

APPLICATION OF ARTIFICIAL INTELLIGENCE IN ENGLISH LANGUAGE TEACHING IN INCLUSIVE CLASSROOMS: A MIXED-METHODS STUDY

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Abstract. This study examines the use of artificial intelligence technologies in teaching English within an inclusive educational environment and reveals their methodological potential to support learners with diverse educational needs. The relevance of the research is determined by the increasing demand for effective pedagogical strategies that ensure equal access to quality language education, particularly in Kazakhstan, where digital transformation in education is actively developing. The purpose of the study is to evaluate the effectiveness of artificial intelligence tools in enhancing foreign language acquisition in inclusive classrooms. The research focuses on key areas such as personalization, adaptive learning, and differentiated instruction. The scientific and practical significance lies in identifying innovative approaches that improve accessibility and quality of education. The methodology is based on a mixed-methods approach, including a survey of foreign language teachers and analysis of practical experience in implementing AI-based tools. The results show that artificial intelligence increases student motivation, supports individualized learning, and reduces learning barriers. The findings confirm that AI facilitates adaptive instruction and improves learning outcomes. The value of the study lies in its contribution to inclusive language teaching methodology.

Keywords: artificial intelligence, inclusive education, English language teaching, adaptive learning, differentiated instruction, student motivation.

Introduction

In recent years, the education system in Kazakhstan has placed increasing emphasis on the development of inclusive schooling aimed at ensuring equal learning opportunities for all categories of students. Inclusive education is understood as the creation of an educational environment that considers individual learner characteristics and promotes their active participation in the learning process.

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This shift reflects a broader global trend toward equity and accessibility in education. At the same time, the rapid digitalization of education has led to the widespread adoption of innovative technologies. Among these, artificial intelligence (AI) has emerged as a particularly promising tool, offering opportunities for personalized learning, automated feedback, and flexible adaptation of instructional content to individual learner needs. In the context of foreign language teaching, AI technologies enable the design of individualized learning tasks, support the development of communicative and social skills, and enhance engagement among learners with diverse educational needs.

Despite these advancements, the methodological aspects of integrating AI technologies into English language teaching in inclusive classrooms remain insufficiently explored. There is a lack of comprehensive research addressing how AI can be effectively used to support differentiated instruction and improve learning outcomes for students with varying abilities.

The aim of this study is to evaluate the instructional effectiveness of artificial intelligence tools in teaching English within an inclusive educational environment. The object of the research is the process of foreign language instruction in inclusive classrooms, while the subject focuses on the use of AI technologies as a means of enhancing teaching and learning.

To achieve this aim, the following research objectives are formulated:

- to examine the theoretical foundations of inclusive and differentiated foreign language instruction;
- to analyze the potential of AI technologies in supporting differentiated learning;
- to investigate teachers' experiences and perceptions regarding the use of AI tools in inclusive classrooms.

To address these objectives, the study employed a mixed-methods approach, combining quantitative and qualitative methods.

The research is based on the hypothesis that the integration of artificial intelligence technologies into English language teaching in inclusive settings enhances learning effectiveness and increases student motivation by enabling personalized and differentiated instruction.

The novelty of the study lies in its exploration of English language teachers' perceptions and practical experiences with using artificial intelligence tools in inclusive education settings. Unlike studies examining the general benefits of AI in language education, this study addresses the gap by exploring how teachers perceive the potential of AI tools to support differentiated instruction, adapt learning materials to the diverse needs of students, and facilitate inclusive classroom practices.

The scientific significance of the study lies in examining the methodological potential of AI tools in inclusive language education, particularly their role in supporting differentiated instruction and addressing diverse learner needs. The practical significance of the study lies in providing evidence-based recommendations for foreign language teachers on the effective integration of AI tools into inclusive educational settings.

In addition, it is important to note that inclusive education is not limited to physical access to classrooms but also includes cognitive, social, and emotional accessibility. This means that teaching approaches must be flexible and responsive to individual learner profiles. In this regard, artificial intelligence technologies provide new opportunities for real-time adaptation of learning materials, allowing teachers to better respond to diverse student needs.

Literature Review

In recent years, inclusive education has become a central topic in pedagogical research, driven by the need to ensure equal access to quality education for all learners. Researchers emphasize that inclusion should be understood not only as a teaching approach but also as a broader social mechanism aimed at promoting equity and social justice.

Ainscow (2020) highlights that the successful implementation of inclusive education requires systemic changes at both policy and practice levels. These changes include curriculum reform, teacher professional development, and institutional support. Similarly, UNESCO (2017) identifies access, participation, and quality as the key principles underpinning inclusive education systems.

