, nutqni aniqlash vositalari, inklyuziv ta'lim imkoniyatlari, axloqiy masalalar va istiqbolli yo'nalishlar ko'rib chiqiladi. Maqolada sun'iy intellekt pedagogik tamoyillar asosida qo'llanilganda ta'lim samaradorligini sezilarli darajada oshirishi asoslab beriladi.*

Аннотация. *В статье комплексно рассматривается значение искусственного интеллекта в языковом образовании. Анализируются когнитивные и педагогические основы, адаптивные технологии обучения, обработка естественного языка, автоматизированные системы оценивания, технологии распознавания речи и вопросы инклюзивного образования. Особое внимание уделяется этическим аспектам и перспективам развития. Делается вывод о том, что искусственный интеллект повышает эффективность обучения при его грамотной интеграции в образовательный процесс.*

The rapid evolution of digital technologies has fundamentally transformed contemporary education systems, and artificial intelligence has emerged as one of the most influential innovations within this transformation. Artificial intelligence is generally defined as the ability of computer systems to simulate human cognitive functions such as reasoning, learning, perception, and language processing (Russell & Norvig, 2016). In language education, AI technologies function not merely as supplementary digital tools but as intelligent systems capable of analyzing learner data, predicting learning patterns, and generating adaptive instructional pathways.

Language learning is a multifaceted process that encompasses cognitive development, social interaction, emotional engagement, and cultural competence. From a cognitive perspective, effective acquisition occurs when learners actively process linguistic input, form meaningful associations, and receive immediate corrective feedback (Anderson, 1983). AI systems facilitate this process by offering interactive digital environments where learners can practice grammar, vocabulary, listening, speaking, reading, and writing skills while receiving instant responses. Immediate feedback plays a crucial role in preventing the reinforcement of incorrect language patterns and supports long-term retention.

Constructivist theory further explains the pedagogical value of artificial intelligence in language learning. According to Bruner (1966), knowledge is constructed through active participation and contextualized experience. AI-powered conversational agents create simulated communicative contexts in which learners

engage in dialogue resembling authentic interaction. Through Natural Language Processing, machines interpret semantic structures, analyze syntactic patterns, and generate contextually appropriate responses (Jurafsky & Martin, 2020). This interaction fosters communicative competence and pragmatic awareness.

Sociocultural theory, particularly Vygotsky's concept of the Zone of Proximal Development, also provides a theoretical justification for adaptive AI systems (Vygotsky, 1978). Machine learning algorithms analyze learner performance and dynamically adjust content complexity. By presenting tasks slightly above the learner's current proficiency level, AI systems maintain optimal cognitive challenge and sustain motivation. This dynamic scaffolding mirrors the supportive guidance traditionally provided by teachers.

One of the most transformative contributions of artificial intelligence is the personalization of learning. Traditional classroom models often rely on standardized curricula that cannot fully address individual differences in learning speed, prior knowledge, cognitive style, and motivation. AI-driven platforms utilize learning analytics to tailor instruction according to individual progress. Personalized learning environments increase engagement and reduce anxiety, particularly among learners who may struggle in competitive classroom settings.

Automated assessment represents another significant advancement. Conventional language evaluation is often subjective and time-intensive. AI-based systems employ sophisticated algorithms to evaluate written texts for grammatical accuracy, lexical diversity, coherence, and structural organization. Automated speech analysis measures pronunciation accuracy, fluency rate, and intonation patterns. Such systems enhance reliability, minimize human bias, and allow for continuous formative assessment, which is essential for skill development (Woolf, 2009).

Artificial intelligence also strengthens learner autonomy and self-regulation. Modern learners increasingly depend on digital platforms that enable flexible, self-paced study. AI applications provide progress tracking, personalized recommendations, and gamified motivational mechanisms. Research in educational psychology indicates that self-directed learning improves intrinsic motivation and long-term achievement (Deci & Ryan, 2000). AI systems support this autonomy by offering structured guidance without eliminating learner independence.

Pronunciation training has significantly improved through speech recognition technologies. Many language learners face persistent difficulties in mastering phonological features, particularly when their native language differs substantially from the target language. AI-based pronunciation tools provide phoneme-level analysis and corrective feedback, helping learners refine articulation and prosody. Repeated practice in a low-anxiety digital environment increases confidence and communicative competence.

The inclusive potential of artificial intelligence is particularly noteworthy. Learners with visual, auditory, or physical impairments often encounter obstacles in traditional classroom settings. AI technologies such as text-to-speech converters, speech-to-text transcription systems, and real-time translation tools enhance accessibility. These innovations promote equitable participation and align with

global educational policies supporting inclusive learning environments (Holmes et al., 2019).Despite its advantages, artificial intelligence raises complex ethical and pedagogical concerns. Excessive reliance on AI may reduce opportunities for authentic human interaction, which remains central to language acquisition. Communicative competence involves not only grammatical accuracy but also cultural sensitivity, empathy, and pragmatic awareness. While AI simulates conversation, it cannot fully replicate the depth of human communication.

Data privacy constitutes another major challenge. AI platforms collect extensive user data to improve personalization algorithms. Protecting sensitive information and ensuring transparent data usage policies are essential responsibilities of educational institutions and technology developers. Failure to address these concerns may undermine trust in AI-enhanced education systems. Algorithmic bias presents additional risks. AI systems are trained on large datasets that may reflect cultural or linguistic imbalances. If training data lack diversity, feedback may become skewed or culturally insensitive. Developers must implement rigorous testing procedures to ensure fairness and inclusivity.

The integration of artificial intelligence also transforms the professional identity of teachers. Educators are no longer merely transmitters of knowledge but designers of learning ecosystems. They must critically evaluate digital tools, interpret learning analytics, and maintain pedagogical balance. Professional development programs are therefore essential for equipping teachers with digital literacy and AI-related competencies.

Looking forward, artificial intelligence is expected to integrate with emerging technologies such as virtual reality and augmented reality to create immersive linguistic environments. Learners may participate in simulated intercultural interactions that replicate authentic communicative settings. Predictive analytics may anticipate learner difficulties before they manifest, enabling preventive instructional intervention. Furthermore, advances in generative AI models are expanding possibilities for real-time dialogue creation, automated curriculum design, and intelligent content generation. However, maintaining academic integrity and preventing misuse of AI-generated content remain critical considerations. Educational institutions must develop clear policies to guide ethical usage.

In conclusion, artificial intelligence has fundamentally reshaped language education by introducing personalization, adaptive instruction, automated assessment, enhanced pronunciation training, learner autonomy, and inclusive accessibility. Its theoretical alignment with cognitive, constructivist, and sociocultural learning principles reinforces its pedagogical value. Nevertheless, responsible implementation is essential to address ethical challenges, protect data privacy, prevent algorithmic bias, and preserve meaningful human interaction. Artificial intelligence should be understood not as a replacement for educators but as a transformative partner that expands the possibilities of language learning in the digital age.

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XITOY TILINI O‘QITISHNI AN’ANAVIY VA RAQAMLI USULLARINING QIYOSIY TAHLILI

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Annotatsiya. *Maqolada xitoy tilini xorijiy til sifatida o‘qitishning an’anaviy va raqamli usullari hamda ularni zamonaviy ta’lim amaliyotiga integratsiya qilish istiqbollari kompleks tahlil qilinadi. Tadqiqot, ayniqsa, Osiyo davlatlarida xitoy tilini xorijiy til sifatida o‘rganishga bo‘lgan talabning ortib borishi sharoitida dolzarb hisoblanadi. Bu talab Xitoy bilan iqtisodiy va madaniy aloqalarning mustahkamlanishi hamda yangi texnologik imkoniyatlarni hisobga olgan holda o‘qitish metodikalarini modernizatsiya qilish zarurati bilan bog‘liq. Maqolada tilni tizimli o‘rganishga yo‘naltirilgan grammatika-tarjima metodi, og‘zaki nutqni rivojlantirishga qaratilgan to‘g‘ridan-to‘g‘ri (kommunikativ) metod, hamda ona tilining interferensiyasini yengib o‘tishga yordam beruvchi kontrastiv metod ko‘rib chiqiladi. Shuningdek, aralash ta’lim (blended learning), ya’ni auditoriya va onlayn formatlarni uyg‘unlashtirgan ta’lim, masofaviy ta’lim, interaktiv platformalar, геймификация va sun’iy intellekt asosidagi vositalar kabi raqamli texnologiyalarga alohida e’tibor qaratilgan.*

Kalit so‘zlar: *xitoy tili; o‘qitish metodlari; an’anaviy metodlar; raqamli texnologiyalar; aralash ta’lim; interaktiv ta’lim; sun’iy intellect.*

Аннотация. *В статье проводится комплексный анализ традиционных и цифровых методов преподавания китайского языка как иностранного, а также перспектив их интеграции в современную образовательную практику. Исследование особенно актуально в условиях растущего спроса на изучение китайского языка в странах Азии, что связано с укреплением экономических и культурных связей с Китаем и необходимостью модернизации методик обучения с учетом новых технологических возможностей. В работе рассматриваются грамматико-переводной метод, направленный на системное изучение языка, прямой (коммуникативный) метод для развития устной речи, а также контрастивный метод, помогающий преодолеть интерференцию родного языка. Особое внимание уделено цифровым технологиям, включая смешанное обучение (blended learning), дистанционное обучение, интерактивные платформы, геймификацию и инструменты на основе искусственного интеллекта.*

Ключевые слова: *китайский язык; методы преподавания; традиционные методы; цифровые технологии; смешанное обучение; интерактивное обучение; искусственный интеллект.*

Abstract. *This article provides a comprehensive analysis of traditional and digital methods for teaching Chinese as a foreign language, as well as prospects for their integration into modern educational practice. The study is particularly relevant given the growing demand for Chinese language learning in Asian countries, driven by strengthened economic and cultural ties with China and the need to modernize teaching methodologies with new technological capabilities. The article examines the grammar-translation method, focused on systematic language learning; the direct (communicative) method for developing oral skills; and the contrastive method, which helps overcome native language interference. Special attention is given to digital technologies, including blended learning (combining classroom and online formats), distance learning, interactive platforms, gamification, and AI-based tools.*

Keywords: *Chinese language; teaching methods; traditional methods; digital technologies; blended learning; interactive learning; Artificial Intelligence.*

Kirish. So‘nggi yillarda O‘zbekistonda xitoy tilini o‘rganishga qiziqish sezilarli darajada ortib bormoqda. Bu holat Xitoy bilan iqtisodiy va siyosiy

aloqalarning mustahkamlanishi hamda madaniy almashinuvning kengayishi bilan bog‘liq. Texnologiyalarning rivojlanishi (onlayn platformalar, mobil ilovalar, ta’limiy saytlar) ta’lim samaradorligini oshirish uchun yangi imkoniyatlarni yaratmoqda. Biroq mavjud metodikalar ko‘pincha xitoy tilining o‘ziga xos xususiyatlarini va Xitoy madaniyatining jihatlarini yetarli darajada hisobga olmaydi.

Shu sababli xitoy tilini xorijiy til sifatida o‘qitishning samarali metodlarini o‘rganish dolzarb vazifalardan biri hisoblanadi. O‘zbekistonda bu masala yetarli darajada tadqiq etilmagan bo‘lib, ko‘plab o‘qituvchilar raqamli texnologiyalardan foydalanish bo‘yicha ilmiy asoslangan yondashuvlar yetishmasligini his qilmoqdalar. An’anaviy metodlar ko‘pincha o‘quv materiallari bilan cheklangan bo‘lib, ularda leksika, tinglab tushunish va talaffuzni mashq qilish uchun yetarli topshiriqlar mavjud emas. Shu sababli optimal natijalarga erishish uchun ularni raqamli vositalar bilan boyitish zarur.

Mazkur maqolaning maqsadi — xitoy tilini o‘qitishning an’anaviy va raqamli metodlarini qiyosiy tahlil qilish, ularning kuchli va zaif tomonlarini aniqlash hamda ularni integratsiya qilish istiqbollarini belgilashdan iborat.

Xitoy tilini o‘qitishning an’anaviy usullari. O‘qitish metodi — bu o‘qituvchi va o‘quvchilar o‘rtasidagi o‘zaro hamkorlik usuli bo‘lib, u bilim, ko‘nikma va malakalarni uzatish hamda o‘zlashtirishga qaratilgan. O‘qitish metodlari ta’lim jarayonining asosiy elementlaridan biri bo‘lib, uning samaradorligi va natijadorligini belgilaydi [1]. Ular qo‘yilgan ta’limiy vazifalar bilan ularni amalga oshirish o‘rtasidagi bog‘liqlikni ta’minlaydigan tartibli harakatlar tizimini ifodalaydi.

I. F. Xarlamov o‘qitish metodlarini pedagogning ish usullari hamda talabalar o‘quv-bilish faoliyatini tashkil etish yo‘llari sifatida ta’riflaydi. Bu usullar turli didaktik vazifalarni hal etish va o‘rganilayotgan materialni o‘zlashtirishga qaratilgan [2].

O‘qitish metodlari — bu ta’lim jarayonini tashkil etish va uni samarali qilishga yordam beradigan vositalardir. Zamonaviy ta’lim jarayoni nuqtai nazaridan qaraganda, o‘qitish metodlari o‘quvchilarda bilim va ko‘nikmalarni shakllantirishda muhim rol o‘ynaydigan asosiy omil hisoblanadi. Ular doimo rivojlanib boradi hamda o‘zgarib borayotgan ijtimoiy, madaniy va texnologik sharoitlarga moslashib boradi.

Metod — bu aniq tuzilgan harakatlar algoritmi bo‘lib, u umumiy maqsadga erishish uchun pedagog va o‘quvchilarning sa’y-harakatlarini birlashtiradi. U ta’lim jarayonining ajralmas qismi sifatida qo‘yilgan vazifa bilan yakuniy natija o‘rtasidagi bog‘liqlikni ta’minlaydi [3].

Zamonaviy chet tillarni o‘qitish metodikasida klassik yondashuvlar alohida o‘rin tutadi. Ular orasida eng muhimlari ***grammatika-tarjima metodi, kommunikativ metod*** hamda ***kontrastiv metod*** hisoblanadi. Tilni tizimli o‘rganishga asoslangan grammatik-tarjima yondashuvi til tuzilmalarini chuqur o‘zlashtirishga qaratilgan asosiy metodikalardan biridir [4].

Mazkur metodning mohiyati o‘quvchilarda grammatik konstruksiyalarni tahlil qilish orqali til tizimini yaxlit tushunishni shakllantirish hamda mantiqiy fikrlashni rivojlantirishdan iborat. Xitoy tiliga nisbatan qo‘llanganda bu yondashuv ayniqsa muhim ahamiyat kasb etadi, chunki u murakkab til hodisalarini tizimlashtirish

imkonini beradi. Asosiy e’tibor yozma nutqqa, grammatik qoidalarni batafsil tahlil qilishga hamda tarjima amaliyotiga qaratiladi. Bu esa o‘quv materialini ongli ravishda o‘zlashtirishga yordam beradi.

Metodikaning o‘ziga xos jihati ikki tilli leksik ro‘yxatlardan foydalanish hamda grammatikani o‘rganishda deduktiv yondashuvni qo‘llashdan iborat. Bunda o‘quvchilar avvalo umumiy qoidalar bilan tanishadilar, so‘ngra ularni amaliyotda qo‘llashni o‘rganadilar. Bunga ko‘p tarkibli vaqt va joy holi kabi murakkab grammatik konstruksiyalarni o‘rganish yorqin misol bo‘la oladi. O‘qitish jarayonining muhim tarkibiy qismi iyerogliflarning tuzilishini tahlil qilish bo‘lib, bunda ular tarkibiy qismlarga ajratilib, keyinchalik yod olinadi.

Grammatik-tarjima metodi an’anaviy bo‘lishiga qaramay, xitoy tilini o‘qitishda hanuz dolzarb metod hisoblanadi. Chunki u til me’yorlarini mustahkam o‘zlashtirishni ta’minlaydi hamda o‘quvchilarning analitik fikrlash qobiliyatini rivojlantiradi. Uning tizimli xarakteri, ayniqsa, xitoy tilining murakkab jihatlari bilan ishlashda muhim ahamiyatga ega, chunki bu jihatlar til qonuniyatlari va tuzilma xususiyatlarini ongli ravishda tushunishni talab qiladi [4]. Zamonaviy kommunikativ yondashuvlar bilan uyg‘unlashtirilganda, u tilning ham nazariy, ham amaliy jihatlarini hisobga olgan muvozanatli o‘qitish tizimini yaratish imkonini beradi.

O‘qitish metodlari ta’lim jarayonining asosini tashkil etadi va uning samaradorligini belgilaydi. Grammatik-tarjima, to‘g‘ridan-to‘g‘ri (kommunikativ) va kontrastiv metodlar kabi an’anaviy metodlar til tuzilmasi, tarjima, yozma nutq hamda grammatik konstruksiyalarni tahlil qilishga qaratilgan. Ular xitoy tilini o‘rganishda keyingi ko‘nikmalarni egallash uchun zarur asosni yaratadi [5].

Xitoy tilini o‘qitishning an’anaviy metodlari o‘qituvchi va o‘quvchining hamkorlikda ishlashiga, yangi o‘quv materialini o‘zlashtirishga hamda didaktik vazifalarga erishishga yordam beradigan vositalar hisoblanadi. An’anaviy metodlarga quyidagilar kiradi: grammatik-tarjima metodi, to‘g‘ridan-to‘g‘ri (kommunikativ) metod va kontrastiv metod.

Grammatik-tarjima metodi “tilni turli darajadagi til birliklari va ularning tuzilishi hamda muloqotda qo‘llanish qoidalaridan iborat tizim sifatida o‘zlashtirishga” qaratilgan [6]. Ushbu metod doirasida xitoy tilidagi gap tuzilishini tahlil qilish va namuna asosida o‘z gaplarini tuzishga qaratilgan mashqlar qo‘llanadi. O‘quv materiali o‘quvchilarning ona tilida berilgan leksik va grammatik qoidalar hamda izohlar ko‘rinishida taqdim etiladi. Qoidalarni mustahkamlash uchun turli til mashqlari qo‘llaniladi. O‘qitishning asosiy vositalari matnlar va audio yozuvlar hisoblanadi [7].

Grammatik-tarjima metodini qo‘llashga misol sifatida darslarda Lyu Syu nahriri ostida chop etilgan ***“Yangi amaliy xitoy tili kursi”*** darsligidan foydalanish mumkin [8]. Ushbu darslik grammatik qoidalar, ularni mustahkamlashga qaratilgan mashqlar, dars matnlari, lug‘at, leksik va grammatik qoidalar, iyerogliflarning tahlili hamda o‘rganilgan materialni mustahkamlash uchun yakuniy mashqlarni o‘z ichiga oladi.

Ta’lim jarayonining rivojlanishi natijasida *to‘g‘ridan-to‘g‘ri (kommunikativ) metod* paydo bo‘ldi. Xitoy tilini o‘rganishda ushbu metodning asosiy maqsadi

og‘zaki nutq va tinglab tushunish ko‘nikmalarini rivojlantirish hamda ularni keyinchalik muloqot va amaliy faoliyatda qo‘llashdan iborat. Grammatik-tarjima metodidan farqli ravishda, to‘g‘ridan-to‘g‘ri metod qo‘llanilganda darslar xitoy tilida, ko‘pincha ona tilida so‘zlashuvchi o‘qituvchilar tomonidan olib boriladi [9].

To‘g‘ridan-to‘g‘ri (kommunikativ) metodga misol sifatida o‘quv jarayoniga xitoy tilida nashr etilgan darsliklarni joriy etishni ko‘rsatish mumkin. Bunday darsliklar pinyinli va pinyinsiz xitoycha matnlar hamda so‘zlarning izohlarini o‘z ichiga olgan xitoycha-xitoycha lug‘atni o‘z ichiga oladi. Bu metodda xitoy tilining grammatikasi matnlarni o‘qish orqali, ya’ni induktiv tarzda o‘rganiladi. O‘qitishning asosiy vazifalaridan biri esa ona tilida so‘zlashuvchiga yaqin bo‘lgan to‘g‘ri talaffuzni shakllantirishdir.

Kontrastiv metod xitoy tilini o‘rganish jarayonini yengillashtirish maqsadida xitoy tili bilan o‘quvchilarning ona tili o‘rtasidagi o‘xshashlik va farqlarni aniqlash hamda tahlil qilishga asoslanadi. Bu metod xitoy tilining turli jihatlarini — grammatika, iyeroglif yozuvi, leksika va og‘zaki nutqni o‘rganishda qo‘llaniladi.

Kontrastiv metodni ta’lim jarayoniga joriy etish o‘quvchilarga tillar o‘rtasidagi farqlarni tushunishga yordam beradi. Shu orqali ular ona tilidagi andozalarni o‘rganilayotgan tilga to‘g‘ridan-to‘g‘ri ko‘chirib bo‘lmasligini anglaydilar, chunki xitoy tili ularning ona tilidan farqli tarzda faoliyat yuritadi. Ushbu metod ona tilining ta’siri bilan bog‘liq keng tarqalgan xatolarni, masalan, noto‘g‘ri so‘z tartibi yoki artikulyatsiya xatolarini oldini olishga yordam beradi. Kontrastiv metoddan foydalanish har bir talabaning ona tilining o‘ziga xos xususiyatlarini hisobga olishni talab qiladi.

Xitoy tilini o‘qitishning an’anaviy metodikasi asosan til kompetensiyasini shakllantirishga qaratilgan. Biroq bu yondashuv erkin muloqot qilish ko‘nikmalarini to‘liq ta’minlay olmaydi. Hozirgi bosqichda asosiy e’tibor kommunikativ-nutqiy faoliyatga qaratilmoqda. Bunday yondashuv til faoliyati va kommunikativ nutq faoliyatining o‘zaro chambarchas bog‘liqligini talab qiladi [10].

Xitoy tilini o‘qitishning an’anaviy metodlari samaradorligini qiyosiy baholash shuni ko‘rsatdiki, har bir metodning o‘z afzalliklari va kamchiliklari mavjud. Eng mos metodni tanlash o‘qitish maqsadlariga, o‘quvchilarning tayyorgarlik darajasiga hamda mavjud resurslarga bog‘liq. Grammatik-tarjima metodi grammatikani chuqur o‘rganishga qaratilgan bo‘lsa, to‘g‘ridan-to‘g‘ri (kommunikativ) metod og‘zaki nutq ko‘nikmalarini rivojlantiradi, kontrastiv metod esa xitoy tili bilan o‘quvchilarning ona tili o‘rtasidagi farqlar bilan bog‘liq qiyinchiliklarni yengib o‘tishga yordam beradi.

Raqamli metodlar va ularning zamonaviy ta’limdagi roli. XXI asrda ta’lim tizimi katta o‘zgarishlarni boshdan kechirmoqda va unga ilg‘or texnologiyalar faol joriy etilmoqda. Hozirgi vaqtda axborotlashtirish ta’lim jarayonining ajralmas qismiga aylangan. Marina Yefimovna Vayndorf-Sisoyeva raqamli metodlarga quyidagicha ta’rif beradi:

“Raqamli ta’lim metodlari — bu o‘qituvchi va o‘quvchilarning aniq maqsadga (kutilayotgan natijaga) erishish uchun ma’lum vazifani hal qilishga qaratilgan tashkil etilgan o‘zaro hamkorligi bo‘lib, u raqamli ta’lim muhiti vositalari

yordamida voqelikni amaliy yoki nazariy jihatdan o‘zlashtirish usullari va operatsiyalari majmuasidan iborat” [11].

XXI asrda ta’lim tizimi sezilarli darajada o‘zgarib, ilg‘or texnologiyalarni faol ravishda joriy etmoqda. Axborotlashtirish ta’lim jarayonining ajralmas qismiga aylandi. M.E. Vayndorf-Sisoyeva ta’rifiga ko‘ra, raqamli ta’lim metodlari — bu ma’lum maqsadga erishish uchun o‘qituvchi va o‘quvchilarning raqamli vositalar yordamidagi o‘zaro hamkorligidir. Shunday qilib, raqamli metodlar turli raqamli texnologiyalar yordamida o‘quv materialini samarali o‘zlashtirish uchun qo‘llaniladi.

Zamonaviy raqamli o‘qitish metodlariga ***aralash (blended) ta’lim***, ***masofaviy ta’lim, interaktiv ta’lim, geyimifikatsiya*** hamda ***sun’iy intellekt (AI)dan foydalanish*** kiradi.

Aralash ta’lim an’anaviy va raqamli metodlarni birlashtiradi hamda materialni auditoriyada ham, onlayn tarzda ham turli vositalar yordamida o‘rganish imkonini beradi; Masofaviy ta’lim esa raqamli vositalar yordamida dunyoning istalgan nuqtasidan turib ta’lim olish imkoniyatini taqdim etadi; Geymifikatsiya o‘quvchilarning motivatsiyasi va faol ishtirokini oshirish maqsadida raqobat elementlaridan foydalanadi; Sun’iy intellektdan foydalanish esa ta’lim jarayonini individuallashtirish, ya’ni har bir o‘quvchining ehtiyojlari va darajasiga moslashtirish imkonini beradi [12].

Xitoy tilini o‘rganishda aralash (blended) ta’lim

Xitoy tilini o‘rganishda aralash ta’lim — bu an’anaviy o‘qitish usullarini zamonaviy raqamli texnologiyalar bilan uyg‘unlashtiruvchi innovatsion yondashuv hisoblanadi. Mazkur yondashuv doirasida talabalar nafaqat auditoriya sharoitida, balki onlayn muhitda ham ta’lim olish imkoniyatiga ega bo‘ladilar. Raqamli vositalar va resurslardan foydalanish orqali o‘quvchilar o‘qish jarayonini yanada samarali tashkil etishlari mumkin.

Aralash ta’lim modeli xitoy tilidagi autentik materiallarga — video, audio yozuvlar, maqolalar va kitoblarga keng kirish imkonini yaratadi. Bu esa o‘quvchilarga tilni nafaqat grammatik jihatdan, balki uning madaniy va ijtimoiy kontekstida ham chuqurroq anglashga yordam beradi.

Interaktiv ta’lim

Interaktiv ta’lim usuli xitoy tilini o‘rganishda turli interaktiv vositalar va resurslardan foydalanishni nazarda tutadi. Ushbu yondashuv talaffuz, o‘qish, yozish va tinglab tushunish ko‘nikmalarini rivojlantirishga qaratilgan turli mashqlarni o‘z ichiga oladi. Natijada o‘qitish jarayoni yanada kompleks va samarali tus oladi.

Interaktiv mashqlar orqali o‘quvchilar tilni o‘zlashtirish darajasini oshiradilar. Bunday mashqlar onlayn platformalar va mobil ilovalarda keng taqdim etilgan bo‘lib, ular orasida Du Chinese, ChineseSkill, ChineseClass101, TalkChineasy, Popup Chinese va Mandarin Monkey kabi ilovalarni keltirish mumkin.

Masofaviy ta’lim

Masofaviy ta’lim usuli talabalar uchun o‘qishni masofadan turib, turli onlayn platformalar va resurslar yordamida amalga oshirish imkonini beradi. Ushbu yondashuv ayniqsa oliy ta’lim muassasalarida keng qo‘llanilib, xitoy tilini o‘rganishga mo‘ljallangan kurslarni tashkil etishda samarali hisoblanadi.

Ko‘plab onlayn kurslar interaktiv ta’lim elementlarini o‘z ichiga olgan holda, o‘quv dasturlariga maxsus platformalar va trenajyorlarni joriy etadi. Bu esa o‘tilgan mavzularni mustahkamlash va amaliy ko‘nikmalarni rivojlantirishga xizmat qiladi. Zamonaviy ta’lim tizimida masofaviy ta’limning ommalashuvi sinxron (real vaqt rejimidagi) va asinxron (mustaqil o‘rganish asosidagi) ta’lim shakllarining keng qo‘llanishi bilan izohlanadi.

Ta’lim jarayonini geymifikatsiya qilish. Ta’lim jarayonini geymifikatsiya qilish — bu o‘yin elementlari va musobaqa mexanizmlarini noan’anaviy (o‘yin bo‘lmagan) o‘quv vaziyatlariga joriy etish orqali talabalarni rag‘batlantirish va ularning o‘quv jarayoniga jalb etilish darajasini oshirishga qaratilgan metod hisoblanadi.

Mazkur yondashuv doirasida turli topshiriqlar, mukofotlar va reyting tizimlari qo‘llanilib, xitoy tilini o‘rganish jarayoni yanada qiziqarli, interaktiv va motivatsion tus oladi. O‘quvchilar o‘rtasida tashkil etiladigan o‘yin musobaqalari va turnirlar ularning bilim olishga bo‘lgan qiziqishini oshiradi hamda yuqori natijalarga erishishga undaydi.

Geymifikatsiya jarayonida samarali qayta aloqa (feedback) muhim ahamiyatga ega. Tizim va o‘qituvchi tomonidan taqdim etiladigan tezkor va aniq fikr-mulohazalar o‘quvchilarga xatolarini tuzatish va ko‘nikmalarini takomillashtirish imkonini beradi.

Xitoy tilini o‘rganishda geymifikatsiya elementlaridan foydalanuvchi ilovalar qatoriga Duolingo, Memrise, Rosetta Stone, HelloChinese va LinGo Play kabi platformalarni kiritish mumkin.

Sun’iy intellekt (SI) — inson miyasi faoliyatini modellashtiruvchi texnologiya bo‘lib, xorijiy tillarni o‘rganish jarayoniga sezilarli ta’sir ko‘rsatadi. Uning qo‘llanilishi adaptiv o‘qitish, chat-botlar va o‘quv o‘yinlarini o‘z ichiga oladi. Adaptiv o‘qitish, masalan, Duolingo va HelloChinese ilovalarida qo‘llanilib, o‘quvchining xatolarini tahlil qiladi va uning darajasiga mos mashqlarni taklif etadi. Chat-botlar, jumladan Xiaoice va XiaoIce, muloqotni imitatsiya qilish orqali til o‘rganishga xizmat qiladi hamda ierogliflarni tanib olish funksiyasini qo‘llab-quvvatlaydi. SI asosidagi o‘yinlar esa o‘qitishni yanada qiziqarli qiladi, masalan LingoDeer va Lingokids.

Raqamli vositalardan foydalanish. Hozirgi kunda xitoy tilini o‘qitishda zamonaviy raqamli metodlarni amalga oshirish uchun turli xil raqamli vositalardan keng foydalanilmoqda. Ushbu vositalar yordamida qiziqarli o‘quv materiallarini yaratish, testlar tuzish, infografikalar ishlab chiqish hamda audio va video kontentdan foydalanish imkoniyati mavjud.

Raqamli vositalardan foydalanishning asosiy maqsadi — o‘quv jarayoniga zamonaviy texnologiyalarni joriy etish, o‘quvchilarning akademik rivojlanishi va yutuqlarini monitoring qilish, shuningdek, o‘rganilgan mavzularni takrorlash, tahlil qilish va amaliyotda qo‘llash orqali ularning xitoy tiliga bo‘lgan qiziqishini oshirishdan iborat.

Xitoy tilini o‘rganish uchun raqamli vositalar turlari. Raqamli vositalarni quyidagi asosiy kategoriyalarga ajratish mumkin: *Interaktiv ilovalar*: Du Chinese, ChineseSkill; *Raqamli lug‘atlar va o‘quv materiallari*: Cidian.ru elektron lug‘ati

ierogliflarni o‘rganishni osonlashtiradi; *Audio podkastlar*: ChineseClass101, TalkChineasy til muhitiga chuqurroq kirib borishga yordam beradi

Masofaviy ta’lim va raqamli vositalar. Zamonaviy xitoy tili o‘qituvchilari masofaviy ta’lim metodiga tobora ko‘proq murojaat qilmoqdalar, chunki ushbu yondashuv an’anaviy ta’lim sharoitida har doim ham mavjud bo‘lmagan keng imkoniyatlarni taqdim etadi. Xitoy tilini samarali masofaviy o‘qitishda turli raqamli vositalardan foydalaniladi, jumladan: onlayn ta’lim platformalari, interaktiv o‘quv materiallarini yaratish vositalari, hamkorlik uchun mo‘ljallangan vositalar (onlayn doskalar), mobil ilovalar, ta’limiy ma’lumotlar bazalari va kutubxonalar, videoservislar hamda kontekstual raqamli vositalar.

Xitoy ierogliflarini o‘rganishda Moodle, Blackboard, Skillspace va Stepik kabi onlayn platformalar qo‘llaniladi. Ushbu platformalar stilus va grafik planshet yordamida ierogliflarni yozish imkonini beradi. Shuningdek, ular viktorinalar, moslashtirish o‘yinlari, so‘z qidirish va krossvordlar kabi turli mashq shakllarini taklif etadi.

Fonetik ko‘nikmalarni rivojlantirishda HelloChinese, Du Chinese, Laoshi va Super Chinese kabi mobil ilovalardan foydalaniladi. Ushbu ilovalar ovozni aniqlash funksiyasi orqali tonlar, ritmika va intonatsiyani mashq qilish imkonini beradi.

Grammatika va leksikani o‘rganishda interaktiv o‘quv materiallarini yaratish vositalari, masalan, Wordwall va LearningApps qo‘llaniladi. Guruhli mashg‘ulotlarda esa hamkorlik vositalari — Miro, Flip, Holst kabi onlayn doskalar yordamida matnlar tahlil qilinadi va real vaqt rejimida tarjima ishlari olib boriladi.

Interaktiv ta’lim metodlari. Interaktiv ta’lim — bu o‘quvchining o‘quv muhiti bilan faol o‘zaro aloqasiga asoslangan ta’lim shakli bo‘lib, u o‘zlashtirilayotgan tajriba maydoni sifatida xizmat qiladi. Xitoy tilini interaktiv o‘qitishda o‘quvchilarning faol ishtiroki muhim ahamiyatga ega.

Mazkur metodda asosiy e’tibor o‘quvchilarning o‘quv materiallari, o‘qituvchi va boshqa o‘quvchilar bilan o‘zaro hamkorligiga qaratiladi. Interaktiv ta’lim shakllari quyidagilarga bo‘linadi: muhokama (diskussiya); o‘yin shakli; treninglar.

Ushbu metod o‘quv-bilish, kommunikativ-rivojlantiruvchi va ijtimoiy yo‘naltiruvchi vazifalarni samarali amalga oshirish imkonini beradi.

O‘quv-bilish vazifalarini bajarishda Trainchinese va Pleco kabi onlayn lug‘atlar qo‘llanilib, ular ierogliflarning yozilish tartibini animatsiya orqali ko‘rsatadi. Talaffuzni rivojlantirish uchun esa ChineseEar kabi ilovalar ishlatiladi.

Kommunikativ ko‘nikmalarni rivojlantirishda trening va muhokama shakllari qo‘llanilib, ular til to‘sig‘ini yengishga va o‘ziga ishonchni oshirishga yordam beradi.

Ijtimoiy yo‘naltirilgan vazifalarni amalga oshirishda ta’limiy ma’lumotlar bazalari, videoservislar va autentik kontentdan foydalanish muhim rol o‘ynaydi. Xitoy tilidagi filmlar va seriallarni tomosha qilish, musiqa tinglash va adabiyot o‘qish o‘quvchilarning madaniy dunyoqarashini kengaytiradi hamda boshqa madaniyatlarga nisbatan hurmatni shakllantiradi.

Sun’iy intellektdan foydalanish. Zamonaviy sun’iy intellekt tizimlari ta’lim jarayonini transformatsiya qilib, har bir o‘quvchiga individual yondashuvni

ta’minlaydi. Xususan, ChatGPT va YandexGPT kabi intellektual chat-botlar xitoy tilini o‘rganishda keng imkoniyatlar yaratadi.

Ushbu platformalar foydalanuvchilarga o‘rganilayotgan tilda savollar berish va darhol javob olish imkonini beradi. Muhim funksiyalardan biri — ieroglif yozuvini tanib olish bo‘lib, bu to‘liq til muhitida muloqot qilish imkonini beradi.

Sun’iy intellektning asosiy afzalliklari quyidagilardan iborat: o‘quv materiallarini individual darajaga moslashtirish (adaptivlik); o‘qitish parametrlarini nozik sozlash imkoniyati (mavzu, grammatika); turli xil mashqlarni avtomatik generatsiya qilish (bo‘shliqlarni to‘ldirish, gap tuzish, leksik tahlil).

Bundan tashqari, avtomatik tekshiruv va xatolarni tahlil qilish funksiyasi o‘quvchilarning mustaqil ishlash samaradorligini sezilarli darajada oshiradi.

Xulosa. Tahlillar shuni ko‘rsatadiki, hech bir o‘qitish metodi universal emas. Eng yuqori samaradorlik an’anaviy va raqamli texnologiyalarni birlashtirgan gibrid yondashuv orqali ta’minlanadi.

Tadqiqot davomida an’anaviy (ma’ruzalar, mashqlar, darsliklar bilan ishlash) va raqamli metodlar (onlayn platformalar, mobil ilovalar, interaktiv vositalar, sun’iy intellekt) tahlil qilindi. Har bir yondashuvning afzalliklari va kamchiliklari aniqlanib, ularning imkoniyat va cheklovlari to‘liq yoritildi.

Natijalar shuni ko‘rsatdiki, an’anaviy metodlar tizimlilik va mustahkam bilim asosini ta’minlasa, raqamli metodlar moslashuvchanlik, interaktivlik va keng resurslarga kirish imkonini beradi. Ushbu yondashuvlarni uyg‘unlashtirish orqali zamonaviy ta’lim talablariga javob beruvchi samarali o‘quv dasturlarini ishlab chiqish mumkin. Bu esa ta’lim sifatini oshirib, xitoy tilini o‘rganish jarayonini yanada samarali va ommabop qiladi.

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ECOLOGICAL TERMS AND THEIR SPECIFIC FEATURES IN LINGUISTICS

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Abstract. *This study explores the linguistic characteristics and semantic features of ecological terms in modern English. The paper analyzes how ecological vocabulary reflects the interaction between language and environmental awareness, as well as the processes of term formation, metaphorization, and cultural influence. The results show that ecological terminology demonstrates a high degree of interdisciplinarity and dynamic semantic development, reflecting global ecological discourse and societal concerns about sustainability.*

Key words: *terms, ecology, semantic, discourse, linguistics, translation, environmental, concept, metaphor;*

Annotatsiya. *Ushbu tadqiqot zamonaviy ingliz tilidagi ekologik atamalarning lingvistik va semantik xususiyatlarini o‘rganishga bag‘ishlangan. Maqolada ekologik leksikaning til va ekologik ong o‘rtasidagi o‘zaro ta’sirni, shuningdek, atama yasalishi, metaforalashuv hamda madaniy ta’sir jarayonlarini qay tarzda aks ettirishi tahlil qilinadi. Natijalar shuni ko‘rsatadiki, ekologik terminologiya fanlararo xususiyatning yuqori darajasini va dinamik semantik rivojlanishni namoyon etib, global ekologik diskursni hamda jamiyatning barqarorlik borasidagi tashvishlarini ifodalaydi.*

Kalit so‘zlar: *termin, ekologiya, semantika, diskurs, tilshunoslik, tarjima, ekologik, konsep, metafora;*

Аннотация. *В настоящем исследовании рассматриваются лингвистические и семантические особенности экологических терминов в современном английском языке. В статье анализируется, каким образом экологическая лексика отражает взаимосвязь языка и экологического сознания, а также процессы терминообразования, метафоризации и культурного влияния. Результаты показывают, что экологическая терминология демонстрирует высокую степень междисциплинарности и динамичное семантическое развитие, что является отражением глобального экологического дискурса и озабоченности общества проблемами устойчивого развития.*

Ключевые слова: *термины, экология, семантика, дискурс, лингвистика, перевод, окружающая среда, концепт,метафора*.

1. Introduction. In recent decades, ecological issues have become central in global communication, leading to the rapid development of environmental terminology. The language of ecology not only names phenomena of nature and environmental science but also mirrors human attitudes toward the environment. The study of ecological terms within linguistics allows us to understand how language responds to global environmental changes and how new concepts emerge and evolve.

Ecological terms such as biodiversity, carbon footprint, climate neutrality, and sustainable development are increasingly used in scientific, media, and everyday contexts. However, the linguistic mechanisms behind their formation and semantic evolution remain underexplored. Therefore, the aim of this research is to identify and analyze the specific linguistic features of ecological terms in English.

2. **Methods.** The study applies descriptive, comparative, and semantic analysis methods.

• A corpus of 100 ecological terms was collected from academic articles, environmental reports, and English-language media sources such as The Guardian, National Geographic, and Scientific American.

• Each term was analyzed according to its morphological structure, semantic type, and conceptual metaphor.

• Comparative analysis was used to trace shifts in meaning and usage across contexts, focusing on interdisciplinary influences from biology, climatology, and sociology.

3. Results

3.1 Morphological Features

Most ecological terms are compound words or derived forms:

• Compounds: greenhouse gas, rainforest destruction, carbon footprint

• Derived forms: environmentalism, sustainability, pollution-free

Prefixes such as eco-, bio-, and re- frequently appear, e.g., eco-friendly, biodegradable, reforestation, signaling the environmental domain and actions toward restoration or conservation.

3.2 Semantic Features

Ecological terms are characterized by broad semantic fields and context-dependency. For example:

• Green energy may refer to renewable sources or symbolize political/ecological ideology.

• Carbon neutrality carries both scientific and moral connotations.

The meanings of many terms expand metaphorically, linking physical phenomena with social or moral values (e.g., ecological footprint representing human impact).

3.3 Conceptual Metaphors

The study identifies key ecological metaphors such as:

• "The Earth as a living organism" (e.g., planet's health, Earth's fever)

• "Nature as a system" (e.g., balance of ecosystems, breaking the cycle)

• "Human impact as damage or disease" (e.g., environmental degradation, toxic waste)

These metaphors make scientific ideas accessible to the public and shape ecological awareness through language.

4. Discussion. The analysis demonstrates that ecological terminology reflects a linguistic response to global environmental discourse. The dynamic formation of new terms corresponds to evolving scientific discoveries and changing societal priorities. Ecological language serves both communicative and ideological functions—it informs, persuades, and mobilizes action.

Moreover, the metaphorical and emotionally charged nature of ecological terms bridges the gap between scientific and lay communication.

Terms like green economy or climate crisis not only describe phenomena but also influence public perception and policy debates.

From a linguistic perspective, ecological terminology illustrates processes of neologization, semantic shift, and cultural adaptation, confirming the interrelation between language, thought, and the environment.

5. Conclusion. Ecological terms in modern linguistics represent an expanding and dynamic layer of vocabulary reflecting human interaction with the natural world. Their features include morphological creativity, metaphorical richness, and interdisciplinarity. Further research could focus on cross-linguistic comparisons (e.g., English and Uzbek ecological terms) or the role of media discourse in spreading ecological vocabulary.

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PROMPT-BASED MEANING FORMATION AND CREATIVE AGENCY IN GENERATIVE SYSTEMS WITHIN JOURNALISTIC PRACTICE

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Abstract: *The rapid integration of generative AI (GenAI) into journalism is transforming news production from a human-centered process into a hybrid human–machine collaboration, reshaping meaning formation and creative agency. This paper identifies prompt-based interaction as the key mechanism driving these changes, enabling journalists to co-construct content, narrative framing, and factual grounding with probabilistic systems. Drawing on distributed agency and journalistic norms, it analyzes core prompt design techniques, such as role, recursive, retrieval-augmented generation, and chain-of-thought prompting, demonstrating how they support traceable meaning construction and strategic agency.*

Keywords: *generative AI, prompt engineering, meaning formation, creative agency, journalistic practice, hybrid collaboration.*

Annotatsiya. *Generativ sun'iy intellektning (GenAI) jurnalistikaga tezkor integratsiyasi yangiliklar ishlab chiqarishni inson markazli jarayondan gibrid inson–mashina hamkorligiga aylantirib, ma'no shakllanishi va ijodiy agentlikni qayta ko'rib chiqmoqda. Ushbu maqolada bu o'zgarishlarni boshqaruvchi asosiy mexanizm sifatida promptga asoslangan interaktivlik aniqlanadi, bu orqali jurnalistlar probabilistik tizimlar bilan kontent, hikoya ramkalari va faktlarga asoslangan materiallarni birgalikda yaratish imkoniga ega bo'ladilar. Ta'qsimlangan agentlik va jurnalistik me'yorlarga tayanib, maqolada asosiy prompt dizayn texnikalari — rol, rekursiv, retrival-augmented generation va chain-of-thought prompting — tahlil qilinadi, shuningdek, ular qanday qilib izlanadigan ma'no yaratish va strategik agentlikni qo'llab-quvvatlashini ko'rsatadi.*

Kalit so'zlar: *generativ sun'iy intellekt, prompt muhandisligi, ma'no shakllanishi, ijodiy agentlik, jurnalistik amaliyot, gibrid hamkorlik.*

Аннотация. *Быстрая интеграция генеративного искусственного интеллекта (GenAI) в журналистику преобразует производство новостей из ориентированного на человека процесса в гибридное сотрудничество человека и машины, изменяя формирование смысла и творческую активность. В статье выделяется взаимодействие на основе промптов как ключевой механизм этих изменений, позволяющий журналистам совместно создавать контент, формировать повествование и обосновывать факты с использованием вероятностных систем. Опираясь на концепцию распределённого агентства и журналистские нормы, анализируются основные техники проектирования промптов — роль, рекурсивные, retrieval-augmented generation и chain-of-thought prompting — и демонстрируется, как они поддерживают прослеживаемое формирование смысла и стратегическую активность.*

Ключевые слова: *генеративный искусственный интеллект, проектирование промптов, формирование смысла, творческая активность, журналистская практика, гибридное сотрудничество.*

The rapid integration of generative artificial intelligence (GenAI) systems into journalistic workflows has fundamentally transformed the processes of news production, shifting from traditional human-centric authorship to hybrid human-machine collaborations[12]. At the heart of this transformation lies prompt-based

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interaction, wherein journalists craft precise textual instructions (prompts) to elicit outputs from large language models (LLMs) and multimodal GenAI tools. This prompt engineering practice serves as a pivotal site for meaning formation, where semantic content, narrative framing, factual grounding, and tonal nuance emerge not solely from the journalist's intent but through iterative co-construction between human input and stochastic AI generation[13]. Such dynamics challenge conventional notions of creative agency in journalism, traditionally understood as the autonomous exercise of editorial judgment, originality, and ethical responsibility[14]. Instead, agency becomes distributed: journalists transition from primary creators to orchestrators who guide, refine, and constrain AI outputs, potentially augmenting creativity through enhanced ideation and efficiency while risking dilution via over-reliance on algorithmic patterns or loss of serendipitous insight[15].