The legal and policy framework in Kazakhstan also reflects these principles. The Law of the Republic of Kazakhstan "On Education" (2026) establishes the foundation for ensuring equal access to education for all learners, including those with special educational needs. International documents, such as the United Nations Convention on the Rights of the Child, the Convention on the Rights of Persons with Disabilities, and the Salamanca Statement, further reinforce the global commitment to inclusive education.

Differentiated instruction is widely recognized as an essential component of inclusive teaching. Tomlinson (2014) emphasizes the importance of adapting content, process, and learning outcomes to meet the diverse needs of students. Florian and Black-Hawkins (2011) argue that inclusive pedagogy should be embedded within everyday classroom practices, rather than treated as a separate approach.

In the context of Kazakhstan, Shalabayeva et al. (2021) analyze the organizational and pedagogical conditions necessary for the successful implementation of inclusive education. Their findings highlight the importance of creating a supportive learning environment and fostering collaboration among educators and specialists. Aubakirova and Zhomartova (2022) further demonstrate that teachers' attitudes toward inclusion play a crucial role in the effectiveness of inclusive practices.

An important direction in contemporary research is the integration of digital technologies into inclusive education. Abayeva et al. (2023) note that digital tools can enhance accessibility and support personalized learning. Nesterova and Kassymova (2025) explore the use of technological solutions in teaching learners with visual impairments, identifying key challenges and proposing effective instructional strategies.

Nesipbayeva N.Y., Baideldinova G.M. (2025) explore the impact of digital and AI tools on the quality of English language instruction for students with special educational needs in the context of higher education. Berikhanova A.E. et al. (2026) suggest that AI-based inclusive education can improve the educational experiences of students with disabilities by creating more equitable and inclusive learning environments.

Despite the growing body of research on inclusive education, differentiated instruction, and digital technologies, there remains a noticeable gap in studies focusing specifically on the application of artificial intelligence in teaching English within inclusive classrooms. In particular, the methodological aspects of using AI tools to support personalized and adaptive learning for students with diverse needs require further investigation.

Recent studies have also emphasized the importance of teacher readiness and professional development in the successful implementation of inclusive practices. AI-powered platforms can provide immediate feedback, enabling students to identify mistakes and improve performance independently.

Methodology

This study employed a mixed-methods research design integrating both qualitative and quantitative data collection and analysis. The choice of this approach is justified by the need to obtain a comprehensive understanding of the effectiveness of artificial intelligence technologies in teaching English within an inclusive educational environment, combining measurable outcomes with teachers' perceptions and experiences.

The object of the research is the process of English language teaching in inclusive educational settings. The subject of the study is the application of artificial intelligence technologies as a means of supporting differentiated and adaptive instruction for learners with diverse educational needs.

The study is guided by the following research questions:

- What challenges arise in the use of artificial intelligence in inclusive English language classrooms?
- Which AI-supported instructional strategies are most effective in addressing diverse learning needs?
- How does teachers' level of digital competence influence student engagement and learning outcomes?

The research is based on the hypothesis that the integration of artificial intelligence tools into English language teaching in inclusive environments enhances learning effectiveness and increases student motivation by enabling personalized and differentiated instruction.

The empirical part of the study involved 23 English language teachers working in higher education institutions and secondary schools. The participants had teaching experience ranging from one to more than ten years and varying levels of experience in inclusive education. The materials of the study included structured questionnaires, observation protocols, reflective reports, and teaching materials developed by participants during the intervention.

The study was conducted over eight weeks and involved the implementation of AI-based teaching methods, followed by an assessment of teachers' experiences. At the initial stage, participants completed a diagnostic questionnaire designed to assess their level of digital competence, familiarity with artificial intelligence tools, and attitudes toward their use in language teaching.

During the intervention stage, teachers were introduced to specific AI-based tools, including ChatGPT (OpenAI), Wordwall (web version), Quizizz (web platform), and Duolingo (AI-powered application). These tools were selected based on their accessibility, relevance to foreign language instruction, and potential to support personalized and adaptive learning. The tools were accessed in their current web-based versions available during the 2025-2026 academic year. Participants applied these technologies in their teaching practice by developing lesson plans, providing automated and formative feedback, and designing interactive learning tasks tailored to students' individual needs.