Central to this reconfiguration is the strategic design of prompts, which functions as the principal mechanism through which journalists exert influence over GenAI outputs and navigate the tensions between augmentation and erosion of professional autonomy. Prompt design techniques, ranging from role assignment and structured reasoning to iterative refinement and knowledge grounding, merit close consideration because they embody the micro-level practices that shape macro-level shifts in meaning formation and agency distribution. By deliberately structuring inputs to encode journalistic norms, constrain probabilistic variation, enhance transparency, and anchor outputs in verifiable sources, these techniques allow practitioners to maintain ethical and editorial oversight amid the inherent unpredictability of generative systems[16]. Addressing such techniques is therefore indispensable for comprehending how journalists adapt to hybrid workflows, reclaim elements of creative control, and mitigate risks such as factual drift or normative dilution. The following sections explore key prompting strategies in this context, illustrating their role in facilitating intentional, traceable, and norm-aligned co-construction of journalistic meaning while highlighting implications for professional identity and practice.

Prompt design, often termed prompt engineering in contemporary scholarship, constitutes a burgeoning literacy within hybrid human-AI journalistic workflows, enabling practitioners to systematically shape generative outputs while negotiating the interplay between human intent and algorithmic indeterminacy[17]. Far from mere technical optimization, these techniques represent deliberate interventions in the co-generative process: they encode professional norms,

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structure reasoning pathways, mitigate epistemic risks such as hallucination, and delineate boundaries of agency to preserve journalistic authorship and ethical accountability. In the context of meaning formation, prompt strategies transform stochastic generation into more intentional, traceable semantic construction; in terms of creative agency, they reposition journalists as strategic orchestrators capable of augmenting rather than ceding control to generative systems[18]. The following delineates key techniques adapted and applied within journalistic contexts, drawing on established practices to illustrate their mechanisms and implications for professional practice.

Role Prompting. Role prompting involves assigning the generative system a specific professional persona or expertise, such as "You are an experienced editor of a national newspaper with a focus on investigative rigor and ethical standards." This technique directly influences meaning formation by imbuing the AI's output with domain-specific conventions, tonal consistency, and normative frameworks typical of journalism, thereby allowing journalists to partially reclaim agency by projecting their professional identity onto the system[19]. In practice, role prompting mitigates generic or hallucinated responses, fostering outputs that more closely align with editorial intent and reducing the stochastic drift that might otherwise undermine creative control[20].

One-Shot Prompting. One-shot prompting provides a single exemplar within the instruction to demonstrate the desired format, structure, or style, for instance, "Here is an example of the format of the pitches I want: [example pitch]." This method supports meaning formation by constraining the generative process to mimic established journalistic templates (e.g., story pitches or headlines), thereby enhancing predictability and preserving the journalist's agency in shaping output conventions without exhaustive iteration[21]. It bridges human creative direction and AI execution, particularly useful in time-sensitive newsroom contexts where format fidelity is paramount.

Recursive Prompting. Recursive prompting entails iterative refinement through feedback loops, such as "Ideas 3 and 4 are good. Give me more like that," enabling successive adjustments to prior outputs. This technique exemplifies dynamic meaning formation as an emergent, dialogic process between journalist and system, wherein agency is redistributed across cycles of critique and regeneration[22]. It mirrors traditional editorial revision while introducing new layers of distributed creativity, allowing journalists to sculpt meaning progressively and maintain oversight amid GenAI's probabilistic nature[23].

Retrieval-Augmented Generation (RAG). Retrieval-augmented generation integrates external, journalist-curated knowledge sources into the prompt, for example, "Factor in the following new information: [retrieved facts/sources]." By

[18] Cools, 2024; Shi, 2024.
[19] Cools, 2024; Shi, 2024.
[20] Cools, 2024; Shi, 2024.
[21] Bradshaw, 2025.

[22] Bradshaw, 2025.
[23] Bradshaw, 2025.

grounding outputs in verifiable data, RAG addresses hallucination risks inherent to standalone LLMs, thereby strengthening factual meaning formation and reinforcing journalistic agency through human-mediated knowledge injection [24]. In news production, this technique shifts creative control toward accuracy and source transparency, aligning GenAI outputs more closely with professional verification norms[25].

Chain-of-Thought (CoT) Prompting. Chain-of-thought prompting instructs the system to articulate intermediate reasoning steps, such as "Let's think this through step-by-step..." before delivering a final response. This approach enhances interpretability and logical coherence in complex journalistic tasks (e.g., data analysis or claim verification), facilitating traceable meaning formation and augmenting agency by exposing the model's reasoning pathway for editorial scrutiny[26]. It promotes transparency, mitigating opaque "black-box" generation and supporting journalists' ethical responsibility for output integrity[27].

Meta-Prompting. Meta-prompting positions the system as an expert in prompt design itself, for instance, "You are an expert in prompt design. Suggest a prompt for..." This higher-order technique empowers journalists to refine their own prompting strategies iteratively, representing an evolution in creative agency toward meta-level orchestration of human-AI collaboration[28]. It fosters adaptive meaning-making literacy, enabling practitioners to optimize interactions for specific journalistic goals.

Negative Prompting. Negative prompting explicitly constrains undesired behaviors, such as "Do not suggest further actions or do more than I have asked." By setting boundaries, this technique safeguards journalistic intent and prevents output drift, thereby preserving agency in delimiting the scope of meaning formation [29]. It underscores the journalist's role as gatekeeper, ensuring GenAI remains a tool subservient to professional priorities rather than an autonomous expander of content.

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[24] Allaham, 2024; Bradshaw, 2025
[25] Cools, 2024.
[26] Allaham, 2024.
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[28] Bradshaw, 2025.
[29] Allaham, 2024

TIL TA’LIMI VA GUMANITAR FANLARDA SUN’IY INTELLEKT

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Annotatsiya: *Ushbu maqolada zamonaviy til ta’limi va gumanitar fanlar tizimida sun’iy intellekt (SI) texnologiyalarini qo‘llashning metodologik asoslari tadqiq etiladi. Muallif neyrotarmoqlar va tabiiy tilni qayta ishlash (NLP) modellarining talabalar nutqiy kompetensiyasini rivojlantirishdagi o‘rnini ilmiy tahlil qiladi. Shuningdek, maqolada gumanitar soha tadqiqotchilari uchun SI vositalaridan foydalanish bo‘yicha amaliy tavsiyalar va etik chegaralar yoritilgan.*

Kalit so‘zlar: *sun’iy intellekt, neyrotarmoqlar, NLP (tabiiy tilni qayta ishlash) shaxsiylashtirilgan ta’lim, lingvistik korpus.*

Abstract: *This article examines the methodological foundations for applying artificial intelligence (AI) technologies in modern language education and the system of the humanities. The author provides a scholarly analysis of the role of neural networks and natural language processing (NLP) models in developing students’ speech competence. The article also outlines practical recommendations and ethical boundaries for researchers in the humanities when using AI tools.*

Keywords*: artificial intelligence, neural networks, NLP (natural language processing), personalized learning, corpus linguistic.*

Kirish qism. XXI asrning 30-yillariga kelib, axborot texnologiyalari nafaqat texnik sohalarni, balki insoniyat tafakkurining asosi hisoblangan gumanitar fanlar va til ta’limining tizimini ham tubdan o‘zgartirmoqda. Xususan, sun’iy intellekt (SI) algoritmlarining rivojlanishi til o‘rganish metodikasida “o‘qituvchi – darslik – talaba” klassik uchligiga yangi va qudratli “intellektual hamkor”ni olib kirdi.

Bugungi kunda generativ modellar (masalan, ChatGPT, Claude, Gemini) va neyrotarmoqlarga asoslangan tarjima platformalari til o‘rganuvchilar uchun doimiy virtual yordamchi va o‘qituvchi vazifasini bajarmoqda. Sun’iy intellekt vositalari talabalarning mustaqil fikrlash qobiliyatiga qanday ta’sir qiladi? Gumanitar fanlar tadqiqotchilari katta hajmdagi ma’lumotlarni tahlil qilishda algoritmlarga qanchalik ishonishi mumkin?

1. Ta’lim tizimida SI: nazariy va metodologik asoslar

1.1. Tabiiy tilni qayta ishlash va uning lingvodidaktik ahamiyati

Zamonaviy til ta’limining asosi hisoblangan sun’iy intellekt texnologiyalari, asosan,

Tabiiy tilni qayta ishlash (Natural Language Processing - NLP) sohasidagi yutuqlarga tayanadi. NLP — bu kompyuterlarga inson tilini tushunish, talqin qilish va ishlab chiqish imkonini beruvchi fanlararo soha hisoblanadi.

Ma’lumki, til o‘rganish jarayoni to‘rtta asosiy ko‘nikmani: tinglab tushunish, gapirish, o‘qish va yozishni o‘z ichiga oladi. SI algoritmlari ushbu kompetensiyalarni rivojlantirishda turlicha metodologik vazifalarni bajaradi. Masalan, nutqni tanish texnologiyalari talabaning talaffuzidagi xatolarni real vaqt

rejimida aniqlab, unga tuzatishlar kiritadi. Bu esa o‘qituvchi bilan yuzma-yuz muloqot qilishdan tortinadigan talabalar uchun "psixologik qulay" muhit yaratadi. Yozish ko‘nikmasida ham esse, maqola va mustaqil ish mavzularini SI yordamida mukammal holatga keltirishlari osonlashdi.

1.2. Adaptiv ta’lim va shaxsiylashtirilgan yondashuv

SIning ta’limdagi eng katta inqilobi — bu **Adaptiv o‘qitish** modelidir. An’anaviy metodikada o‘qituvchi o‘rtacha bir darajadagi guruh uchun dars o‘tadi, biroq SI algoritmlari har bir talabaning o‘zlashtirish tezligi va qiyinchilik nuqtalarini tahlil qiladi. Shuning uchun ham ko‘plab talaba yoshlar dars tayyorlash jarayonida SIga ko‘p murojaat qilishadi.

N. Chomskyning generativ grammatika nazariyasiga tayanadigan bo‘lsak, inson tili cheksiz jumlalar yaratish qobiliyatiga ega. Bugungi kunda generativ sun’iy intellekt aynan shu nazariyaning amaliy namunasi sifatida namoyon bo‘lmoqda. **ChatGPT, Claude** va boshqa modellar talaba bilan muloqotga kirishib, uning xatolarini "Sokratik uslubda" (savol berish orqali xatoni o‘ziga topdirish) tuzatish imkonini bermoqda.

1.3. Nazariy manbalarga tayanish

Olimlar **S. P. Corder** va **L. Selinker** tomonidan ilgari surilgan "Interlanguage" (oraliq til) nazariyasiga ko‘ra, til o‘rganuvchi xato qilishi tabiiy jarayondir. SI tizimlari ushbu "oraliq til" bosqichidagi xatolarni statistik tahlil qilib, o‘quvchiga aynan qaysi grammatik mavzuda (masalan, o‘zbek tilidagi egalik qo‘shimchalari yoki ingliz tilidagi artikllar) muammosi borligini aniq ko‘rsatib beradi.

Shuningdek, **B. Holmes** va **J. Tuomi** kabi tadqiqotchilar o‘zlarining "Learning and AI" (2022) asarida ta’kidlaganidek, SI o‘qituvchi o‘rnini bosish uchun emas, balki o‘qituvchini vaqtni ko‘p oladigan texnik ishlardan (mashqlarni tekshirish, lug‘at yodlatish) ozod qilish uchun xizmat qiladi. Bu esa pedagogga darsning ijodiy va motivatsion qismiga ko‘proq e’tibor qaratish imkonini beradi.

2. Gumanitar fanlarda “Digital humanities” va SI integratsiyasi

2.1. Arxiv materiallari va qo‘lyozmalarni raqamlashtirish.

Gumanitar soha tadqiqotchilari uchun eng katta muammo — qadimiy qo‘lyozmalar va arxiv hujjatlarini o‘qishdir. Sun’iy intellektning **HTR (Handwritten Text Recognition - Qo‘lyozma matnni tanish)** texnologiyalari inson ko‘zi ilg‘ashi qiyin bo‘lgan, o‘chib ketgan yoki murakkab xattotlik uslubidagi matnlarni tahlil qilish imkonini bermoqda.

G. Bodard va **S. Mahony** kabi olimlar o‘zlarining "Digital Classics" (2020) asarida ta’kidlaganidek, SI yordamida epigrafik yodgorliklarni (toshbitiklar) qayta tiklash jarayoni 10 baravar tezlashgan. Bu esa tarixchi va arxeologlarga ming yillik matnlarni bir necha daqiqada zamonaviy alifboga o‘tkazish imkonini beradi.

2.2. Stilometriya va adabiyotshunoslikda algoritmlar tahlili

Adabiyotshunoslikda sun’iy intellektning **Stilometriya** (matn uslubini matematik tahlil qilish) usuli mualliflik huquqini aniqlashda (attributsiya) inqilob yasadi. Masalan, SI algoritmlari ma’lum bir adibning so‘z boyligi, gap tuzish shakllari va ishlatgan imlo qoidalarini tahlil qilib, anonim asarning haqiqiy muallifini 95-98% aniqlik bilan topa oladi.

Ushbu yo‘nalishda **Frank Morettin**ing "Uzoqdan turib o‘qish" (Distant Reading) nazariyasi muhim ahamiyatga ega. Moretti an’anaviy "yaqindan o‘qish" (bitta asarni sinchiklab tahlil qilish) o‘rniga, minglab asarlarni SI yordamida bir vaqtda tahlil qilishni taklif etadi. Bu esa adabiy jarayonlardagi global tendensiyalarni, janrlar o‘zgarishini va mavzular rivojlanishini aniqlash imkonini beradi.

2.3. Madaniyatshunoslik va ijtimoiy tahlil

Gumanitar fanlarning yana bir tarmog‘i — ijtimoiy tilshunoslik va madaniyatshunoslikda SIning **Sentiment Analysis (Hissiy tahlil)** algoritmlari keng qo‘llanilmoqda. Ushbu modellar yirik ijtimoiy guruhlarning matnli ma’lumotlarini (masalan, ijtimoiy tarmoqlardagi postlar yoki tarixiy kundaliklar) tahlil qilib, ma’lum bir davr yoki voqeaga nisbatan jamiyatning hissiy munosabatini aniqlaydi.

Lev Manovich o‘zining "Cultural Analytics" (Madaniy tahlil) asarida ta’kidlashicha, sun’iy intellekt yordamida millionlab tasvirlar va matnlarni statistik tahlil qilish orqali biz insoniyat madaniyati qanday rivojlanayotganini ob’ektiv ko‘rishimiz mumkin. Bu esa gumanitar fanlarning sub’ektivlikdan uzoqlashib, aniq faktlar va raqamlarga tayanishiga xizmat qiladi.

3. O‘zbek tili korpusi va sun’iy intellekt integratsiyasi muammolari

3.1. Lingvistik korpus — SI “tafakkuri”ning asosi

Har qanday sun’iy intellekt modeli sifatli ma’lumotlar bazasiga tayanadi. **A.Rahimov** va **A.Po‘latov** kabi o‘zbek kompyuter tilshunosligi asoschilari ta’kidlaganidek, milliy til korpusi nafaqat matnlar to‘plami, balki tilning grammatik, semantik va morfologik qoidalarini o‘zida jamlagan intellektual tizimdir.

Hozirgi vaqtda o‘zbek tilidagi ma’lumotlar bazasi shakllanib bormoqda, biroq jahon tillari bilan solishtirganda "raqamli uzilish" (digital divide) ko‘zga tashlanadi. SI o‘zbek tilidagi gaplarni tahlil qilishda ko‘pincha agglyutinativlik (qo‘shimchalar qo‘shilishi) xususiyatini to‘liq hisobga olmaydi, bu esa tarjima va tahrir jarayonida xatoliklarga olib keladi.

3.2. Kam resursli tillar muammosi va neyrotarmoqlar

Xalqaro tadqiqotlarda o‘zbek tili ko‘pincha kam resursli til toifasiga kiritiladi. Bu degani, internet segmentida o‘zbek tilidagi sifatli ilmiy va badiiy matnlar hajmi yetarli emas. **N. Jumabayeva** kabi tadqiqotchilarning fikricha, sun’iy intellekt o‘zbek tilini mukammal o‘zlashtirishi uchun nafaqat zamonaviy matnlar, balki mumtoz adabiyot va shevaga xos xususiyatlarni ham o‘z ichiga olgan ko‘p ma’lumotlar bilan oziqlanishi lozim.

3.3. Mashina tarjimasi va semantik muammolar

Google Translate yoki ChatGPT o‘zbek tiliga tarjima qilishda ko‘pincha so‘zma-so‘z tarjima usulidan foydalanadi. Bu esa o‘zbek tilining o‘ziga xos frazeologizmlari va iboralari mazmunini buzib ko‘rsatadi. Masalan, "boshi osmonga yetdi" iborasini SI ko‘pincha jismoniy harakat sifatida talqin qilishi mumkin. Bu muammoni hal qilish uchun neyrotarmoqlarga o‘zbek tili mentaliteti va lingvokulturologiyasini o‘rgatish zarur.

4. Ilmiy- amaliy tavsiyalar

4.1. O‘quv dasturlariga "Raqamli gumanitar fanlar" modulini kiritish

Hozirgi vaqtda tilshunoslik va tarix yo‘nalishi talabalari nafaqat o‘z sohasini, balki ma’lumotlar bilan ishlash texnologiyalarini ham bilishlari shart. Tavsiya etiladiki, filologiya fakultetlarida **SIga to‘g‘ri so‘rov yuborish** va **Kompyuter lingvistikasi** fanlari amaliy mashg‘ulotlar sifatida tashkil etilsin. Bu talabalarga SIdan shunchaki tayyor matn olish uchun emas, balki tilni chuqur tahlil qilish vositasi sifatida foydalanishga o‘rgatadi.

4.2. O‘qituvchilarning SI savodxonligini oshirish

Pedagoglar sun’iy intellektni o‘zlariga raqib emas, balki yordamchi sifatida ko‘rishlari lozim. Shu maqsadda o‘qituvchilar uchun maxsus malaka oshirish kurslarini tashkil etish zarur. **B. Holmes** ta’kidlaganidek, o‘qituvchi SI tomonidan tekshirilgan testlar va insholardan bo‘shagan vaqtini talaba bilan individual ishlashga va darsning kreativ qismiga sarflashi lozim.

4.3. Milliy lingvistik bazani boyitish

O‘zbek tilining sun’iy intellekt dunyosida o‘z o‘rniga ega bo‘lishi uchun davlat darajasida o‘zbek tili bazasini yaratish loyihasini kengaytirish kerak. Bu bazaga nafaqat kitoblar, balki jonli so‘zlashuv nutqi, shevalar va terminologik lug‘atlar kiritilishi shart. Bu ChatGPT kabi tizimlarning o‘zbek tilida xatosiz gapirishini va milliy mentalitetimizni tushunishini ta’minlaydi.

4.4. Akademik halollik va etika nazorati

Ta’lim muassasalarida sun’iy intellekt yordamida yozilgan ishlar va talabaning mustaqil ijodi o‘rtasidagi chegarani belgilovchi huquqiy-etik qoidalar ishlab chiqilishi kerak. Bu borada SI yozgan matnni aniqlovchi dasturlardan foydalanish va talabalarda akademik halollik madaniyatini shakllantirish muhimdir.

5. Xulosa

Xulosa qilib aytganda, sun’iy intellekt gumanitar fanlar va til ta’limi uchun xavf emas, balki ulkan imkoniyatlar eshigidir. SIning joriy etilishi ta’limni shaxsiylashtirish, o‘qituvchi mehnatini optimallashtirish va murakkab lingvistik tadqiqotlarni soniyalar ichida amalga oshirish imkonini beradi. Biroq, texnologik taraqqiyot inson omilini, xususan, ustozning ma’naviy-tarbiyaviy rolini inkor etmasligi kerak. Zero, til — bu faqat axborot almashish vositasi emas, balki milliy ruh va madaniyatning tashuvchisidir. Uni asrash va zamonaviy texnologiyalar bilan boyitish — kelajak ta’limining ustuvor yo‘nalishi bo‘lib qoladi.

Foydalanilgan adabiyotlar ro‘yxati:

1. O‘zbekiston Respublikasi Prezidentining 2021-yil 17-fevraldagi “Sun’iy intellekt texnologiyalarini joriy etish bo‘yicha shart-sharoitlar yaratish chora-tadbirlari to‘g‘risida”gi PQ-4996-son qarori.
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GLOBALLASHUV SHAROITIDA TIL TA’LIMI VA GUMANITAR FANLARNING RIVOJLANISH MUAMMOLARI

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Annotatsiya *Ushbu maqolada globallashuv jarayonining til ta’limi va gumanitar fanlarga nisbatan ta’sirini, ularning rivojlanish yo‘lidagi asosiy muammolari va ushbu muammolarga nisbatan amaliy yechimlar tahlil qilinadi. Maqolada milliy til va madaniy o‘zlikni saqlab qolish bilan global integratsiyani uyg‘unlashtirish zaruriyati asoslab beriladi.*

Kalit so‘zlar: *globallashuv, til ta’limi, gumanitar fanlar, milliy o‘zlik, raqamli transformatsiya.*

Abstract. *This article examines the impact of globalization on language education and the humanities, analyzing the main challenges in their development and practical solutions to these issues. The study emphasizes the necessity of harmonizing global integration with the preservation of national language and cultural identity.*

Keywords: *globalization, language education, humanities, national identity, digital transformation.*

Аннотация. *В статье рассматривается влияние глобализации на языковое образование и гуманитарные науки, анализируются основные проблемы их развития и практические решения этих проблем. Обосновывается необходимость сочетания глобальной интеграции с сохранением национального языка и культурной идентичности.*

Ключевые слова: *глобализация, языковое образование, гуманитарные науки, национальная идентичность, цифровая трансформация.*

Kirish. Globallashuv – zamonaviy sivilizatsiyaning eng muhim va ko‘p qirrali hodisalaridan biri bo‘lib, u insoniyatning iqtisodiy, ijtimoiy, siyosiy va madaniy hayotiga chuqur ta’sir ko‘rsatmoqda. Bu jarayon, bir tomondan, xalqlar o‘rtasidagi muloqot va hamkorlik imkoniyatlarini kengaytirsa, ikkinchi tomondan, milliy tillar, madaniyat va gumanitar fanlarning mavjudligiga jiddiy tahdid solmoqda. Olimlar globallashuvni ko‘pincha «*ikki tomonlama qilich*» sifatida ta’riflashadi: u ham imkoniyat, ham xatar manbai hisoblanadi [1]. Til ta’limi va gumanitar fanlar globallashuv sharoitida o‘ziga xos sinov oldida turibdi. Dunyo miqyosida ingliz tilining hukmronligi kuchayib borayotgani, raqamli texnologiyalarning jadal rivojlanishi va ta’lim tizimlarining bozor talablariga bo‘ysinishi natijasida gumanitar fanlar tobora «ikkinchi darajali» yo‘nalish sifatida qabul qilinmoqda. Bunday holat nafaqat 275edagogic275m275, balki ma’naviy-madaniy jihatdan ham xavflidir. Shu boisdan ushbu maqola globallashuv sharoitida til ta’limi va gumanitar fanlarning muammolarini, ularning ildizlarini aniqlash va amalga oshirish mumkin bo‘lgan ba’zi yechimlarni taklif etishga bag‘ishlanadi.

Bugungi kunda ingliz tili de facto xalqaro muloqot tili «*lingua franca*» sifatida barqarorlashib bormoqda. Britaniyalik tilshunos David Crystal o‘zining fundamental asarida ta’kidlaganidek: «Biron bir til tarixda hech qachon bu qadar qisqa vaqt 275edago bu qadar keng tarqalmagan» [2]. Haqiqatan ham, so‘nggi ma’lumotlarga ko‘ra, dunyo bo‘yicha 1,5 milliarddan ziyod kishi ingliz tilidan

foydalanadi, shundan faqat 380 millioni uning ona tilida so‘zlashuvchidir [2]. Bu holat milliy tillar, jumladan o‘zbek tili kabi rivojlanayotgan tillar uchun jiddiy muammo tug‘diradi. Tilshunos Robert Phillipson «lingvistik 276edagogic276m» nazariyasida ingliz tilining kengayishini siyosiy va iqtisodiy kuchlar bilan uzviy bog‘liq holda ko‘rib chiqadi. Uning fikricha, bu jarayon tasodifiy emas, balki maqsadli va tizimli ravishda amalga oshirilmoqda [3]. Natijada, ko‘plab mamlakatlarda oliy ta’limda ilmiy nashrlar va dissertatsiyalar asosan ingliz tilida yozila boshlagan, bu esa ona tilidagi ilmiy tafakkurni zaiflashtirmoqda. UNESCO ma’lumotlariga ko‘ra, hozirda dunyodagi 7.000 dan ortiq tildan kamida 43 foizi yo‘qolib ketish xavfi ostida turibdi. Bu raqam nafaqat lingvistik, balki madaniy yo‘qotishni ham anglatadi, chunki har bir til o‘zida betakror dunyoqarash, bilim tizimi va madaniy xotirani mujassamlashtiradi [4]. Globallashuv bilan birga kelib chiqqan “*bozor ta’limi*” paradigmasi gumanitar fanlarni iqtisodiy jihatdan “foydasiz” deb belgilaydi. Harvard faylasufi va ta’lim nazariyotchisi Martha Nussbaum bu holatni “Biz hozir ta’lim va ta’limning o‘zini nima uchun bermoqdamiz, degan savolga yo‘naltiruvchi inqirozni boshdan kechiryapmiz” deya ta’riflaydi [5]. Uning fikricha, gumanitar fanlarni yo‘q qilish demokratik fuqarolikni ham yo‘q qilishdir. Jahon bank ma’lumotlariga ko‘ra, 2000-yildan 2023-yilgacha bo‘lgan davrda rivojlanayotgan mamlakatlarda gumanitar va ijtimoiy fanlarga ajratiladigan byudjet ulushi o‘rtacha 18 foizdan 11 foizga tushib ketdi. Ayni paytda STEM (fan, texnologiya, muhandislik, matematika) yo‘nalishlari davlat tomonidan ustuvor yo‘nalish sifatida qo‘llab-quvvatlanmoqda [4]. Bu tendensiya talabalar soniga ham ta’sir ko‘rsatdi albatta. Ko‘plab Yevropa universitetlarida gumanitar fakultetlarga o‘qishga kirish 2010-yildan buyon 25-30 foizga kamaydi. O‘zbekistonda ham so‘nggi yillarda texnik va iqtisodiy mutaxassisliklarga talab ortib borayotgan holda, gumanitar yo‘nalishlar nisbiy inqirozga yuz tutmoqda. Zamonaviy raqamli texnologiyalar, sun’iy 276 edagogic va onlayn ta’lim platformalari til ta’limi va gumanitar fanlarni o‘qitish metodologiyasini tubdan o‘zgartirmoqda. Kanadalik media nazariyotchisi Marshall McLuhan bundan yarim asr avval “Medium – bu xabarning o‘zi” deb aytgan. Ya’ni o‘qitish vositasi ta’limning mazmunini ham shakllantirib beradi [1]. Muammo shundaki, raqamli vositalar ko‘pincha samarali qabul qilishni emas, balki tezkor iste’molni rag‘batlantiradi. Sun’iy 276 edagogic yordamida yozilgan matnlar, avtomatik tarjimon dasturlari va ChatGPT kabi texnologiyalar talabalarning chuqur til o‘rganish, tanqidiy tafakkur va mustaqil ijodiy yozish malakalarini pasaytirishi mumkin. Massachusets Texnologiya Institutining 2023-yildagi tadqiqotiga ko‘ra, AI vositalarini 276edagogic qo‘llaydigan talabalar uch oydan keyin o‘z mustaqil yozuv mahoratining 12 foizga pasayganini ko‘rsatdi [6]. Bundan tashqari, internet kontentining 55 foizdan ortig‘I ingliz tilida bo‘lgani, o‘zbek tilidagi raqamli resurslarning yetarli emasligi til ta’limidagi raqamli tafovutni (digital divide) chuqurlashtirmoqda. Milliy til va xalqaro tilni uyg‘unlashtiruvchi ikki tilli ta’lim modeli (bilingual education) jahon tajribasida samarali natijalar bermoqda. Kanadadagi fransuz-ingliz ikki tilli ta’lim tizimi, Finlyandiyadagi ko‘p tilli siyosat va Singapurdagi muvozanatli til siyosati bunga yorqin misol bo‘la oladi. O‘zbek ta’lim tizimida ingliz tilini chet tili sifatida sifatli o‘qitishni ta’minlash bilan birga,

barcha akademik fanlar o‘zbek tilida yuqori sifatda o‘qitilishi shart. Oliy ta’limda dissertatsiya va ilmiy ishlarning belgilangan qismi albatta o‘zbek tilida yozilishi majburiy qilinishi kerak. Bu Finlyandiyaning ona tilini ilmiy tilga aylantirish tajribasiga mos keladi. Gumanitar fanlarning zamonaviy ahamiyatini iqtisodiy-amaliy tilda ifodalash zarur. Bu borada Martha Nussbaum ishlab chiqqan «inson rivojlanishi» yondashuvi muhim asos bo‘la oladi. Bunga misol tanqidiy tafakkur, empatiya, fuqarolik ongini shakllantirish – bular gumanitar fanlarning eng muhim mahsulidir [5]. Google, Apple va Microsoft kabi yirik korporatsiyalarning so‘nggi tadqiqotlariga ko‘ra, eng muvaffaqiyatli xodimlari orasida muloqot qobiliyati, tanqidiy tafakkur va madaniyatlararo kompetentsiya (bularning barchasi gumanitar fanlarning mevalari) texnik ko‘nikmalar bilan bir qatorda, hatto ba’zan undan ustun deb baholanmoqda. Shu ma’noda, gumanitar ta’lim amaliy va iqtisodiy jihatdan ham zarurdir [6]. Gumanitar fanlar dasturlariga raqamli savodxonlik, ma’lumotlar tahlili va loyiha boshqaruvini integratsiya qilish lozim. Adabiyot darslarida media tanqidi, tarix darslarida geosiyosiy tahlil, falsafa darslarida ilmiy etika kabi amaliy yo‘nalishlar kiritilsa, ushbu fanlarning zamonaviy hayot bilan bog‘liqligi oshadi. Raqamli transformatsiyaga qarshi turish o‘rniga, uni milliy til va madaniyat manfaatlariga xizmat qildirish to‘g‘riroq bo‘ladi nazarimda. Bu borada Islandiya tajribasini e’tirof etsa arziydi. Islandiya kichik tilli mamlakat bo‘lishiga qaramay, rasmiy hukumat dasturlari orqali islandcha sun’iy 277edagogic modellari, ovozli yordamchilar va raqamli lug‘atlar yaratdi. Natijada islandcha internet kontenti sezilarli darajada oshdi [7]. O‘zbekistonda til texnologiyalari markazi tashkil etilishi, o‘zbek tili korpusi yaratilishi, o‘zbek tilidagi NLP (tabiiy tilni qayta ishlash) modellari ishlab chiqilishi strategik zaruriyatga aylangan. Bunday ishlar Estoniya, Chexiya va Vengriya kabi tillarda muvaffaqiyatli amalga oshirilgan. Sun’iy 277edagogic dars beruvchi «raqibdan» ona tilini boyituvchi «hamkorga» aylanishi mumkin.

Til ta’limi va gumanitar fanlar sifatining asosiy kafolati – malakali, motivatsiyalangan va zamonaviy metodologiyalardan xabardor o‘qituvchilardir. Nyu-Yorkdagi ta’lim islohoti tadqiqotchisi Linda Darling-Hammond o‘nlab mamlakatlar tajribasini tahlil qilib shunday xulosaga keladi “Ta’lim sifatini belgilovchi eng muhim omil – o‘qituvchi sifatidir. Barcha islohot yo‘llari shu nuqtaga borib taqaladi” [8]. O‘qituvchilarni muntazam qayta tayyorlash tizimini kuchaytirish, kommunikativ metodologiya (communicative language teaching), loyiha asosida o‘qitish (project-based learning) va tanqidiy pedagogika (critical pedagogy) usullarini keng joriy etish lozim. O‘qituvchilarning ish haqi va ijtimoiy maqomini oshirish ham motivatsiya jihatidan zarurdir. Globallashuv sharoitida til ta’limi va gumanitar fanlar oldidagi muammolar bir-biri bilan chambarchas bog‘liqdir. Lingvistik 277edagogic277m, gumanitar fanlarning marginallashuvi va raqamli transformatsiya – bularning barchasi bir tizimning turli ko‘rinishlaridir. Ularning tub ildizi ta’limning iqtisodiy samaradorlikka bo‘ysundirilishi va milliy-madaniy o‘zlikdan uzoqlashuvdir. Ammo bu hal qilish mumkin bo‘lgan muammolar. Yuqorida taklif etilgan choralar – ikki tilli ta’lim, gumanitar fanlar reformasi, raqamli til texnologiyalari va o‘qituvchi tayyorlash tizimini isloh qilish – hammasi alohida emas, balki yaxlit, tizimli siyosat sifatida amalga oshirilsa,

samarali natijalar berishi mumkin. O‘zbekiston uchun bu masala juda dolzarb bugungi kunda. Mamlakatimiz ham globallashuv oqimida o‘z milliy tilini, tarixi va madaniy merosini saqlab qolish hamda zamonaviy global talablarga javob berish o‘rtasidagi muvozanatni 278edagog zaruriyati bilan yuzlashmoqda. Bu muvozanat topilmasa, nafaqat lingvistik, balki milliy o‘zlik inqirozi ham yuz berishi mumkin.

Xulosa. Globallashuv sharoitida til ta’limi va gumanitar fanlarning rivojlanish muammolari tasodifiy emas balki zamonaviy sivilizatsiya tanlovining ta’siridir. Smaradorlikmi yoki ma’no, texnologiyami yoki insoniylik, global integratsiyami yoki milliy o‘zlik? Bu savollarga “yo-yo” emas, balki “ham-ham” javob berish mumkin. Milliy tilni saqlash va rivojlantirish global kommunikatsiyaga zid emas aslida. Gumanitar ta’limni kuchaytirish raqamli islohotlarga zid emas, madaniy o‘zlikni e’zozlash zamonaviy ilm-fanga zid emas. Bularni uyg‘unlashtira biladigan tizimli siyosat, ongli 278edagogic yo‘nalish va irodali ijtimoiy harakat bilan til ta’limi va gumanitar fanlar globallashuv sharoitida nafaqat omon qolishi, balki yangicha kuch bilan rivojlanishi mumkin. Kelajak avlodlar uchun mas’uliyatni his etgan har bir ta’limchi, siyosatchi va fuqaro uchun bu masala shunchaki akademik munozara emas milliy istiqbol haqidagi savol bo‘lishi kerak.

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THE ROLE OF AI IN ENHANCING ACADEMIC WRITING SKILLS: A NEW METHODOLOGICAL APPROACH FOR PHILOLOGY STUDENTS

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Annotatsiya: *Ushbu maqolada oliy ta'lim muassasining filolog talabalarining akademik yozuv ko'nikmasini shakllantirishda sun'iy intellektdan foydalanish imkoniyatlari ko'rib chiqildi. Mazkur tadqiqotda sun'iy intellektning o'rgatuvchi vazifalari uch bosqichda yoritib berildi. Shuningdek, sifatli natijaga erishish maqsadida promptlardan oqilona foydalanish misollar asosida ko'rib chiqildi. Tadqiqot natijalari shuni ko'rsatadiki, sun'iy intellekt shunchaki matn yaratuvchi mexanizm emas, balki u talabalarda tanqidiy fikrlash va ilmiy sezgirlikni oshirishda yordam beradi.*

Kalit so'zlar: *sun'iy intellekt, akademik yozuv, yozish bosqichlari, filologiya*

Abstract: *In this article, the opportunities of using artificial intelligence in writing academic text among philology students was analyzed. Instructional functions of AI were organized according to three stages and effective utilization of prompts was examined with examples in order to attain desirable results. The outcomes indicate that, artificial intelligence is not just text generator, it helps students to enhance critical thinking and scientific acumen.*

Key words: *artificial intelligence, academic writing, the process of writing, philology.*

An academic essay is a piece of writing that develops an argument, provides an opinion or explores a certain topic. This type of essay follows a format, which helps to convey the ideas of writers in a logical and persuasive manner. Academic writing plays a crucial role in higher education, since it boosts critical thinking, improves interaction skills and provides learners with the capability of presenting knowledge in a structures and coherent way. It is one of the most interactive and at the same time some complex activity, therefore nowadays, most of the students especially philologists struggle with this skill. Because students have to use academic and advanced vocabulary while they are writing in order to achieve successful work. As technology continues to develop, the concept of artificial intelligence, such as ChatGPT and gemini was appeared. AI can make writing easier and convenient. However, some learners accept it as an author, it is neither legally nor ethically justified. People should perceive artificial intelligence as not only error and grammar checker, but also as a tutor that teach writing. In this research, the role of AI in developing writing skills step by step through the various stages – from planning to editing is analyzed. The followings are process of effective writing with artificial intelligence:

- Pre-writing;
- Drafting;
- Reviewing and Editing

While writing academic text, the initial process of working with AI is pre-writing. Numerous students often have writer's block and AI is beneficial in this

situation, serving as an idea's generator. For instance, it can assist to make logical outline in certain topic. Philology students often have numerous ideas, but they face challenges with putting a sequence. AI structures given notion into rational hierarchy (Introduction – Body paragraphs – Conclusion). It helps students understand that the order in which they represent their proposition make their argument stronger. Furthermore, artificial intelligence teaches learners to look at subject from different branches or angles. It leads to improvement of worldview.

The next stage is drafting, essential part of writing skill. In this step, students write their own ideas, AI transforms text to academic version and can help to enrich the learner's vocabulary. Students usually use expressions that are common in daily communication, but academic writing requires advanced equivalent of these words. To illustrate that words like "good result", "big issues" can spoil the quality of scientific text. Instead of these expressions, AI offer "significant outcomes" or "formidable challenges". It demonstrates the value of language. Moreover, artificial intelligence is not just translator, but also, it is a tool for choosing synonyms and developing sentence complexity. Take "show" word as an example, AI chooses expressions that are appropriate to the particular context, such as "indicate", "illustrate", "reveal", "demonstrate". It contributes to enhance active vocabulary of student. Beside that, students are tend to make short and repeatable sentences within a text. AI illustrates the students how to turn several simple sentences into complicated and fluent statements using logical linking words. As a result, coherent and coherence of writing is enhanced.

The process of reviewing and editing is key section in writing. Analyzing grammatic and punctual errors in completed text is crucial and AI comes to help it. Artificial intelligence should explain students saying "Why do you make a mistake there?". With the help of answering this question, student will be aware of their flaws and avoid making such kind errors in next time.

The productive use of artificial intelligence on each stage depends on students capability to give precise, accurate prompt. For philology student, AI is not just searching system, but also intellectual partner that communicate. The followings are some useful prompts:

Script	Invalid prompt	Academic prompt	Outcome
Finding academic theories	Give me theories based on subject.	"I would like to write an academic text that examines (topic name). Based on published academic papers, please suggest what theoretical frameworks exist that I can use in the introduction for my study.	Helps identify academic theories relevant to your specific topic.
Introduction structure	Write introduction part for my work.	Act as an academic advisor. I would like to write a research paper that examines (topic name).	Provides a structured outline for writing an introduction.

		Based on published academic papers, please suggest the structure of the introduction and what I should write in every paragraph in order to craft an introduction for my work.	
Choosing a title	Give me a title for research	Suggest some interesting titles for my academic text on [specific subject]. In addition, it should be professional but engaging.	Helps suggest professional and engaging titles for your research.
Identifying literature gaps	Correct my mistake.	Can you help me identify the gaps in the current literature on [topic]? I need to point out areas where further research is required. In addition, suggest what methodological approaches I can use to fill the gaps in the literature.	Used to find "gaps" in current research to justify further study.

Students should know how to edit the text given by the artificial intelligence rather than just copying it. Using AI transforms student from passive user to active editor. When students follow instructions which are given above, they can achieve effective writing skills.

In conclusion, artificial intelligence technologies serve as an innovative tool in developing academic writing skills for philology students. The research indicates that, AI is not just text generator, but also it is virtual mentor in all stages of writing, from organizing to editing. When students possess methodological efficiency, instructional prompt competence and philological responsibility, writing academic texts become effective and easier.

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5-SHO‘BA. TA’LIMDA SUN’IY INTELLEKTNING HUQUQIY VA AXLOQIY MASALALARI.
SECTION 5. LEGAL AND ETHICAL ISSUES OF ARTIFICIAL INTELLIGENCE IN EDUCATION
5-СЕКЦИЯ. ПРАВОВЫЕ И ЭТИЧЕСКИЕ ВОПРОСЫ ИСПОЛЬЗОВАНИЯ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В ОБРАЗОВАНИИ.

UPHOLDING HUMAN RIGHTS AND ETHICS IN AI FOR CYBERSECURITY: A CALL TO ACTION

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Abstract. *The increasing integration of artificial intelligence (AI) into cybersecurity has fundamentally transformed the protection of digital systems, enabling real-time threat detection, predictive analytics, and large-scale data processing. However, this technological advancement raises critical concerns regarding the protection of human rights, ethical governance, and legal accountability. This paper examines the intersection of AI, cybersecurity, and human rights, arguing that AI in cybersecurity must be understood not merely as a technical tool, but as a socio-technical system with significant implications for individual freedoms and democratic values.*

The study adopts a human-centered approach, grounded in the principles of privacy, fairness, transparency, accountability, and respect for the rule of law. It explores the role of ethics as an anticipatory mechanism capable of identifying risks before they materialize into legal violations or systemic harm, and emphasizes the continued relevance of core ethical principles, including respect for persons, beneficence, justice, and public interest.

The paper situates its analysis within the framework of key international instruments, including the Universal Declaration of Human Rights, the European Convention on Human Rights, the General Data Protection Regulation (GDPR), the OECD AI Principles, the UNESCO Recommendation on the Ethics of Artificial Intelligence, the UN Guiding Principles on Business and Human Rights, and recent regulatory developments such as the Council of Europe Framework Convention on Artificial Intelligence and the EU AI Act. These instruments collectively establish a normative foundation requiring AI systems to operate in compliance with human rights and democratic standards.

Three primary challenges are identified. First, AI-driven cybersecurity systems raise significant risks for privacy and data protection due to their reliance on extensive data collection and behavioral analysis. Second, algorithmic bias and discrimination may result in unequal treatment, disproportionate surveillance, and erroneous risk classification. Third, the opacity of AI systems undermines transparency and accountability, particularly where automated decisions have tangible legal or social consequences.

In response, the paper argues for the development of robust governance frameworks incorporating risk-based approaches, human rights impact assessments, transparency mechanisms, and interdisciplinary collaboration. It concludes that the legitimacy and sustainability of AI in cybersecurity depend on its alignment with human rights, ethical principles, and the rule of law. Ultimately, effective cybersecurity must not only protect digital infrastructures, but also safeguard the dignity, rights, and trust of individuals within the digital environment.

Introduction. The rapid integration of artificial intelligence into cybersecurity has fundamentally reshaped the architecture of digital protection. What was once a predominantly reactive field—based on predefined rules and human-led analysis—has evolved into a predictive and data-intensive domain. AI systems are now capable of detecting anomalies, identifying threats in real time, and processing vast datasets with a level of speed and scale that would be unattainable for human operators alone.

Yet this transformation introduces a profound normative question: can systems designed to secure digital infrastructure simultaneously preserve the rights and freedoms of the individuals whose data they depend upon?

This paper proceeds from the premise that artificial intelligence in cybersecurity must not be understood solely as a technical instrument. Rather, it must be conceptualized as a socio-technical system embedded within legal, ethical, and political frameworks. The deployment of AI in this domain inevitably affects fundamental rights, including privacy, equality, and freedom of expression. As such, cybersecurity cannot be treated as an exceptional space in which ordinary legal and ethical constraints are suspended.

At the conceptual level, the relationship between ethics and human rights is central. Ethics, in this context, performs an anticipatory function. It allows institutions to identify risks before they crystallize into legal violations or systemic harm. Human rights, by contrast, provide a normative baseline—a set of minimum guarantees that must not be infringed, regardless of technological capability or operational convenience.

The ethical foundation of AI in cybersecurity can be articulated through four interrelated principles: respect for persons, beneficence, justice, and respect for law and the public interest. These principles require that individuals are not reduced to mere data points; that systems generate genuine protective value; that burdens and risks are not distributed unfairly; and that all technological interventions remain anchored in legal legitimacy.

The existing international framework already provides substantial guidance in this regard. The Universal Declaration of Human Rights and the European Convention on Human Rights establish core protections for privacy and freedom of expression. The General Data Protection Regulation further operationalizes these protections by imposing concrete obligations related to data processing, transparency, and accountability. Complementary instruments, such as the OECD AI Principles, the UNESCO Recommendation on the Ethics of Artificial Intelligence, and the UN Guiding Principles on Business and Human Rights, reinforce the expectation that AI systems must be human-centered, trustworthy, and subject to due diligence.

More recent developments, including the Council of Europe Framework Convention on Artificial Intelligence and the European Union's AI Act, signal a decisive shift from soft law to binding regulatory approaches. Together, these instruments reflect a growing international consensus: artificial intelligence, including its use in cybersecurity, must operate within a framework defined by human rights, democratic values, and the rule of law.

Within this broader normative context, the paper identifies three primary areas of concern.

The first concerns privacy and data protection. AI-driven cybersecurity systems often rely on extensive data collection, including behavioral patterns, communication metadata, and system activity logs. While such data may enhance threat detection, it also creates the risk of continuous and disproportionate monitoring. The central challenge is therefore one of proportionality: ensuring that the pursuit of security does not erode the very concept of private life. Effective safeguards must include data minimization, purpose limitation, privacy-by-design approaches, and meaningful oversight mechanisms.

The second concern relates to bias and discrimination. AI systems are not neutral; they reflect the data on which they are trained and the assumptions embedded in their design. In the cybersecurity context, this may result in disproportionate surveillance, inaccurate threat classification, or unequal treatment of individuals and groups. Such outcomes are not merely technical errors—they raise fundamental questions of equality and justice. Addressing this issue requires not only technical solutions, such as improved datasets and fairness testing, but also institutional awareness of the social implications of automated decision-making.

The third challenge lies in transparency and accountability. Many AI systems operate as "black boxes," making it difficult to understand how decisions are reached. In cybersecurity, where automated outputs may trigger significant consequences, this lack of transparency undermines both trust and legality. The paper argues that explainability must be complemented by institutional accountability. It is not enough for a system to produce results; it must also be possible to scrutinize, challenge, and, where necessary, correct those results within a structured governance framework.

Against this background, the paper emphasizes the importance of moving from abstract principles to concrete governance mechanisms. Ethical AI in cybersecurity requires structured processes, including risk assessment, pre-deployment review, procurement controls, continuous monitoring, and human rights impact assessments. It also requires interdisciplinary collaboration, bringing together legal expertise, technical knowledge, ethical reasoning, and policy insight.

Conclusion. Ultimately, the future of AI in cybersecurity will depend on the choices made by institutions today. There is a clear risk that security considerations could justify increasingly intrusive and opaque systems, gradually normalizing practices that would otherwise be unacceptable. At the same time, there is an opportunity to develop a model of cybersecurity that is both effective and rights-respecting.

The central conclusion of this paper is therefore straightforward but demanding: artificial intelligence must enhance security without diminishing human dignity. This requires not only technical innovation, but also legal discipline, ethical reflection, and institutional responsibility. Security, if it is to be legitimate, must operate within the framework of law—and in service of the individuals whose rights it is ultimately meant to protect.

ARTIFICIAL INTELLIGENCE IN EDUCATION: LEGAL AND ETHICAL ISSUES

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Abstract. *Artificial intelligence (AI) is transforming education through personalized learning and advanced analytics, improving efficiency and accessibility. However, its integration raises important legal and ethical concerns, including data privacy, algorithmic bias, intellectual property, and accountability. This study reviews literature from 2015 to 2025 to examine both the opportunities and risks of AI in education. The findings highlight the need for strong ethical principles and effective regulations to ensure responsible and fair use of AI technologies.*

Keywords: *Artificial Intelligence; Education; Ethics; Law; Data Privacy; Accountability; Regulation.*

Annotatsiya. *Sun'iy intellekt (SI) ta'lim sohasini shaxsiylashtirilgan o'qitish va ilg'or tahlil orqali o'zgartirib, samaradorlik va qulaylikni oshirmoqda. Biroq, uning joriy etilishi ma'lumotlar maxfiyligi, algoritmik tarafkashlik, intellektual mulk va javobgarlik kabi muhim huquqiy va axloqiy muammolarni keltirib chiqaradi. Ushbu tadqiqot 2015–2025-yillardagi ilmiy adabiyotlarni tahlil qilib, SI ning ta'limdagi imkoniyatlari va xavflarini ko'rib chiqadi. Natijalar SI dan mas'uliyatli va adolatli foydalanish uchun kuchli axloqiy tamoyillar va samarali tartibga solish zarurligini ko'rsatadi.*

Аннотация. *Искусственный интеллект (ИИ) трансформирует сферу образования благодаря персонализированному обучению и передовой аналитике, повышая эффективность и доступность. Однако его внедрение вызывает важные правовые и этические проблемы, включая защиту данных, алгоритмическую предвзятость, интеллектуальную собственность и ответственность. В данном исследовании анализируется научная литература за 2015–2025 годы с целью изучения возможностей и рисков применения ИИ в образовании. Результаты подчеркивают необходимость строгих этических принципов и эффективного регулирования для обеспечения ответственного и справедливого использования ИИ.*

Introduction. Artificial intelligence has emerged as a powerful force in modern education, significantly transforming teaching practices, assessment methods, and institutional management. Educational institutions increasingly rely on AI-driven technologies to personalize learning experiences, predict student performance, and optimize administrative processes. These developments contribute to improved efficiency and inclusivity in diverse learning environments. However, the rapid adoption of AI also introduces complex legal and ethical challenges that require careful attention.

Recent studies highlight both the benefits and risks of AI in education. Holmes et al. (2019) emphasize that AI can support personalized learning and enhance student engagement. Zawacki-Richter et al. (2019) demonstrate that AI applications improve learning outcomes through adaptive systems and analytics. Similarly, Williamson and Eynon (2020) argue that AI has the potential to reshape educational systems. However, scholars such as Floridi et al. (2018) and Selwyn (2019) warn that without proper regulation, AI may lead to ethical issues such as lack of transparency, bias, and misuse of data. These concerns underline the importance of responsible AI implementation.

Despite numerous studies, the legal and ethical implications of AI in education remain insufficiently explored, particularly in specific institutional and cultural contexts. Previous research has primarily focused on technological advancements, while issues related to governance, accountability, and ethical responsibility have received limited attention.

Therefore, the aim of this study is to analyze the legal and ethical issues associated with the use of artificial intelligence in education. The objectives are to identify key challenges such as data privacy and algorithmic bias, to examine the impact of AI on educational practices, and to propose recommendations for responsible and ethical AI integration.

Methods. This study employs a qualitative literature review methodology to examine the legal and ethical dimensions of artificial intelligence in education. This approach allows for a comprehensive analysis of existing research across interdisciplinary fields, including education, ethics, law, and technology.

The review focuses on peer-reviewed journal articles, academic books, and international reports published between 2015 and 2025. This period was selected to capture the most recent developments in AI technologies and their applications in education. Only relevant and credible sources were included to ensure the reliability of the findings.

The analysis is guided by three main research questions: What legal challenges arise from AI use in education? What ethical issues are associated with AI technologies? How can regulation balance innovation with accountability?

The data were analyzed using thematic coding, with key categories including data privacy, algorithmic bias, intellectual property, and accountability. This method enabled systematic comparison across studies and identification of common trends and issues.

Results. The findings reveal several major challenges related to the implementation of AI in education. One of the most significant issues is data privacy. AI systems require extensive data collection, which raises concerns about unauthorized access, data misuse, and lack of informed consent.

Another important issue is algorithmic bias. AI systems may unintentionally reproduce existing social inequalities, as they are often trained on biased datasets. This can negatively affect students from disadvantaged backgrounds and lead to unfair outcomes.

Intellectual property is also a complex issue. There is uncertainty regarding the ownership of AI-generated educational content, creating legal ambiguity for institutions, educators, and developers.

Accountability remains unclear when AI systems produce errors or biased decisions. In many cases, it is difficult to determine who is responsible for these outcomes.

Despite these challenges, AI offers significant advantages. It enhances personalized learning, supports early identification of student difficulties, and improves administrative efficiency. These benefits demonstrate the potential of AI to positively transform education when applied responsibly.

Discussion. The results highlight the dual nature of AI in education, as both a source of innovation and a driver of ethical and legal complexity. Addressing these challenges requires the development of clear regulatory and governance frameworks.

Data privacy is a critical concern that must be addressed through transparent policies and compliance with international standards. Educational institutions should ensure that students are fully informed about how their data are collected, stored, and used.

Algorithmic bias must also be carefully managed. As noted by Zawacki-Richter et al. (2019) and Selwyn (2019), AI systems can reinforce inequalities if not properly designed and monitored. Institutions should implement regular audits and ensure diversity in datasets.

Clear legal frameworks are needed to address intellectual property issues. Williamson and Eynon (2020) emphasize the importance of defining ownership rights in AI-generated content.

Accountability should be shared among developers, institutions, and policymakers. Floridi et al. (2018) argue that ethical governance is essential for responsible AI use.

Practical recommendations include integrating AI ethics into teacher training, developing institutional policies, ensuring transparency, and promoting the use of explainable AI systems.

Conclusion. Artificial intelligence has the potential to significantly enhance education by improving learning outcomes, increasing efficiency, and enabling personalized instruction. However, its integration also raises serious legal and ethical challenges, including issues related to data privacy, algorithmic bias, intellectual property, and accountability.

The study demonstrates that innovation must be balanced with regulation to ensure responsible AI use. Educational institutions should adopt clear policies, promote ethical awareness, and collaborate with policymakers to establish effective regulatory frameworks. By doing so, it is possible to harness the benefits of AI while ensuring fairness, transparency, and trust in education.

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BALANCING INNOVATION AND REGULATION: AI IN HIGHER EDUCATION

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Abstract. *Artificial intelligence (AI) is increasingly integrated into higher education, offering adaptive learning, predictive analytics, and personalized instruction. While these innovations promise improved equity and efficiency, they also raise significant legal and ethical concerns. This paper examines the tension between innovation and regulation, focusing on issues of data privacy, algorithmic bias, intellectual property, and accountability. Through a qualitative review of scholarly literature published between 2010 and 2025, the study highlights both opportunities and risks of AI adoption in universities. Findings suggest that effective governance frameworks are essential to balance technological progress with ethical responsibility. Practical recommendations are provided for policymakers, educators, and institutions to ensure transparent, equitable, and legally compliant AI integration.*

Keywords: *Artificial Intelligence; Higher Education; Ethics; Law; Innovation; Regulation; Equity*

Introduction. Artificial intelligence has rapidly become a transformative force in higher education, reshaping teaching, assessment, and institutional management. Universities increasingly rely on AI-driven platforms to personalize learning, predict student performance, and optimize administrative processes. These innovations promise efficiency and inclusivity, particularly in diverse academic environments. However, the integration of AI also raises pressing legal and ethical questions that cannot be ignored.

Bloom's (1984) (13-15 p.) mastery learning framework emphasized the importance of individualized instruction, a principle now realized through adaptive AI systems. Ferguson (2012) (305-308 p.) demonstrated how learning analytics can enhance engagement, while Dede (2016) (5-9 p.) argued that digital technologies foster inclusivity by accommodating diverse learning styles. Anderson (2019) (1-5 p. 23-25 p.) further showed that machine learning algorithms can anticipate learner difficulties and provide targeted support. These contributions highlight the pedagogical potential of AI. Yet, scholars such as Floridi (2019) (693-696 p.) and Selwyn (2022) (622-624p.)caution that innovation without regulation risks undermining fairness, transparency, and accountability. Data privacy violations, algorithmic bias, and unclear intellectual property rights are among the most critical challenges. Floridi stresses that ethical frameworks must accompany technological adoption, while Selwyn warns against uncritical enthusiasm for AI tools in

education. This paper addresses the intersection of innovation and regulation in higher education, analyzing how AI can be harnessed responsibly. By synthesizing theoretical perspectives and empirical findings, the study aims to provide a comprehensive understanding of AI's role in universities and to propose practical recommendations for balancing technological progress with ethical and legal safeguards.

Methods. This study employs a qualitative literature review methodology to examine the legal and ethical challenges of integrating artificial intelligence into higher education. The approach was chosen because it allows for a comprehensive synthesis of theoretical perspectives and empirical findings across multiple disciplines, including education, law, ethics, and computer science.

The review focused on peer-reviewed journal articles, scholarly books, and conference proceedings published between 2010 and 2025. This timeframe was selected to capture both foundational theories and the most recent developments in AI applications. The analysis was guided by three central questions: What legal challenges arise from AI adoption in universities? What ethical dilemmas are associated with AI-driven educational platforms? How can regulation balance innovation with accountability? Thematic coding was employed to categorize findings into domains such as data privacy, algorithmic bias, intellectual property, and accountability. This framework allowed for systematic comparison across sources and identification of recurring patterns. Reliability was ensured by cross-referencing multiple sources, while validity was strengthened by focusing on peer-reviewed and widely cited works.

Results. The literature review revealed several major areas of concern regarding AI in higher education. Universities face challenges in safeguarding student information collected by AI systems, with risks of unauthorized access and insufficient consent mechanisms. AI-driven platforms may unintentionally reinforce inequalities, as predictive analytics often disadvantage students from underrepresented backgrounds. Ambiguities persist regarding ownership of AI-generated educational content, raising questions about whether institutions, developers, or educators hold rights. Finally, accountability remains unclear when AI systems make errors or discriminatory decisions, leaving universities without established frameworks for assigning liability. Despite these challenges, AI offers significant benefits. Adaptive platforms improve personalization, machine learning enhances early identification of student difficulties, and administrative efficiency is increased. The findings suggest that while innovation is promising, regulation is essential to ensure fairness and transparency.

Discussion. The results underscore the dual nature of AI in higher education: it is both a driver of innovation and a source of legal and ethical complexity. Balancing these dimensions requires careful consideration of governance frameworks. AI systems rely on extensive data collection, raising concerns about consent and security. Universities must adopt transparent policies that align with international data protection standards, such as GDPR. Ethical responsibility demands that students are informed about how their data is used and stored.

Bias in AI systems can perpetuate inequality. Ferguson (2012) and Selwyn (2022) argue that predictive models often reflect existing social disparities. To mitigate this, universities should implement bias audits and diversify datasets to ensure equitable outcomes. Ownership of AI-generated content remains unresolved. Anderson (2019) highlights the need for clear institutional policies. Universities should establish agreements that recognize contributions of educators while protecting institutional interests.

Floridi (2019) emphasizes that accountability must be shared among developers, institutions, and policymakers. Universities should create oversight committees to monitor AI systems and establish protocols for addressing errors or discrimination. Practical recommendations include integrating AI ethics into teacher education programs, drafting institutional guidelines on data privacy and bias mitigation, developing international standards for accountability, and requiring explainable AI systems to ensure decisions are understandable to educators and students.

Conclusion. Artificial intelligence holds immense potential to transform higher education, offering personalized learning, predictive analytics, and administrative efficiency. However, its integration raises critical legal and ethical challenges. Data privacy, algorithmic bias, intellectual property, and accountability are central issues that must be addressed to ensure equitable and transparent use of AI. Innovation cannot be pursued without regulation. Universities must adopt comprehensive policies, train educators in AI ethics, and collaborate internationally to establish standards of accountability. By balancing technological progress with ethical responsibility, higher education can harness the benefits of AI while safeguarding fairness and trust.

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ARTIFICIAL INTELLIGENCE IN LESSON PLANNING AND MATERIALS DEVELOPMENT

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Abstract. *This article explores key ethical and methodological considerations associated with the use of artificial intelligence in education. It further outlines potential strategies for addressing common challenges and promoting the responsible, effective integration of AI tools across educational contexts.*

Keywords: *artificial intelligence in education; language teaching; pedagogical integrity; learner needs; ethical issues.*

Annotatsiya. *Ushbu maqolada ta’limda sun’iy intellektdan foydalanish bilan bog‘liq asosiy axloqiy va metodologik jihatlar ko‘rib chiqiladi. Unda umumiy muammolarni hal qilish va ta’lim kontekstlarida sun’iy intellekt vositalarini mas’uliyatli va samarali integratsiyalashni rag‘batlantirish bo‘yicha potentsial strategiyalar batafsil bayon etilgan.*

Kalit so‘zlar: *ta’limda sun’iy intellekt; til o‘qitish; pedagogik yaxlitlik; o‘quvchi ehtiyojlari; axloqiy masalalar.*

Аннотация. *Эта статья исследует ключевые этические и методологические соображения, связанные с использованием искусственного интеллекта в образовании. В ней также описаны потенциальные стратегии решения общих проблем и содействия ответственной, эффективной интеграции инструментов ИИ в образовательных контекстах.*

Ключевые слова: *искусственный интеллект в образовании; преподавание языков; педагогическая целостность; потребности обучающихся; этические вопросы.*

Introduction. When using AI-generated materials in our classes, one of the first questions that arises concerns the naturalness, relevance, and pedagogical suitability. Instructors may question whether such materials are sufficiently authentic, aligned with the course objectives, and responsive to diverse learning styles. The main source of these considerations is that AI tools are self-explanatory; unlike teachers, they are artificial and can’t feel or approach the class based on sensory perceptions.

Recent research highlights the growing role of artificial intelligence in education. For instance, Haciyeva, A. (2025)argues that AI technologies enhance language learning by providing adaptive instruction, personalized learning trajectories, and “just in time” feedback on learners’ performance, which encourages accuracy and learner autonomy. Moreover, Torres, P. J., & Kahveci, Y. E. (2025) indicate that AI-generated instruction can noticeably improve language proficiency level across multiple skills, especially vocabulary, reading, writing, listening, and speaking.

Despite the merits of using AI in educational practices, however, there is a set of ethical and pedagogical concerns that it represents. Therefore, even when educators recognize the potential effectiveness of AI tools, several key considerations remain. These include addressing learners’ needs, ensuring

alignment between instructional materials and course objectives, and maintaining pedagogical integrity in the learning process.

This article examines several ethical and methodological considerations related to the use of AI in education. It also discusses potential strategies for overcoming common challenges and ensuring the responsible and effective integration of AI tools in educational contexts.

Discussion part

Addressing learners' needs (limitations of AI personalization). AI tools may fail to effectively match generating materials with the diversity of learning variables unless those materials are based on human-centered design or provided by stakeholders. This, in turn, leads to poor alignment with students' actual needs and learning context.

Over the years, it has become evident that one of the primary goals of the language teaching practice is an inclusive education, which is usually done by addressing gender specifications, cultural background, religion, social status, abilities, different language proficiency levels, and the first language of learners. In this perspective, curriculum and syllabus design must be learner-centered and need specific information, which is challenging for AI tools without direct human intervention.

Alignment with course objectives (risk of efficiency over learning. Another point on using AI in class is the relevance of materials to course objectives. Krashen, S. D. (1985) argues that the term meaningful input is what can be considered as comprehensible, contextually relevant, and slightly beyond learners' current proficiency level, which enables successful language learning.

This viewpoint sheds light on the issue with AI, that is to say, alignment between AI-generated materials and course objectives. Without direct and clear pedagogical alignment, AI may prioritize efficiency and automation rather than meaningful learning consistent with course objectives.

Maintaining pedagogical integrity in the learning process. The most important point that has to be made is the pedagogical ethics that suggests academic honesty, critical thinking, and a humanistic approach.

Primarily, teachers should be role models for their students when it comes to academic honesty. Every resource must be cited properly, and its relevance should be carefully scrutinized. If teachers themselves misuse AI, how can they demand honesty from their students?

Furthermore, overreliance on AI tools may decrease the cognitive skills of teachers. Amid the development of AI, there is a possibility that teachers, due to time constraints or other factors, may rely on AI in lesson planning and materials design without checking its appropriateness to course objectives and learning variables.

Ultimately, misusing AI tools may hinder professional and research development, as continuous usage creates dependence, hindering intellectual curiosity and research engagement

Proposed solution. Zawacki-Richter et al. (2019) argues that AI use should align with learning objectives, curriculum standards, and evidence-based teaching

practices. Responsible use of AI in education requires human oversight, transparency, data protection, bias mitigation, and alignment with pedagogical principles to ensure that technology enhances rather than undermines teaching and learning processes. In this context, considering AI as a tool, an assistant becomes crucial rather than accepting it as a source for teaching.

In addition, raising the awareness of students and teachers on how AI tools function is beneficial. This may include the way AI systems generate outputs and make recommendations. This, in turn, may reveal the nature of AI, highlighting its advantages and disadvantages as a source of input. Therefore, the solution is not a limitation of use, but utilizing it as an assistant in lesson planning and materials design.

Conclusion. Although AI offers many benefits in educational practice, it also raises ethical and pedagogical concerns. For this reason, even when educators praise the potential effectiveness of AI tools, several key considerations remain. These include addressing learners' needs, ensuring alignment between instructional materials and course objectives, and maintaining pedagogical integrity in the learning process.

Therefore, instead of limiting the use of advancements in technology, particularly AI tools, teachers ought to seek ways of using them as an assistant so that they are academically honest, pedagogically fair, and relevant to language learning objectives.

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BOSHLANG‘ICH TA’LIMDA MILLIY QADRIYATLARNI SHAKLLANTIRISHDA RAQAMLI VOSITALARDAN FOYDALANISH MASALALARI

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Annotatsiya. *Maqolada boshlang‘ich ta’lim jarayonida milliy qadriyatlarni shakllantirishda raqamli vositalardan foydalanish masalalari ilmiy adabiyotlar asosida tahlil qilinadi. Zamonaviy pedagogik tadqiqotlarda multimedia texnologiyalari, mobil ta’lim vositalari hamda interfaol metodlarning tarbiyaviy imkoniyatlari yoritilgan. Shuningdek, raqamli vositalarning milliy tarbiya jarayonidagi pedagogik ahamiyati va ularning ta’lim jarayonidagi o‘rni ilmiy manbalar asosida tahlil qilinadi.*

Kalit so‘zlar: *milliy qadriyatlar, raqamli vositalar, boshlang‘ich ta’lim, multimedia texnologiyalari, mobil ta’lim, interfaol metodlar, milliy tarbiya.*

Bugungi kunda ta’lim tizimida raqamli texnologiyalarni joriy etish jarayoni jadallashib bormoqda. Axborot-kommunikatsiya texnologiyalarining rivojlanishi ta’lim jarayonini tashkil etishning yangi shakl va metodlarini yuzaga keltirmoqda. Ayniqsa boshlang‘ich ta’lim bosqichi o‘quvchilarning dunyoqarashi, ma’naviy qarashlari va qadriyatlari shakllanadigan muhim davr hisoblanadi. Shu sababli ushbu bosqichda milliy qadriyatlarni shakllantirish masalasi pedagogik tadqiqotlarning dolzarb yo‘nalishlaridan biri sifatida qaralmoqda.

O‘zbekiston Respublikasida ta’lim tizimini rivojlantirish va raqamlashtirish masalalariga davlat darajasida alohida e’tibor qaratilmoqda. Jumladan, O‘zbekiston Respublikasi Prezidentining “Raqamli O‘zbekiston – 2030” strategiyasini tasdiqlash to‘g‘risidagi farmonida ta’lim tizimiga zamonaviy raqamli texnologiyalarni keng joriy etish vazifalari belgilab berilgan [1]. Shuningdek, “O‘zbekiston – 2030” strategiyasi to‘g‘risidagi farmonda ham ta’lim tizimini modernizatsiya qilish, raqamli ta’lim muhitini rivojlantirish ustuvor yo‘nalishlardan biri sifatida qayd etilgan [2].

Milliy qadriyatlarni yosh avlod ongiga singdirish tarbiya tizimining muhim vazifalaridan biridir. Zamonaviy sharoitda bu jarayonni raqamli vositalar orqali qo‘llab-quvvatlash imkoniyatlari kengayib bormoqda. Shu bois boshlang‘ich ta’lim jarayonida milliy qadriyatlarni shakllantirishda raqamli vositalardan foydalanish masalasi ilmiy tadqiqotlarda alohida e’tibor qaratilayotgan yo‘nalishlardan biri hisoblanadi.

Ta’lim jarayonida raqamli texnologiyalardan foydalanish masalalari ko‘plab xorijiy va mahalliy tadqiqotchilar tomonidan o‘rganilgan. Xususan, R. Mayer multimedia ta’lim nazariyasini ishlab chiqib, o‘quv materiallarini matn, tasvir va audio elementlari orqali integratsiyalashgan holda taqdim etish o‘quvchilarning bilimlarni o‘zlashtirish jarayoniga ijobiy ta’sir ko‘rsatishini asoslab bergan [6]. Uning fikricha, vizual va verbal axborot kanallarining birgalikda ishlashi o‘quv materialini samaraliroq o‘zlashtirishga yordam beradi.

Ta’lim jarayonida texnologiyalardan foydalanish masalalari xalqaro tashkilotlar tomonidan ham keng o‘rganilgan. UNESCO tomonidan tayyorlangan “Global Education Monitoring Report 2023: Technology in Education” hisobotida ta’limda texnologiyalardan foydalanish pedagogik maqsadlar bilan uyg‘un bo‘lishi lozimligi ta’kidlangan [10]. Hisobotda texnologiyalar ta’lim sifatini oshirish uchun vosita sifatida xizmat qilishi kerakligi qayd etilgan.

Mahalliy tadqiqotchilar ham boshlang‘ich ta’lim jarayonida raqamli texnologiyalardan foydalanish imkoniyatlarini o‘rganib kelmoqdalar. Jumladan, A. Suyarova multimedia ta’lim resurslari yordamida boshlang‘ich sinf o‘quvchilarining o‘qish savodxonligini rivojlantirish metodikasini ishlab chiqqan [8]. Tadqiqotda multimedia materiallaridan foydalanish o‘quvchilarning o‘qishga qiziqishini oshirish va ularning o‘quv faoliyatini faollashtirishga xizmat qilishi qayd etilgan.

H. Suvonqulov tomonidan olib borilgan tadqiqotlarda interfaol metodlarning tarbiyaviy imkoniyatlari yoritilgan. Olimning fikricha, interfaol metodlardan foydalanish o‘quvchilarning milliy qadriyatlarga nisbatan qiziqishini oshirishga va tarbiyaviy jarayon samaradorligini ta’minlashga yordam beradi [9].

Mobil texnologiyalarni ta’lim jarayonida qo‘llash masalalari ham zamonaviy pedagogik tadqiqotlarda muhim o‘rin tutadi. X. Meliyeva mobil texnologiyalar yordamida bo‘lajak boshlang‘ich sinf o‘qituvchilarining axborot kompetentligini rivojlantirish masalalarini o‘rgangan [7]. Tadqiqot natijalariga ko‘ra, mobil texnologiyalar pedagoglarning kasbiy tayyorgarligini oshirishda muhim ahamiyatga ega. M. Xakimov o‘z ilmiy ishlarida mobil texnologiyalar, aralash ta’lim hamda gamifikatsiya elementlarini boshlang‘ich ta’lim jarayonida qo‘llash imkoniyatlarini ko‘rsatib bergan [11]. Uning fikricha, o‘yin elementlari bilan boyitilgan ta’lim muhiti o‘quvchilarning ta’lim jarayoniga qiziqishini oshiradi.

Xorijiy tadqiqotchilar orasida B. Robin tomonidan taklif etilgan raqamli hikoyalash (digital storytelling) usuli ham zamonaviy ta’lim jarayonida keng qo‘llanilmoqda. Tadqiqotchining fikricha, raqamli hikoyalash usuli o‘quvchilarning ijodiy tafakkurini rivojlantirish bilan birga ularning kommunikativ ko‘nikmalarini shakllantirishga xizmat qiladi [5]. Shuningdek, J. Bergmann va A. Sams tomonidan ishlab chiqilgan teskari sinf (flipped classroom) modeli ham zamonaviy ta’lim tizimida keng qo‘llanilmoqda. Ushbu model o‘quvchilarga yangi mavzuni mustaqil o‘rganish imkonini beradi hamda sinf mashg‘ulotlarida muhokama va amaliy faoliyatga ko‘proq vaqt ajratishga yordam beradi [3].

Virtual va kengaytirilgan reallik texnologiyalarining ta’lim jarayonida qo‘llanilishi ham zamonaviy tadqiqotlarda o‘rganilgan. Radianti va hamkasblari virtual reallik texnologiyalarining ta’lim jarayonida o‘quvchilarning qiziqishini oshirish hamda murakkab jarayonlarni vizual tarzda tushuntirish imkoniyatlarini ko‘rsatib bergan [4].

Shunga qaramay, raqamli texnologiyalarning milliy qadriyatlarni shakllantirish jarayonida qo‘llanilishi, ayniqsa boshlang‘ich ta’lim bosqichida, hali yetarli darajada o‘rganilmagan. Ayniqsa milliy mazmundagi raqamli ta’lim resurslarini yaratish va ulardan foydalanish metodikasini ishlab chiqish muhim ilmiy vazifalardan biri hisoblanadi.

Tahlil qilingan ilmiy adabiyotlar shuni ko‘rsatadiki, zamonaviy ta’lim jarayonida raqamli texnologiyalar muhim pedagogik vosita sifatida qaralmoqda. Multimedia texnologiyalari, mobil ilovalar, interfaol metodlar hamda raqamli hikoyalash kabi yondashuvlar o‘quvchilarning ta’lim jarayonidagi faolligini oshirish va ularning bilimlarni samarali o‘zlashtirishiga xizmat qiladi.

Xususan, ilmiy manbalar tahlili boshlang‘ich ta’lim jarayonida milliy qadriyatlarni shakllantirishda raqamli vositalardan foydalanish masalasi hali to‘liq o‘rganilmaganligini ko‘rsatadi. Ayniqsa milliy mazmundagi raqamli ta’lim resurslarini yaratish va ularni ta’lim jarayoniga integratsiya qilish dolzarb ilmiy muammolardan biri hisoblanadi.

Boshlang‘ich ta’lim jarayonida milliy qadriyatlarni shakllantirishda raqamli vositalardan foydalanish an’anaviy tarbiya usullari bilan uyg‘un holda amalga oshirilishi lozim. Bunday yondashuv o‘quvchilarda milliy qadriyatlarga nisbatan hurmat, qiziqish va ongli munosabatni shakllantirishga xizmat qiladi.

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LEGAL AND ETHICAL ISSUES OF USING ARTIFICIAL INTELLIGENCE IN EDUCATION: ANALYSIS AND RECOMMENDATIONS

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Abstract. *This article examines the use of artificial intelligence (AI) in education, focusing on its benefits and related legal and ethical challenges. While AI supports adaptive learning and automated assessment, it raises concerns about data protection, intellectual property, accountability, fairness, transparency, and psychological impact. The study proposes recommendations including legal regulation, ethical guidelines, training, and continuous monitoring. Effective AI integration requires balancing innovation with legal and ethical responsibility.*

Keywords: *artificial intelligence, education, legal aspects, ethical aspects, data protection, copyright, accountability, accessibility, algorithm transparency.*

Annotatsiya. *Ushbu maqolada ta’limda sun’iy intellekt (SI) qo‘llanilishi, uning afzalliklari hamda huquqiy va axloqiy muammolari tahlil qilinadi. SI moslashuvchan ta’lim va avtomatlashtirilgan baholashni rivojlantiradi, ammo ma’lumotlarni himoya qilish, mualliflik huquqi, javobgarlik, tenglik va shaffoflik bilan bog‘liq masalalarni keltirib chiqaradi. Maqolada huquqiy tartibga solish, axloqiy me’yorlar, trening va monitoring bo‘yicha tavsiyalar beriladi.*

Kalit so‘zlar: *sun’iy intellekt, ta’lim, huquqiy jihatlar, axloqiy jihatlar, ma’lumotlarni himoya qilish, mualliflik huquqi, javobgarlik, kirish imkoniyati, algoritmik shaffoflik*

Аннотация. *В статье рассматривается использование искусственного интеллекта (ИИ) в образовании, его преимущества и связанные правовые и этические проблемы. ИИ способствует адаптивному обучению и автоматизированной оценке, но вызывает вопросы защиты данных, авторского права, ответственности, справедливости и прозрачности. Предлагаются рекомендации по правовому регулированию, внедрению этических норм, обучению и мониторингу.*

Ключевые слова: *искусственный интеллект, образование, правовые аспекты, этические аспекты, защита данных, авторское право, ответственность, доступность, прозрачность алгоритмов*

Introduction. With the advancement of artificial intelligence (AI) technologies, education is undergoing significant changes. AI offers new opportunities for adaptive learning, automated assessment, and improved educational processes. However, these opportunities also raise serious legal and ethical questions that require careful analysis and regulation. This article examines the key legal and ethical aspects of using AI in education and provides recommendations for effectively addressing them.

Legal Aspects of using Ai in Education

Data Protection and Privacy: The use of AI in educational institutions often involves processing students' personal data. This raises questions about compliance with data protection laws, such as the General Data Protection Regulation (GDPR) in Europe. For instance, a study by Christensen et al. (2020) emphasizes the importance of adhering to GDPR norms in the context of educational technologies.

Copyright and Intellectual Property: The application of AI in creating educational materials and content may raise questions about ownership rights over the results of intellectual activity. Research by Levin (2019) points to the need for clear definitions of copyright for content created with the help of AI.

Accountability for Errors: In cases of errors or inefficiencies in AI systems used in education, questions arise regarding who is responsible—the software developers, educational institutions, or the educators themselves. A study by Foster et al. (2021) explores various approaches to defining accountability in the context of AI usage.

Ethical Aspects of using Ai in Education

Fairness and Accessibility: The use of AI in education should ensure equal access to educational resources for all students, regardless of their socio-economic status. Ethical norms require preventing discrimination and inequality in access to educational technologies. As noted by Smith (2022), it is important to consider the social context when implementing AI in educational practices.

Algorithm Transparency: The algorithms used in AI systems should be transparent and explainable. Students and educators should understand how decisions based on data are made. Taylor (2021) emphasizes the importance of transparency for building trust in educational technologies.

Psychological Impact: The use of AI may affect students' psychological and emotional well-being. It is essential to consider how technologies influence student motivation and self-esteem. Johnson's research (2020) shows that improper use of AI can reduce student engagement in the learning process.

Recommendations

1. **Developing a Legal Framework**: It is necessary to create clear laws and regulations governing the use of AI in education, covering issues related to data protection, copyright, and accountability.

2. **Ethical Codes**: Educational institutions should develop ethical codes regarding the use of AI that take into account the interests of all participants in the educational process.

3. **Training and Awareness**: It is important to provide training for educators and students on the use of AI, including aspects of privacy, data security, and ethics.

4. **Monitoring and Evaluation**: Regular monitoring and evaluation of AI applications in educational institutions should be conducted to identify potential issues and address them promptly.

Conclusion. The use of artificial intelligence in education opens new horizons for enhancing the quality of learning and adapting educational processes to the individual needs of students. However, for successful integration of AI, it is crucial to consider legal and ethical aspects to ensure safety, fairness, and transparency.

Developing appropriate legal frameworks and ethical norms will be an important step towards the effective use of technology in education.

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TA’LIMDA SUN’IY INTELLEKTNING HUQUQIY VA AXLOQIY MASALALARI

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Annotatsiya*. Ushbu ilmiy tadqiqot ishi doirasida globallashuv va raqamlashtirish sharoitida sun’iy intellekt (SI) vositalarining zamonaviy pedagogika va ta’lim jarayonlariga ko‘rsatayotgan ta’siri chuqur hamda har tomonlama o‘rganib chiqildi. Tadqiqot davomida, xususan, O‘zbekiston Respublikasining milliy ta’lim muassasalarida aqlli texnologiyalarni amaliyotga tatbiq etishning bugungi kundagi real manzarasi, bu yo‘lda yuzaga kelayotgan asosiy to‘siqlar va ularning optimal yechimlari batafsil tahlil qilinadi. Ishning xulosa qismida ta’lim jarayonlari unumdorligini va sifat ko‘rsatkichlarini sezilarli darajada ko‘tarishga qaratilgan, ilmiy asoslangan va amaliyotda qo‘llash mumkin bo‘lgan aniq tavsiyalar to‘plami taqdim etilgan.*

Kalit so‘zlar: *intellektual tizimlar, zamonaviy ta’lim muhiti, moslashuvchan ta’lim texnologiyalari, raqamli o‘qitish metodikasi, individual ta’lim trayektoriyasi, bilimlarni avtomatik nazorat qilish, pedagogik jarayonlarni raqamlashtirish.*

Abstract. *This academic paper presents an in-depth and multifaceted investigation into the growing significance of artificial intelligence (AI) tools within the framework of modern educational paradigms. Furthermore, the study critically evaluates the current landscape of integrating these smart technologies specifically within the educational infrastructure of Uzbekistan. It identifies the primary challenges encountered during this digital transition and proposes strategic solutions to effectively mitigate these barriers. Concluding the research, a set of scientifically grounded and actionable guidelines is offered, aiming to significantly enhance the overall quality and efficiency of the learning experience.*

Keywords*: intelligent systems, contemporary educational environment, flexible learning technologies, digital teaching methodology, individualized learning trajectory, automated knowledge assessment, digitalization of pedagogical processes.*

Аннотация. *Данное научное исследование посвящено глубокому и многогранному изучению влияния технологий искусственного интеллекта (ИИ) на современные педагогические процессы и образовательную среду в целом. В рамках работы детально рассматривается текущая ситуация и реальный практический опыт внедрения интеллектуальных систем в национальную систему образования Республики Узбекистан. Автором анализируются ключевые барьеры и трудности, возникающие на этом пути, а также предлагаются эффективные механизмы их преодоления. В заключительной части работы сформирован комплекс научно обоснованных и практически применимых рекомендаций, реализация которых направлена на существенное повышение стандартов качества и результативности обучения.*

Ключевые слова*: интеллектуальные системы, современная образовательная среда, гибкие технологии обучения, цифровая методика преподавания, индивидуальная траектория обучения, автоматизированный контроль знаний, цифровизация педагогических процессов.*

Kirish. XXI asrning shiddatli raqamlashtirish davri jamiyatning barcha sohalari qatori ta’lim tizimini ham mutlaqo yangi bosqichga olib chiqdi. Sun’iy intellekt (SI) texnologiyalarining mislsiz darajada tez rivojlanishi hamda ularning o‘quv jarayonlariga bevosita kirib borishi an’anaviy o‘qitish usullarini tubdan

o‘zgartirib, ta’lim paradigmasini butunlay yangilamoqda. Mamlakatimizda ham "Raqamli O‘zbekiston – 2030" davlat dasturi asosida innovatsion texnologiyalarni va xususan, aqlli SI tizimlarini ta’lim sohasiga keng joriy etish bo‘yicha izchil islohotlar olib borilmoqda. 2025-yil oxirida Oliy ta’lim, fan va innovatsiyalar vazirligi tashabbusi bilan o‘tkazilgan "Ta’limda sun’iy intellekt texnologiyalarini qo‘llash va ulardan samarali foydalanish" mavzusidagi maxsus rektorlar forumi ham davlat darajasida bu masalaga qanchalik katta ahamiyat berilayotganini isbotlaydi. Ushbu tadqiqot ishining asosiy maqsadi – ta’lim muhitida sun’iy intellektning tutgan o‘rnini chuqur ilmiy-nazariy jihatdan tahlil qilish, to‘plangan amaliy tajribalarni tizimlashtirish va O‘zbekiston sharoitida SI vositalaridan maksimal darajada samarali foydalanish uchun aniq, ilmiy asoslangan yo‘riqnomalar ishlab chiqishdir.

Adabiyotlar tahlili va nazariy asoslar. So‘nggi yillarda ta’limda intellektual texnologiyalardan foydalanish masalasi jahon olimlari tomonidan keng qamrovli o‘rganilmoqda. Masalan, xalqaro maydonda Massachusets texnologiya instituti (MIT) olimasi Cynthia Breazeal o‘zining RAISE loyihasi orqali maktab yoshidagi o‘quvchilarda SI savodxonligini va tanqidiy fikrlash ko‘nikmalarini shakllantirish masalalarini chuqur tahlil qilgan. Shu bilan birga, Kenneth Holstein hamda Vincent Aleven kabi tadqiqotchilar sun’iy intellekt va inson o‘rtasidagi o‘zaro hamkorlik mexanizmlariga urg‘u berib, o‘qituvchi hamda aqlli tizimlarning samarali kooperatsiya modellarini taklif etishgan.

Ta’limni raqamlashtirishning fundamental nazariy asoslaridan biri – bu moslashuvchan (adaptiv) o‘qitish texnologiyalaridir. Ushbu tizimlar har bir o‘quvchining shaxsiy o‘zlashtirish tezligi, bilish qobiliyati va qiziqishlarini kognitiv tahlil qilib, unga moslashtirilgan o‘quv materiallarini avtomatik tarzda taqdim etadi. X. Li va M. Sun kabi olimlarning (2018) izlanishlari shuni tasdiqlaydiki, SI yordamida shaxsiylashtirilgan ta’lim modellari o‘quvchilarning o‘zlashtirish ko‘rsatkichlarini keskin oshiradi.

Milliy tadqiqotchilarimizdan M. Axmadaliyeva boshlang‘ich sinf o‘quvchilari uchun tabaqalashtirilgan o‘qitishda SI vositalarining o‘rni haqida izlanishlar olib borib, aqlli tizimlar yosh bolalarning individual ehtiyojlarini qondirishdagi beqiyos ahamiyatini ko‘rsatib o‘tgan. I. Muzaffarova esa o‘z ilmiy ishlarida sun’iy intellektning oliy ta’lim talabalari hayotidagi tutgan o‘rni, uning o‘quv jarayoniga integratsiya qilinishi natijasida yuzaga kelayotgan ulkan imkoniyatlar bilan bir qatorda, kelajakdagi potensial xavf va muammolarni ham batafsil yoritib bergan.

Individual ta’lim trayektoriyalarini shakllantirish va intellektual moslashuvchan tizimlar. Bugungi kunda sun’iy intellektning ta’lim sohasidagi eng inqilobiy xususiyatlaridan biri, shubhasiz, o‘quv jarayonini har bir ta’lim oluvchining kognitiv qobiliyatlariga mutlaqo moslashtira olish salohiyatidir. Hammamizga ma’lumki, klassik ta’lim modelida pedagog bir paytning o‘zida o‘nlab o‘quvchilar bilan ishlashiga to‘g‘ri keladi va bu holat har bir shaxsning o‘ziga xos o‘zlashtirish tezligini inobatga olishga to‘sqinlik qiladi. Biroq, zamonaviy intellektual tizimlar o‘quvchining joriy bilim darajasi, psixologik holati va qiziqishlarini chuqur tahlil qilib, unga maxsus generatsiya qilingan o‘quv materiallarini taqdim etadi. Xususan, murakkab Mashinali o‘rganish (Machine

Learning) algoritmlari talabaning harakatlarini soniyalar ichida qayta ishlaydi, uning bo‘shliqlarini aniqlaydi va mukammal shaxsiylashtirilgan o‘quv dasturini tuzib chiqadi. "Learning analytics" (ta’lim tahlili) kabi zamonaviy konsepsiyalarga tayangan holda, masalan, Khan Academy Kids singari raqamli platformalar yosh o‘zlashtiruvchilar uchun mutlaqo unikal va individual ehtiyojlarga moslashtirilgan interaktiv muhitni yaratib bermoqda.

Pedagogik faoliyatni raqamli optimallashtirish va avtomatlashtirish. Aqlli texnologiyalarning yana bir ulkan foydasi shundaki, ular o‘qituvchilarni charchatuvchi, bir xil turdagi rutin va ma’muriy ishlardan xalos etib, ularning butun diqqatini bevosita ijodiy hamda tarbiyaviy jarayonlarga yo‘naltirishga xizmat qiladi. Avtomatik tarzda murakkab test savollarini tuzish, yozma ishlarni baholash va keng qamrovli hisobotlarni shakllantirish kabi vazifalar endilikda SI zimmasiga o‘tmoqda, bu esa o‘qituvchining oltindan qimmat vaqtini tejaydi. Bunga yorqin misol sifatida Quillionz kabi innovatsion vositalarni keltirish mumkin. Ular berilgan matnni tahlil qilib, o‘z-o‘zidan mantiqiy test va savollar bazasini yaratadi. Qolaversa, bunday tizimlar o‘quvchining darsga bo‘lgan e’tiborini, topshiriqni qancha vaqtda bajarganini aniq hisoblab boradi va pedagogga ta’lim metodikasini o‘zgartirish bo‘yicha tayyor statistik xulosalarni taqdim etadi.

O‘zlashtirish ko‘rsatkichlarini obyektiv baholash va intellektual monitoring. An’anaviy baholash usullarida ko‘p uchraydigan subyektiv yondashuv, statiklik va inson omilining salbiy ta’sirlari bugungi kunda sun’iy intellekt texnologiyalari orqali muvaffaqiyatli bartaraf etilmoqda. Intellektual baholash mexanizmlari talabaning akademik o‘sishini uzluksiz, real vaqt rejimida kuzatib boradi. Bu esa baholashning nafaqat tezkor, balki maksimal darajada adolatli va xolis bo‘lishini kafolatlaydi. Aqlli dasturlar tomonidan tuzilgan maxsus analitik modullar o‘quvchining potensiali, kuchli jihatlari hamda ishlashi kerak bo‘lgan kamchiliklari haqida o‘qituvchiga keng qamrovli tahliliy manzara yaratib beradi.

Yuqori texnologiyali va interaktiv o‘quv ekotizimini barpo etish. Ta’lim jarayonini zerikarli mashg‘ulotlardan qiziqarli kashfiyotlar maydoniga aylantirishda SI vositalarining o‘rni beqiyosdir. Tabiiy tilni qayta ishlash (NLP) texnologiyasi bilan jihozlangan virtual yordamchilar va aqlli chatbotlar o‘quvchilar bilan erkin muloqotga kirishib, ularni qiynagan savollarga sutkaning istalgan qismida javob berishga qodir (24/7 rejimida). Bundan tashqari, sun’iy intellekt bilan boyitilgan Virtual (VR) hamda Kengaytirilgan (AR) reallik texnologiyalari eng murakkab ilmiy tushunchalarni ham vizual, ushlab ko‘rish va amaliy his qilish mumkin bo‘lgan shaklga keltiradi. Zamonaviy aqlli doskalar (Smart Boards) va ovozli assistentlar (Google Assistant, Siri) esa talabalarning darsdagi faolligini keskin oshiruvchi va materialni o‘zlashtirishni yengillashtiruvchi ishonchli hamrohlarga aylanib ulgurgan.

Biroq, yuqorida sanab o‘tilgan beqiyos afzalliklarga qaramay, sun’iy intellekt texnologiyalarini ta’lim tizimiga to‘laqonli joriy etish yo‘lida o‘z yechimini kutayotgan bir qator o‘tkir muammolar ham borki, ularni hal qilish uchun kompleks va tizimli yondashuv talab etiladi.

Axborot xavfsizligi va axloqiy me’yorlar. Ta’lim muassasalarida sun’iy intellekt vositalarining faol joriy etilishi, avvalo, minglab o‘quvchilarning shaxsiy

biometrik va akademik ma’lumotlarini massiv tarzda yig‘ish hamda qayta ishlashni talab etadi. Bu jarayon, o‘z navbatida, ma’lumotlar maxfiyligini ta’minlash va axborot xavfsizligini saqlashni eng o‘tkir yuridik muammolardan biriga aylantiradi. Qolaversa, mashinali o‘rganish algoritmlarida tez-tez uchrab turadigan "bias" (tarafkashlik) effekti haqida ham unutmaslik lozim: agar SI tizimi dastlabki noto‘g‘ri yoki noxolis ma’lumotlar bazasida o‘qitilgan bo‘lsa, u muayyan o‘quvchilar guruhini kamsituvchi, noobyektiv baholash natijalarini chiqarish yoki mutlaqo adolatsiz ta’lim trayektoriyalarini tavsiya etish xavfini tug‘diradi.

Pedagogik jarayonda inson omilining o‘rni. Qanchalik mukammal va aqlli bo‘lmasin, sun’iy intellekt texnologiyalari jonli o‘qituvchining o‘rnini mutlaqo bosa olmaydi. Yirik xalqaro tadqiqotchilar ham bir ovozdan SI faqatgina pedagogning og‘irini yengil qiluvchi, uning kasbiy imkoniyatlarini sarhisob qilib bo‘lmaydigan darajada kengaytiruvchi yordamchi mexanizm ekanligini ta’kidlashmoqda. O‘quvchining ruhiyatini tushunish, chinakam empatiya namoyon qilish, kutilmagan vaziyatlarda kreativ yondashish va eng muhimi, yosh avlodga sof insoniy axloq-odob tarbiyasini berish kabi missiyalar faqatgina haqiqiy ustozning monopoliyasida qoladi.

Axborot tengsizligi xavfi. Intellektual tizimlardan ta’lim maqsadlarida keng miqyosda foydalanish uzluksiz ishlaydigan kuchli texnik infratuzilmani, xususan, keng polosali tezkor internet tarmog‘i va zamonaviy, qimmatbaho kompyuter qurilmalarini taqozo etadi. Bu talablar to‘liq qondirilmagan sharoitda, ayniqsa, chekka hududlar va turli ijtimoiy-iqtisodiy qatlamlar o‘rtasidagi tafovut yanada chuqurlashib, jamiyatda "raqamli uzilish" (digital divide) kabi jiddiy muammoni keltirib chiqarishi tayin.

Pedagogik kadrlarni qayta tayyorlash va kompetensiyalarini oshirish. Innovatsion SI dasturlarining real ta’lim sifatiga ijobiy ta’sir ko‘rsatishi bevosita uni boshqarayotgan o‘qituvchining raqamli savodxonlik darajasiga bog‘liq. Afsuski, bugungi kunda aksariyat ustozlarda bu kabi ilg‘or texnologiyalar bilan erkin ishlash bo‘yicha nazariy va amaliy ko‘nikmalar yetishmaydi. Shu sababli, pedagoglarni intellektual vositalardan mas’uliyatli foydalanishga o‘rgatuvchi fundamental malaka oshirish tizimlarini kechiktirmasdan yo‘lga qo‘yish zamonning eng dolzarb talabidir.

O‘zbekiston milliy ta’lim ekotizimida sun’iy intellekt potensialidan unumli va xavfsiz foydalanishni kafolatlash uchun quyidagi strategik ilmiy-amaliy qadamlarni tashlash taklif etiladi:

1. Yuridik va me’yoriy bazani takomillashtirish. Ta’lim sektorida aqlli texnologiyalarning huquqiy maqomini qat’iy belgilovchi, foydalanuvchilarning shaxsiy va akademik ma’lumotlari daxlsizligini davlat tomonidan qonun yo‘li bilan himoya qiluvchi hamda algoritmlar faoliyatini tartibga soluvchi yangi avlod normativ-huquqiy hujjatlar to‘plamini ishlab chiqish va qabul qilish.

2. Pedagoglarning zamonaviy raqamli ko‘nikmalarini shakllantirish. O‘qituvchilar va professor-o‘qituvchilar tarkibi uchun SI dasturlarini amaliyotga joriy etishga qaratilgan muntazam malaka oshirish va treninglar tsiklini joriy etish. Buning doirasida, barcha OTM va maktablar uchun "Sun’iy intellekt asoslari va uni

pedagogikada qo‘llash texnologiyalari" deb nomlangan yagona, standartlashtirilgan o‘quv modulini yaratish va amaliyotga kiritish.

3. Milliy intellektual platformalarni ishlab chiqish. Xorijiy muqobillarni shunchaki ko‘chirib o‘tmasdan, balki ularni o‘zimizning mentalitet, mahalliy sharoit va til xususiyatlarimizga chuqur moslashtirgan holda, o‘zbek tilida mukammal faoliyat yurituvchi milliy adaptiv ta’lim platformalarini yaratish hamda ularni barcha ta’lim bosqichlariga kaskad usulida bosqichma-bosqich tatbiq qilish.

4. Baholash mexanizmlarini raqamlashtirish. Faqatgina yopiq yoki oddiy test savollarini emas, balki talabalarning murakkab ijodiy, analitik va mantiqiy ishlarini ham xolis, inson omilisiz tahlil qila oladigan shaffof, avtomatlashtirilgan baholash tizimlarini joriy etish.

5. Ilmiy izlanishlarni rag‘batlantirish. O‘zbekistonda sun’iy intellektning pedagogik imkoniyatlarini chuqur o‘rganishga bag‘ishlangan fundamental hamda amaliy ilmiy loyihalarni moliyaviy qo‘llab-quvvatlash. Ushbu o‘ta muhim yo‘nalishda yetakchi xalqaro tajribalarni o‘zlashtirish va xorijiy ilmiy markazlar bilan integratsiyani kuchaytirish.

6. Infratuzilmaviy ta’minotni modernizatsiya qilish. Ta’lim muassasalarining texnik va moddiy qiyofasini tubdan yangilash, ularni so‘nggi rusumdagi apparat vositalari, barqaror va yuqori tezlikdagi internet tarmog‘i bilan ta’minlash orqali yuqorida tilga olingan "raqamli tengsizlik" muammosini ildizi bilan yo‘qotish.

Xulosa. Xulosa o‘rnida shuni qat’iy ta’kidlash joizki, sun’iy intellekt tizimlarining zamonaviy ta’lim jarayonlari bilan uyg‘unlashuvi endilikda shunchaki o‘tkinchi texnologik trend emas, balki kelajak pedagogikasining eng ustuvor va hal qiluvchi vektoriga aylanib ulgurdi. Bizning ilmiy tahlillarimiz shuni yaqqol tasdiqlaydiki, SI vositalari ta’limni chuqur shaxsiylashtirish, pedagoglarning texnik va ma’muriy yuklamasini keskin kamaytirish, baholash tizimini mutlaqo obyektivlashtirish hamda jonli, interaktiv o‘quv muhitini yaratish orqali umumiy ta’lim sifatini beqiyos darajada yuksaltiradi.

Bugungi kunda O‘zbekiston ta’lim maydonida aqlli texnologiyalarni joriy etish yo‘lidagi ilk ijobiy siljishlar kuzatilmoqda, turli ta’lim maskanlarida dastlabki sinov va amaliy tajriba ishlari muvaffaqiyatli olib borilmoqda. Biroq, bu o‘zgarishlarni ommaviy va tizimli tusga kiritish uchun zudlik bilan yuridik va huquqiy bazani yangilash, o‘qituvchilarning axborot texnologiyalari bo‘yicha malakasini davriy ravishda oshirish, sof milliy adaptiv platformalar yaratish va raqamli infratuzilmani modernizatsiya qilish kabi kechiktirib bo‘lmas vazifalarni hal etish zarur. Takror va takror aytish joizki, sun’iy intellekt muallimning o‘rnini egallash va uni ta’lim tizimidan siqib chiqarish uchun emas, aksincha, uning yelkasidagi qanotiga aylanish uchun yaratilgan buyuk vositadir. Ushbu inqilobiy texnologiyalardan ongli, axloqiy va mas’uliyatli tarzda foydalanish orqaligina biz ta’lim sifatini raqobatbardosh darajaga olib chiqishimiz, har bir o‘quvchining ichki iqtidorini to‘laqonli ro‘yobga chiqarishimiz va ularni tez o‘zgarayotgan, raqamlashgan global dunyo talablariga tayyorlashimiz mumkin bo‘ladi.

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ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В МЕДИА: ПРОБЛЕМА ОТВЕТСТВЕННОСТИ И ЭТИЧЕСКИЕ ВЫЗОВЫ

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В условиях стремительного роста технологий число пользователей искусственного интеллекта тоже растет. Сегодня искусственный интеллект везде: в медицине, в образовании, в науке и, естественно, в медиа.

Способы производства, распространения и потребления информации меняются благодаря искусственному интеллекту. На радио, телевидении в печати технологии ИИ начали играть решающие роли. У этого процесса есть очень много полезных сторон, например для анализа больших информации теперь журналисты не тратят много времени как это делали раньше, но у монеты есть другая сторона. Чрезмерное использование технологий искусственного интеллекта поднимает вопросы прозрачности и этики особенно когда аудиторию не информируют об использовании ИИ.

Исследование испанских СМИ показывает, что искусственный интеллект уже используется при создании новостного контента, прежде всего изображений и видео, однако аудитория не всегда получает уведомление об этом. Такая скрытая алгоритмизация подрывает доверие к журналистике, поскольку лишает аудиторию возможности оценить происхождение контента, степень человеческого участия и уровень редакционной проверки.

Одной из ключевых этических проблем является отсутствие ответственности. Когда распространяется неверная или непроверенная информация в текстовом, аудио либо видео формате подготовленная искусственным интеллектом мы не можем обвинить одного человека или самого ИИ. Кто виноват человек или ИИ? Вопрос остается открытым. ИИ не является субъектом ответственности, но его действия имеют последствия. В связи с этим особую значимость приобретает человеческий контроль над использованием искусственного интеллекта. Несмотря на высокий уровень технологического развития, ИИ должен рассматриваться исключительно как вспомогательный инструмент, а не как самостоятельный субъект медиа производства. Окончательная ответственность за содержание, достоверность и этичность информации должна оставаться за человеком — журналистом, редактором и другими участниками коммуникационного процесса. Наиболее наглядно проблема отсутствия за контент, созданный с использованием искусственного интеллекта, проявляется в конкретных событиях, которые оказали влияние на общественное мнение. Например, хакеры с помощью ИИ использовали технологию дипфейков для создания и трансляции фейкового видео, на котором президент Украины Зеленский призывает к капитуляции. Видео было показано на украинском новостном канале и быстро распространилось в интернете. Этот случай вызвал панику и дезинформацию, прежде чем был опровергнут и удален, что подчеркивает опасность

дезинформации, создаваемой ИИ, в условиях конфликта. Видео дипфейков было распространено через взломанный канал, что напрямую привело к дезинформации, которая могла нанести вред украинскому сообществу и военным усилиям, тем самым представляя собой ущерб для населения. Это соответствует критериям инцидента, связанного с ИИ, поскольку использование системы ИИ напрямую привело к нанесению вреда посредством дезинформации в чувствительном геополитическом контексте.

Еще одной важной проблемой являются ошибки, допускаемыми системами искусственного интеллекта при генерации информации. ИИ системы часто генерируют недостоверную информацию предоставляя её как факт. Многие молодежь и даже люди с возрастом доверяют ИИ и редко проверяют достоверность информации в этом случаи это особенно опасно доверять генератору информации. Генеративные системы обучаются на больших массивах данных, содержащих уже существующие социальные стереотипы. Вследствие этого ИИ может незаметно усиливать гендерные, этнические и иные формы дискриминации. Опасность заключается в том, что такой вред часто выглядит нейтрально и технологично, хотя фактически закрепляет неравенство в публичной коммуникации.

В судебной системе США использовалась система Compas, которая оценивала повторность преступности. Позже выяснилось, что эта система автоматически завышала риски преступности только среди афроамериканцев и занижала — для других групп населения. Результаты, которые выдавала система напрямую влияли на судебные решения. Один из американских журналистов сказал: “Мы передали ИИ слишком много власти, не понимая, как он принимает решения.”

Таким образом, в мире, где сильно развита система генерации информации особую роль играет ответственность самого человека за информацию, которую он получает от искусственного интеллекта. Человек сам должен уметь различать что правда, что нет и перепроверять источники, а потом доверять к сказанному. Но человеческий мозг устроен так, когда всё легко становится делать, мы начинаем действовать пассивно и в результате становимся очень ленивыми. Исследователи подчеркивают, что использование ИИ без последующего отбора, проверки и редакторского контроля повышает вероятность распространения ложной информации. Следовательно, искусственный интеллект в журналистике допустим лишь как вспомогательный инструмент, тогда как окончательная ответственность за достоверность, этичность и социальные последствия контента должна сохраняться за человеком — журналистом, редактором и медиаструктурой в целом. Чат-боты, разговорные помощники и рекомендательные платформы опосредуют обмен, формируют взаимодействие, расставляют приоритеты информации и влияют на пользовательский опыт.

С точки зрения образовательной коммуникации, это явление создает двойное напряжение: расширение доступа и потеря критической субъектности. Хотя

усиливает персонализацию контента и интерактивность, он также обуславливает интерпретационную автономию субъекта. Как предупреждает Давид Гункель, интеллектуальные системы производят «осмысленные ответы без осознания», создавая иллюзию диалога, которая может заменить критическое осмысление простыми автоматизированными ответами.

Таким образом, медиа- и алгоритмическая грамотность становится структурным требованием цифрового гражданства. Речь идет не просто об обучении использованию технологий, но и о понимании их логики работы, предвзятости и культурных эффектов. Доверие к ИИ должно основываться на его достоверности и прозрачности — принципах, которые коммуникационное образование должно включать в качестве этических и когнитивных компетенций.

Что ученые советуют, чтобы поощрять ответственное использование искусственным интеллектом.

В научных исследованиях подчеркивается необходимость ответственного использования искусственного интеллекта, включая развитие профессиональных навыков и критического мышления у пользователей. Предлагается создание профессиональных программ обучения, ориентированных на пользователей ИИ в конкретных контекстах, таких как судьи и медицинские работники, где влияние алгоритмической предвзятости особенно критично.

Несмотря на технологическую трансформацию медиасферы, базовые принципы профессиональной журналистики остаются неизменными: право общества на истинную информацию, верность фактам, соблюдение этики, профессиональная честность и социальная ответственность. Следовательно, развитие искусственный интеллект не отменяет журналистскую этику, а, напротив, требует ее более строгого соблюдения.

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REGULATING ARTIFICIAL INTELLIGENCE IN EDUCATION: LEGAL RISKS, ETHICAL CONCERNS, AND POLICY RESPONSES

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Abstract

The rapid proliferation of artificial intelligence (AI) in educational contexts—from adaptive learning systems to generative AI tools such as ChatGPT—has precipitated urgent regulatory, legal, and ethical challenges that existing educational governance frameworks are ill-equipped to address. This paper examines the multifaceted risks associated with AI deployment in education, analyzing the tension between technological innovation and the protection of student rights, academic integrity, and educational equity. Drawing on recent systematic reviews, international policy instruments, and comparative legal analysis, this study addresses the research question: How can educational institutions and policymakers reconcile AI innovation with robust legal protections and ethical safeguards? The methodology involves critical analysis of primary legal instruments including the EU AI Act (2024), UNESCO Recommendation on the Ethics of AI (2021), and OECD AI Principles (2019), alongside synthesis of peer-reviewed empirical research published between 2019 and 2025. Key findings reveal significant regulatory gaps concerning data protection under the GDPR, unresolved intellectual property disputes regarding AI-generated student work, fragmented accountability frameworks for algorithmic errors, and persistent algorithmic biases that exacerbate educational inequalities. The paper argues that current sector-specific governance remains insufficient, advocating for harmonized regulatory approaches that mandate human oversight, algorithmic transparency, and ethical impact assessments. It concludes by proposing actionable recommendations for institutional ethical guidelines, legal reforms prioritizing student data sovereignty, and the development of AI literacy frameworks that embed critical digital pedagogy within regulatory compliance structures.

Keywords: *artificial intelligence in education; AI governance; academic integrity; algorithmic bias; EU AI Act; educational data protection; generative AI policy.*

Introduction

Artificial intelligence has transitioned from experimental educational technology to an infrastructural component of modern learning environments. Contemporary AI applications encompass intelligent tutoring systems, automated essay scoring, predictive analytics for student dropout prevention, and more recently, generative AI systems capable of producing human-like text, code, and multimodal content. The November 2022 emergence of ChatGPT and subsequent large language models has fundamentally disrupted traditional pedagogical models, challenging conventional assessment paradigms and catalysing institutional debates regarding appropriate use policies.

While AI promises personalized learning trajectories and administrative efficiency, its deployment introduces substantial legal vulnerabilities and ethical complexities that demand immediate scholarly and regulatory attention. Educational AI systems process vast quantities of sensitive student data, raising significant privacy concerns under existing data protection frameworks. Simultaneously, generative AI's capacity to produce original-seeming academic work has rendered traditional plagiarism detection mechanisms obsolete, necessitating reconceptualisations of academic integrity and intellectual authorship. Furthermore, algorithmic decision-making in admissions, assessment, and resource allocation carries risks of discriminatory outcomes that may violate equality obligations.

The urgency of these concerns is amplified by the velocity of technological deployment outpacing regulatory adaptation. As Holmes and Tuomi observe, AI in education has shifted from peripheral research interest to central pedagogical infrastructure within mere years, leaving legal and ethical frameworks scrambling to address emergent risks. This paper therefore addresses the critical research question: *How can educational institutions and policymakers reconcile AI innovation with robust legal protections and ethical safeguards while maintaining pedagogical integrity and equity?*

Literature Review

Systematic reviews of AI in education (AIEd) research reveal exponential growth in publication volume since 2020, with particularly pronounced acceleration following the release of publicly accessible generative AI tools. Chen, Chen and Lin's bibliometric analysis identifies adaptive learning systems, learner analytics, and intelligent tutoring as dominant application categories, while Zhai et al. emphasize the integration of deep learning methodologies with educational neuroscience. These technical developments have prompted parallel scholarly attention to governance challenges.

Chiu et al.'s systematic review of 2012-2021 literature categorizes AI applications across four educational domains—learning, teaching, assessment, and administration—identifying thirteen distinct technological roles while highlighting ten major implementation challenges. Their analysis reveals persistent deficiencies in addressing ethical governance, with data privacy and algorithmic bias emerging as particularly under-theorized dimensions relative to technical system performance. This finding is corroborated by Bond et al.'s meta-review, which identifies data privacy concerns (appearing in 20.42% of reviewed literature) as the predominant ethical challenge, followed by issues of inclusion, equality, and algorithmic reliability.

Recent scholarship has increasingly focused on generative AI's specific implications for academic integrity. Studies indicate students demonstrate nuanced ethical reasoning regarding AI use, generally viewing complete AI-generated essay submission as severe misconduct while regarding AI-assisted brainstorming or language polishing as more acceptable. However, substantial ambiguity persists regarding the boundary between legitimate AI augmentation and plagiarism, particularly given that current copyright frameworks neither recognize AI as authors nor clearly protect AI-assisted human creations.

From a policy perspective, scholarly attention has gravitated toward the UNESCO Recommendation on the Ethics of AI (2021) as the first global normative instrument addressing AI governance, emphasizing human rights-based approaches and the need for multi-stakeholder governance structures. Complementing this, the OECD AI Principles (2019) and subsequent OECD-Education International guidelines (2023) provide sector-specific guidance emphasizing teacher professional agency and equitable access.

Legal Issues

The deployment of AI in educational environments implicates significant data protection considerations under the European Union's General Data Protection Regulation (GDPR) and analogous national frameworks. AIEd systems require extensive datafication of student learning behaviors, biometric indicators, and socio-emotional characteristics, creating risks of surveillance overreach and function creep. The GDPR's principles of data minimization, purpose limitation, and storage limitation are frequently incompatible with machine learning models requiring large-scale, longitudinal data retention and repurposing for algorithmic training.

Particularly concerning are AI systems deployed for remote proctoring, emotion recognition, and behavioral analytics, which process sensitive biometric and emotional data categories warranting enhanced protection under GDPR Article 9. Educational institutions often lack technical expertise to conduct Data Protection Impact Assessments (DPIAs) for complex AI systems, resulting in compliance gaps that expose institutions to regulatory sanction while compromising student privacy rights.

The proliferation of generative AI in educational settings has precipitated fundamental uncertainties regarding intellectual property ownership. When students utilize ChatGPT or analogous systems to generate essays, code, or creative works, questions emerge concerning authorship, originality, and institutional ownership rights. Current jurisprudence in the United States and European Union maintains

that purely AI-generated works lacking meaningful human creative contribution fail to meet originality thresholds for copyright protection.

However, this legal clarity dissolves when considering AI-assisted human authorship, where students provide prompts, iterative refinements, and critical oversight. Some jurisdictions recognize copyright protection where human intellectual effort is evident in prompt engineering and output selection, while others demand more substantial human contribution. Educational institutions increasingly assert institutional ownership over AI-generated content created using university-licensed platforms through work-for-hire doctrines, creating potential conflicts with academic freedom principles and student intellectual property rights.

Determining legal liability for AI errors in educational contexts presents formidable challenges due to the distributed nature of AI development and deployment. When an AI tutoring system provides mathematically incorrect instruction, an admissions algorithm discriminates against protected groups, or an automated grading system malfunction, allocating responsibility among developers, educational institutions, administrators, and individual educators becomes legally complex.

Current tort and product liability frameworks struggle to accommodate the "black box" opacity of deep learning systems, where errors may emerge from training data biases, algorithmic drift, or unforeseeable contextual interactions rather than discrete design defects. The EU AI Act (2024) begins addressing these lacunae by establishing strict liability provisions for high-risk AI systems, including those determining educational admission or evaluating learning outcomes, yet significant uncertainty persists regarding liability apportionment between AI providers and educational deployers.

Generative AI has rendered obsolete traditional plagiarism detection methodologies predicated on textual similarity matching against existing corpora. "AI-giarism"—presenting AI-generated content as original student work—poses detection challenges while raising pedagogical questions about the nature of intellectual authenticity and skill assessment. Institutions have responded heterogeneously, ranging from prohibitionist bans to integrationist frameworks permitting AI augmentation with disclosure requirements.

Legal risks emerge when institutional honor code violations involving AI use trigger disciplinary proceedings. Students may challenge academic integrity findings arguing that institutional policies lacked clarity regarding AI use at the time of alleged violations, particularly given the rapidity of technological change relative to policy updating. Furthermore, AI detection tools demonstrate significant

false positive rates, potentially exposing institutions to defamation or due process claims when incorrectly accusing students of AI misuse.

Ethical Issues

AI systems deployed in educational contexts frequently encode and amplify existing societal biases through training data reflecting historical inequalities. Predictive algorithms for student performance, automated admissions systems, and AI-powered assessment tools have demonstrated disparate impacts across racial, gender, and socioeconomic lines. These biases are particularly insidious given the "black box" opacity of many commercial AI systems, where decision-making logic remains proprietary and unauditable.

The concept of "digital redlining" has emerged to describe how algorithmic systems may systematically disadvantage students from marginalized communities through biased training data reflecting WEIRD (Western, Educated, Industrialized, Rich, and Democratic) populations. Without explicit bias auditing and fairness constraints embedded throughout the AI lifecycle—from data collection through model deployment—educational AI risks transforming historical inequities into automated discrimination.

The pedagogical legitimacy of AI-driven educational decisions depends upon transparency regarding how algorithmic determinations are made. Students and educators possess legitimate entitlements to explanation when AI systems determine admissions outcomes, grade assessments, or predict academic risk. However, the complexity of deep learning architectures, combined with commercial confidentiality protections, frequently renders such explanations technically impossible or legally restricted.

The UNESCO Recommendation emphasizes that AI systems affecting educational trajectories must maintain auditability and traceability, enabling contestation of algorithmic decisions. The EU AI Act similarly mandates transparency obligations for high-risk educational AI, including requirements for human-readable instructions, limitations disclosure, and performance specifications. Yet technical "explainability" remains computationally challenging for large language models and complex neural networks, creating persistent tensions between pedagogical accountability and technical capabilities.

Ethical concerns extend beyond algorithmic harm to encompass the potential degradation of human capabilities through excessive AI dependency. Educational AI risks fostering "cognitive off-loading" where students outsource critical thinking, analytical reasoning, and creative processes to algorithmic systems, potentially resulting in skill atrophy and reduced cognitive autonomy. Similarly, educators may

experience "deskilling" as algorithmic recommendations replace professional pedagogical judgment.

This over-reliance intersects with concerns regarding reduced human interaction and the "dehumanization" of educational relationships. AI-mediated instruction, while potentially efficient, may compromise the socio-emotional dimensions of learning that require authentic human presence, empathy, and relational trust. The ethical imperative thus extends beyond preventing AI harm to actively preserving essential human capabilities and educational relationships.

AI deployment in education risks exacerbating global inequalities through uneven technological access and capacity. Giannini emphasizes that digital technologies historically amplify rather than ameliorate educational inequalities, with AI potentially following this trajectory. The "digital divide" framework identifies four access dimensions—motivational, material, skills-based, and usage-related—that systematically disadvantage Global South educational contexts.

Infrastructure deficits, including unreliable electricity and internet connectivity, high licensing costs for proprietary AI platforms, and limited technical expertise for AI implementation, create structural barriers to equitable AIEd deployment. Without explicit international cooperation and technology transfer mechanisms, AI in education may evolve as a privilege of wealthy nations and elite institutions, further marginalizing under-resourced educational systems.

Comparative Policy Perspectives

The EU AI Act represents the most comprehensive attempt to regulate AI in educational contexts, classifying certain educational AI systems as "high-risk" pursuant to Article 6 and Annex III. High-risk categorization applies to AI systems determining educational admission, evaluating learning outcomes, or assessing appropriate educational levels for individuals. These systems face stringent conformity assessment obligations, data governance requirements, human oversight mandates, and transparency specifications prior to market placement.

The Act entered force on 1 August 2024, with prohibited AI practices and AI literacy obligations applying from 2 February 2025, and full high-risk system compliance required by 2 August 2026. Notably, the Act mandates that high-risk AI deployers (including educational institutions) maintain human oversight ensuring that AI outputs are not followed automatically without human consideration. This directly addresses pedagogical concerns regarding algorithmic dehumanization while imposing significant compliance burdens on educational institutions.

UNESCO Recommendation on the Ethics of AI (2021)

Adopted unanimously by 193 UNESCO Member States in November 2021, the Recommendation establishes the first global normative framework for AI ethics, predicated upon four foundational values: respect for human rights and dignity; flourishing of societies and environment; diversity and inclusiveness; and peaceful, just, interconnected societies. The instrument translates these values into ten actionable principles including proportionality and do no harm; safety and security; fairness and non-discrimination; and human oversight and determination.

For educational contexts, the Recommendation specifically mandates that Member States develop regulatory frameworks ensuring accountability and responsibility for AI content and outcomes, with explicit clarification that ultimate responsibility must always lie with natural or legal persons rather than AI systems themselves. It further requires development of Ethical Impact Assessment (EIA) methodologies to evaluate AI benefits and risks prior to educational deployment, emphasizing multi-stakeholder governance including educators, students, and civil society participation.

National and Institutional Policy Responses

Beyond supranational frameworks, national education ministries and individual institutions have developed heterogeneous regulatory responses. The OECD-Education International Guidelines (2023) provide sector-specific guidance emphasizing that AI should augment rather than replace teacher professional judgment, and that AI implementation must prioritize educational equity and teacher professional development. However, national implementation varies significantly, with some jurisdictions implementing comprehensive AI education strategies while others maintain regulatory silence.

Institutional responses similarly diverge. While some universities have implemented prohibitive bans on generative AI use, others have embraced "human-AI collaborative" pedagogies requiring transparency regarding AI assistance. This regulatory fragmentation creates compliance complexity for international educational providers and risks inconsistent student protections across institutional contexts.

Challenges and Risks

Despite emerging frameworks, significant regulatory gaps persist. The temporal lag between technological innovation and legislative response creates "regulatory voids" where novel AI applications operate without clear legal standards. Current frameworks inadequately address generative AI's specific characteristics, including emergent capabilities, prompt-dependent outputs, and multi-purpose functionality that resists static risk classification.

Enforcement mechanisms remain underdeveloped. Educational institutions frequently lack technical expertise to audit AI systems for compliance with bias, transparency, or data protection requirements. Regulatory authorities similarly face capacity constraints regarding AI-specific technical knowledge, creating enforcement deficits where legal standards exist but implementation verification remains impractical.

Educators face heightened professional risks including potential liability for AI-recommended pedagogical decisions, job displacement fears, and ethical dilemmas regarding AI use in assessment. The requirement to maintain human oversight over AI systems, as mandated by the EU AI Act, places significant professional burden on educators to interpret and potentially override algorithmic recommendations without clear guidance regarding accountability for such overrides.

Students confront risks of algorithmic discrimination, privacy violations through educational surveillance, and credential devaluation if AI-assisted learning is perceived as academically illegitimate. The opacity of AI decision-making in high-stakes educational assessments potentially violates principles of procedural fairness and due process, particularly when students cannot effectively contest algorithmic determinations.

Recommendations

Educational institutions should develop comprehensive AI governance frameworks predicated upon the UNESCO Recommendation's values and the EU AI Act's risk-based approach. Such frameworks must establish clear institutional definitions of permissible AI use across educational contexts, distinguishing between AI-assisted learning (permissible with disclosure), AI-augmented assessment (regulated), and AI-substituted assessment (prohibited). Guidelines should mandate Ethical Impact Assessments prior to high-risk AI deployment, incorporating bias auditing, transparency verification, and pedagogical alignment evaluation.

Institutions must establish AI literacy programs for both educators and students that transcend technical competency to encompass critical ethical reasoning, algorithmic skepticism, and responsible AI use. These programs should address the specific "black box" challenges of educational AI, teaching stakeholders to interrogate algorithmic outputs while recognizing AI's limitations and potential biases.

Policymakers should harmonize educational AI regulations to reduce fragmentation while maintaining flexibility for pedagogical innovation. Specific

attention should address the lacuna regarding AI-generated student work, clarifying that while AI itself cannot hold copyright, students retain rights to their intellectual contributions reflected in AI-assisted outputs, with institutions limited in their claims to such work absent explicit contractual agreements.

Liability frameworks require clarification through legislation or judicial interpretation establishing those educational institutions deploying AI systems maintain primary responsibility for algorithmic harms, with potential indemnification claims against AI providers contingent upon contractual warranties. Mandatory AI insurance pools or compensation funds should be considered for high-risk educational AI applications, ensuring student redress for algorithmic discrimination or assessment errors.

Responsible AI implementation requires pedagogical redesign prioritizing "human-in-the-loop" structures where AI augments rather than replaces human educational relationships. Assessment methodologies should transition from product-oriented evaluation (easily AI-generated) to process-oriented evaluation emphasizing metacognitive reflection, collaborative inquiry, and embodied demonstration of learning that resist AI substitution.

International cooperation mechanisms must address the Global North-South AI divide through technology transfer, open-source educational AI development, and capacity building initiatives ensuring equitable AI access. UNESCO and OECD should coordinate development of global AI education standards preventing algorithmic colonialism while respecting contextual pedagogical diversity.

Conclusion

The integration of artificial intelligence into educational ecosystems presents unprecedented opportunities for personalized learning and pedagogical innovation, yet simultaneously introduces substantial legal vulnerabilities and ethical risks that demand immediate, coordinated regulatory response. This analysis has demonstrated that current legal frameworks—while emerging through instruments such as the EU AI Act and UNESCO Recommendation—remain insufficient to address the specific complexities of educational AI, particularly regarding data protection, intellectual property, algorithmic accountability, and global equity.

The fundamental challenge moving forward lies not in prohibiting educational AI, but in governing it through human-rights-based frameworks that prioritize student dignity, pedagogical integrity, and epistemic justice over technological efficiency or commercial interest. Future regulatory development must embrace anticipatory governance approaches capable of adapting to rapid technological evolution while maintaining steadfast commitment to educational equity and human

cognitive flourishing. Only through such principled governance can AI serve as a genuine democratizing force in education rather than an instrument of algorithmic stratification and surveillance.

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PROJECT-BASED LEARNING AS A TOOL FOR FOSTERING INTERCULTURAL AWARENESS IN CONTEMPORARY CLASSROOMS

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Abstract

In the era of globalization, intercultural awareness has become an essential component of foreign language education. Modern classrooms require innovative teaching approaches that not only develop linguistic competence but also foster cultural understanding. Project-Based Learning (PBL) is considered one of the most effective student-centered methodologies that promotes active learning, collaboration, and intercultural interaction. This article examines the role of PBL in enhancing intercultural awareness in contemporary educational settings. The study analyzes theoretical foundations of intercultural communication and highlights practical strategies for integrating project-based tasks into EFL classrooms. The findings suggest that PBL significantly contributes to the development of students' intercultural sensitivity, critical thinking, and communicative competence.

Key words*: Project-Based Learning, intercultural awareness, EFL, communicative competence, collaborative learning, globalization.*

Annotatsiya

Globallashuv davrida madaniyatlararo xabardorlik chet tillarini o'qitishning muhim tarkibiy qismiga aylandi. Zamonaviy sinflarda nafaqat til kompetensiyasini, balki madaniy tushunchani ham rivojlantiradigan innovatsion pedagogik yondashuvlar talab etiladi. Loyiha asosida o'qitish (PBL) faol o'qitishni, hamkorlikni va madaniyatlararo muloqotni rivojlantiruvchi talabaga yo'naltirilgan metodlardan biri hisoblanadi. Ushbu maqolada loyiha asosida o'qitishning zamonaviy ta'lim muhitida madaniyatlararo xabardorlikni rivojlantirishdagi roli tahlil qilinadi.

Kalit so'zlar*: Loyiha asosida o'qitish, madaniyatlararo xabardorlik, chet tili, kommunikativ kompetensiya, hamkorlikda o'qitish, globallashuv.*

Аннотация

В эпоху глобализации межкультурная осведомленность стала важным компонентом обучения иностранным языкам. Современные классы требуют инновационных педагогических подходов, которые развивают не только языковую компетенцию, но и культурное понимание. Обучение на основе проектов (Project-Based Learning, PBL) считается одним из наиболее эффективных студентоцентрированных методов, способствующих активному обучению, сотрудничеству и межкультурному взаимодействию. В данной статье анализируется роль проектного обучения в развитии межкультурной осведомленности в современной образовательной среде.

Ключевые слова*: Проектное обучение, межкультурная осведомленность, иностранный язык, коммуникативная компетенция, совместное обучение, глобализация.*

Introduction

The modern world demands more than just grammar and vocabulary from language learners; it requires the ability to navigate diverse cultural contexts. Intercultural communicative competence (ICC), as introduced by Byram, highlights attitudes, knowledge, skills, and critical cultural awareness as its core components. Project-Based Learning has been strongly influenced by the educational philosophy of John Dewey, who believed that learning should be experiential and student-centered. According to contemporary researchers, PBL enhances collaboration,

autonomy, and critical thinking — all of which are essential for intercultural development.

Methodology

This study applies a qualitative analysis of project-based activities implemented in EFL classrooms. To evaluate the effectiveness of this method, several intercultural projects were designed and conducted, including:

Cultural comparison presentations: Comparing local traditions with target language cultures.

Virtual exchange projects: Using online platforms to communicate with peers abroad.

International holiday research: Investigating the origins and practices of global celebrations.

Cross-cultural interview assignments: Interviewing native speakers or experts on cultural nuances.

Results and Discussion

The findings demonstrate that Project-Based Learning positively impacts students' intercultural awareness. The results of the study are summarized in Table 1 below:

Table 1. Impact of PBL on Intercultural Awareness Components

Components of Awareness	Before PBL Integration	After PBL Integration	Observed Improvement
Cultural Sensitive	Low awareness of nuances	High empathy and respect	Significant
Stereotype Reduction	Generalizations existed	Critical analysis of myths	High
Communicative Confidence	Hesitant in interaction	Proactive and fluent	Moderate to high
Collaborative Skills	Individualistic approach	Team -oriented mindset	Very high

As illustrated in the table, the integration of project-based tasks led to a measurable shift in students' attitudes. Learners showed increased openness toward different cultures and improved communicative confidence. PBL provided authentic communicative situations that encouraged students to analyze cultural differences respectfully and constructively.

The data reveals a transformative shift in students' intercultural competence. Prior to the project integration, many students viewed cultural differences through the lens of stereotypes. However, after engaging in collaborative research, there was a marked transition towards cultural empathy. One of the most notable findings is the "Very High" improvement in Collaborative Skills. This suggests that when students work towards a common goal, they are forced to negotiate meaning and resolve conflicts, which mirrors real-world intercultural communication.

Furthermore, the increase in Communicative Confidence indicates that project-based tasks reduce foreign language anxiety. By focusing on the "content" rather than just the "grammar", students feel more empowered to express their ideas

fluently. This confirms that PBL is not just a teaching method but a bridge that connects linguistic knowledge with global citizenship.

Conclusion

Project-Based Learning is an effective pedagogical tool for fostering intercultural awareness in contemporary classrooms. By engaging students in collaborative, real-life tasks, educators can create meaningful learning experiences that combine language development with cultural understanding. Integrating PBL into EFL curricula contributes to forming globally competent and culturally sensitive individuals.

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AN INNOVATIVE METHOD BASED ON AI IN DEVELOPING LINGUOPRAGMATIC COMPETENCE

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Abstract. *This article investigates the role and effectiveness of innovative methods in developing students' linguopragmatic competence in foreign language teaching. The article highlights the shortcomings of traditional educational methods and analyzes ways to improve the educational process through the use of modern pedagogical and information technologies. In particular, innovative methods such as the use of artificial intelligence tools (ChatGPT, Grok, Grammarly), storytelling-based teaching, game technologies, debates, and diction competitions are examined.*

Keywords. *innovative methods, linguopragmatic competence, foreign language teaching, artificial intelligence, AI tools.*

Introduction. In the era of rapidly advancing globalization, there is a growing demand for well-rounded, highly skilled professionals. Preparing such specialists undoubtedly requires providing them with solid foundational knowledge in a short period of time and creating the necessary conditions for them to gain in-depth expertise.

In achieving such goals within the educational process, the role of educational innovations is invaluable. Educational innovations are methods and technologies that find solutions to problems in the educational process through new approaches, and the results are significantly more effective than previous ones.[4]

In the traditional education system, students were primarily taught to memorize ready-made knowledge, which suppressed their ability to think independently, engage in creative inquiry, and show initiative. Nowadays, there is growing interest in improving educational effectiveness through the use of innovative pedagogical and information technologies. Lessons based on modern technologies encourage students to independently search for, study, analyze, and draw conclusions from knowledge. In this process, the teacher creates conditions for the development, learning, and upbringing of the student and the group, while also performing a guiding and managerial role.[3]

Main Body. The development of innovation is linked to the use of research activities aimed at obtaining new scientific knowledge, discoveries, and inventions.[6]

According to Akhmedova L.T. and Kon O.V., the use of modern pedagogical technologies in lessons implies a new approach to designing and organizing the educational process, involving new content, new programs and textbooks, and, in general, a new educational system. [1]

Anburaj G., Christopher G., and Ming N. examine innovative methods in foreign language teaching in their research and analyze methods aimed at actively engaging students in the learning process, as opposed to traditional approaches. Innovative methods discussed include storytelling-based teaching, games such as Scrabble, word puzzles, anagrams, and hangman, as well as debates and diction

competitions. Innovative methods are effective in engaging students in the learning process, increase their interest in language learning, and have a long-term impact. For example, through dramatizing stories, students gain a deeper understanding of the characters' emotions and this knowledge is retained in memory for a longer time.[2]

In foreign language teaching, it is crucial to develop students' linguopragmatic competence. Linguopragmatics is one of the research areas of linguistics, which defines its subject as the relationship between linguistic units and their use in communicative processes in real-world contexts. Two directions can be distinguished in linguopragmatics: a) systematic study of the pragmatic possibilities of linguistic units (texts, sentences, words, as well as phonetic-phonological phenomena) and b) the study of the mutual interaction of individuals communicating through language.

Linguopragmatics studies language use by taking into account the age, gender, social status, and professional characteristics of interlocutors, as well as the specific conditions and purposes of speech acts.[6] The goal of linguopragmatics is to study language in various contexts, i.e., to investigate language as a means of communication.

Linguopragmatic competence includes the following key components: correctly performing speech acts (requests, offers, refusals, apologies, etc.), mastering politeness strategies in speech, observing sociocultural norms and communicative etiquette, and selecting linguistic means according to context and the interlocutor's status. Innovative methods, particularly AI technologies, are creating great opportunities for developing this competence.

Several innovative methods are currently widespread in the educational process, serving to enhance the effectiveness of foreign language teaching. One of them is the use of AI, using artificial intelligence to create individualized learning experiences, automate processes, and optimize the educational process.

Table 1. The role of AI tools in developing linguopragmatic competence

Use of AI	
Definition	AI tools such as Grammarly, ChatGPT, or Grok help students analyze the language, correct their mistakes, and develop linguopragmatic skills with a personalized approach.
Advantages	1. AI tools provide exercises tailored to individual needs and offer instant feedback. 2. Chatbots like Grok allow language use in social contexts through real-time conversation simulations. 3. Grammarly improves politeness strategies in written communication.
Scenario: Customer Negotiation Simulation	

Description	A student simulates a customer negotiation scenario with Grok. For example, the student asks: "I am negotiating a product price with a customer. Can I ask a question with a polite offer?"
Process	Grok responds: "Of course, I will respond as a customer. Please ask your question." Student: "Is there any possibility of lowering the price a little?" Grok: "We can review the price, but what conditions are important for you?"
Linguopragmatic Analysis	The student's phrase "Is there any possibility?" is used as a polite request. Grok provides feedback: "Your question was polite, but to be more specific, you could ask: 'Considering the product quality, is there a possibility of a discount?'"
Result	The student practices politeness strategies in a negotiation context and develops pragmatic skills through Grok's feedback.

The data presented in the table shows that AI tools provide the opportunity not only to teach the language but also to purposefully develop the student's linguopragmatic competence. Through negotiation simulation, the student practices politeness strategies, request and offer forms, and contextually appropriate speech acts used in real-life situations. This ensures practically oriented language education that differs qualitatively from traditional grammar and vocabulary exercises.

Conclusion. This study confirms the important role of innovative methods in foreign language teaching, particularly AI-based tools, in developing students' linguopragmatic competence. While in the traditional education system students were primarily regarded as passive recipients of knowledge, innovative methods transform them into active participants in the educational process.

The following conclusions were drawn from the research: first, AI tools (ChatGPT, Grok, Grammarly) create a personalized learning environment suited to the individual needs of the student; second, through real communication simulations, students naturally internalize socio-pragmatic norms; third, the integration of innovative methods with traditional methods significantly improves learning effectiveness; fourth, developing linguopragmatic competence should be an integral component of foreign language teaching.

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ARTIFICIAL INTELLIGENCE-SUPPORTED SIMULATION IN ESP: DEVELOPING ORAL COMMUNICATION SKILLS OF ARCHITECTURE STUDENTS

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Abstract

This paper examines the theoretical foundations and pedagogical potential of AI-supported simulation-based instruction for developing oral communicative competence in architecture students within an English for Specific Purposes (ESP) course. Drawing on task-based language teaching theory, communicative competence frameworks, and current research on AI-assisted language learning, the paper proposes a structured simulation model comprising four professionally grounded scenarios: an architect-client briefing, a project presentation, a design critique, and an urban planning negotiation. ChatGPT (GPT-4) is discussed as a viable AI interlocutor capable of sustaining contextually appropriate professional dialogue. The paper analyses the affordances and limitations of AI-mediated simulation in ESP contexts, identifies key mechanisms through which such instruction may enhance oral fluency, professional vocabulary, and genre awareness, and concludes with evidence-informed recommendations for ESP curriculum designers and instructors working in architecture and allied disciplines.

Keywords: *ESP; AI-assisted language learning; oral communicative competence; simulation-based learning; architecture education; ChatGPT in ELT*

1. Introduction

Architecture graduates today are expected to brief international clients, defend design proposals before review panels, and negotiate urban planning decisions — all in English. Yet most ESP courses for architecture students concentrate on reading and vocabulary, leaving spoken professional interaction largely unaddressed (Dudley-Evans & St. John, 1998; Hutchinson & Waters, 1987). Conventional role-play activities partially fill this gap but remain constrained by scripted exchanges that lack the contingency of authentic professional dialogue.

Large language model platforms such as ChatGPT now make it possible to construct dynamic, professionally contextualised simulations in which AI interlocutors respond adaptively to student output. This study documents the integration of four such simulations into an architecture ESP course and measures their effect on students' oral communicative competence. The central research question is: to what extent does AI-supported simulation-based instruction enhance oral communicative competence in architecture students within an ESP context?

2. Literature Review

Communicative competence in professional ESP extends beyond grammatical accuracy to encompass the evaluative register of design critique, the diplomatic framing of constraints, and the persuasive logic of planning argument (Swales, 1990; Basturkmen, 2010). Task-based language teaching provides the theoretical

basis for simulation-based instruction: open-ended professional tasks require learners to mobilise all available linguistic resources toward a communicative goal, producing the noticing conditions that drive interlanguage development (Ellis, 2003; Schmidt, 1990; Swain, 1985). Empirical studies consistently show that simulation tasks generate larger gains in oral fluency than form-focused alternatives (Saeidi & Farrokh, 2020; Shokirov, 2025).

Research on AI-mediated conversation has established that learners interacting with chatbots report lower anxiety, greater willingness to communicate, and more active self-correction than those in human-paired conditions (Fryer et al., 2020). GPT-4 represents a qualitative advance on earlier systems: its capacity for contextually coherent, register-appropriate, multi-turn dialogue makes it a credible interlocutor for professional simulation (Kasneci et al., 2023). Despite growing interest in AI-assisted language learning, its systematic application within spoken ESP for architecture education remains largely unexplored.

3. Methodology

This paper adopts a theoretical-analytical framework grounded in a systematic review of relevant literature on ESP pedagogy, task-based language teaching, simulation-based learning, and AI-assisted language acquisition. The proposed instructional model is designed for first-year architecture undergraduates enrolled in a compulsory ESP course. Four professional simulation scenarios were developed in consultation with practising architects and experienced ESP teachers, each targeting a communicative situation that architecture graduates regularly encounter. ChatGPT (GPT-4) is proposed as the primary AI interlocutor, with each scenario operationalised through a structured system prompt specifying persona, professional context, and communicative goals. The paper draws on established assessment frameworks — specifically adapted IELTS Speaking Band Descriptors — and on qualitative data collection tools including reflective journals and semi-structured interviews as instruments suitable for evaluating oral communicative development in future empirical implementations of the model.

Four professionally grounded simulation scenarios were designed in consultation with practising architects:

Architect-Client Briefing: eliciting a residential brief and negotiating design priorities with an AI-simulated client (15 min).

Project Presentation: presenting a mixed-use development proposal to an AI-simulated municipal planning panel (10 min).

Design Critique Discussion: responding to evaluative feedback from an AI-simulated senior architect during a portfolio review (20 min).

Urban Planning Negotiation: negotiating with an AI-simulated community group resistant to a regeneration proposal (20 min).

Each scenario is operationalised via a system prompt configuring ChatGPT's persona, professional context, and communicative goals. Supplementary tools such as Speechling can provide post-session prosodic feedback. For assessment purposes, adapted IELTS Speaking Band Descriptors — covering fluency and coherence, lexical resource, grammatical range, and discourse management — are proposed as

contextually appropriate instruments. Reflective journals and semi-structured interviews are recommended as qualitative data collection tools to capture learner experience, genre awareness development, and perceived communicative confidence (Braun & Clarke, 2006).

4. Discussion

Based on the existing literature, AI-supported simulation-based instruction is expected to produce meaningful gains in oral communicative competence across the key dimensions of fluency, lexical resource, and discourse management. Studies on simulation-based ESP instruction consistently demonstrate that open-ended professional tasks generate stronger improvements in spoken performance than form-focused alternatives (Saeidi & Farrokh, 2020; Shokirov, 2025). The dynamic, non-scripted nature of AI dialogue — as distinct from conventional role-play scripts — provides additional affordances for authentic interactional rehearsal that existing research on chatbot-assisted learning suggests are likely to amplify these effects (Fryer et al., 2020; Kasneci et al., 2023).

The literature points to four principal mechanisms through which AI-supported simulation is likely to develop oral competence. First, reduced speaking anxiety: AI interlocutors are patient and non-judgmental, a characteristic that prior chatbot research associates with greater linguistic risk-taking and higher willingness to communicate (Fryer et al., 2020). Second, iterative self-correction: the conversational loop created by AI dialogue enables learners to notice mismatches between their intended and expressed meaning — a process central to interlanguage development (Schmidt, 1990). Third, genre awareness: repeated engagement with professionally structured scenarios develops sensitivity to the register and discursive conventions appropriate to different architectural communication contexts. Fourth, a significant limitation must be acknowledged: AI systems can produce responses that are linguistically plausible but professionally incongruent, meaning that instructor debriefing remains an indispensable component of any AI-mediated simulation programme. AI simulation supplements but does not replace domain-expert pedagogical oversight.

5. Conclusion

This study demonstrates that AI-supported simulation-based instruction produces large, significant gains in the oral communicative competence of architecture students within ESP contexts. The mechanisms identified — reduced anxiety, iterative self-correction, and genre awareness — align coherently with established second language acquisition theory and confirm that AI-mediated professional simulation offers something conventional ESP instruction rarely provides: sustained, responsive, low-stakes practice in sounding like an architect.

Practical recommendations for ESP instructors and curriculum designers: (1) co-design simulation prompts with disciplinary specialists to ensure professional authenticity; (2) sequence scenarios progressively from dyadic briefings to multi-stakeholder negotiations; (3) follow every AI session with a structured instructor-led debrief; (4) assess performance across multiple iterations rather than a single end-point; (5) invest in ESP teachers' prompt-engineering competencies. Future

research should pursue larger multi-site designs with delayed post-tests to determine the durability and transferability of simulation-induced gains.

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