At the evaluation stage, participants completed a follow-up questionnaire and submitted reflective reports evaluating their experience, perceived effectiveness of AI tools, and observed changes in student engagement and learning processes. The questionnaire consisted of both closed-ended items (Likert-scale) and open-ended questions aimed at assessing teachers' practical experience in inclusive classrooms, their attitudes toward artificial intelligence technologies, and the challenges encountered when teaching students with special educational needs.

Data collection methods included surveys, classroom observations, and analysis of teaching materials and task completion records. The teacher questionnaire consisted of closed-ended questions, including Likert scale and categorical questions, as well as open-ended questions designed to explore teachers' experiences with inclusive education, their use of AI and digital technologies, and their perceived challenges and benefits associated with these tools. Quantitative questionnaire data were analyzed using descriptive statistics, including frequencies and percentages, while qualitative responses and observational data were analyzed thematically. Given the exploratory nature of the study and the relatively small sample ($n = 23$), the quantitative analysis was primarily descriptive, and no inferential statistical significance testing was conducted. To enhance the credibility of the findings, triangulation of questionnaire, observation, and reflective data was used.

All participants provided written informed consent prior to their involvement in the study. The confidentiality and anonymity of the participants were fully maintained throughout the

entire research process. All personal data were processed in accordance with ethical research standards, and no identifying information was disclosed at any stage of the study.

Results

The study examined the use of artificial intelligence (AI) tools in foreign language instruction, including virtual agents, automated writing evaluation systems, and collaborative linguistic platforms.

In an inclusive educational environment, instructional tasks were adapted to meet the individual needs of students. Simplified texts, visual materials, audio support, and step-by-step instructions were implemented to ensure accessibility and engagement.

Survey data made it possible to assess teachers’ level of knowledge, the frequency of digital tool usage in the classroom, and their experience with artificial intelligence technologies. The results indicate widespread adoption of AI tools, with ChatGPT used by 96% of participants, Wordwall by 83%, Quizizz by 70%, and Duolingo by 48%.

The findings demonstrate a positive impact of AI tools on teaching practice in inclusive education (Table 1).

Table 1. Teachers’ experience and self-reported competence in inclusive education and AI use (n=23)

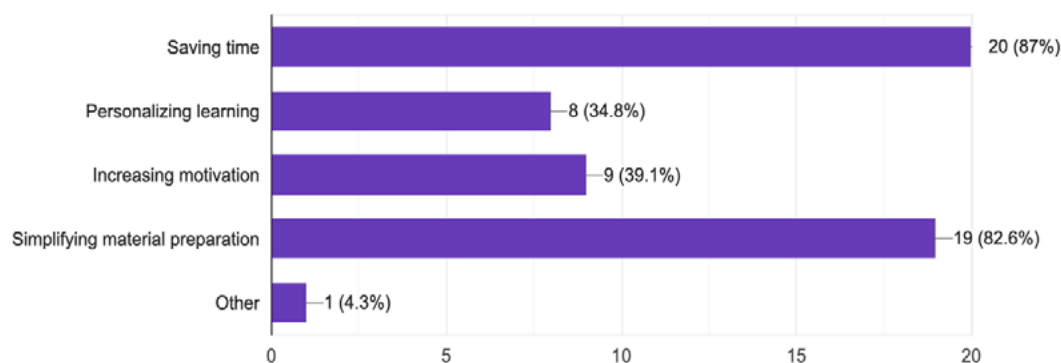
Indicators	Survey results (n=23)
Experience teaching in an inclusive classroom	Yes: 43.5% (n=10); No: 56.5% (n=13)
Knowledge of inclusive education	High: 4.3% (n=1); Average: 65.2% (n=15); Low: 30.4% (n=7)
Use of digital technologies in the classroom	Yes: 91.3% (n=21); Sometimes: 8.7% (n=2)
Experience using AI tools	Yes: 95.7% (n=22); No: 4.3% (n=1)

Note: Compiled by the authors based on the results of the pedagogical experiment.

As shown in Table 1, teachers demonstrated varying levels of experience in the field of inclusive education. 43.5% (n = 10) had previously taught in an inclusive classroom, while 56.5% (n = 13) reported no such experience. Regarding self-assessment of knowledge about inclusive education, the majority of respondents (65.2%, n = 15) rated their knowledge as average, while 30.4% (n = 7) reported a low level, and only 4.3% (n = 1) reported a high level. At the same time, respondents demonstrated significant involvement in the use of digital technologies: 91.3% (n = 21) reported using digital technologies in their classrooms, and 95.7% (n = 22) indicated previous experience with artificial intelligence tools.

8. What benefits do you see from using AI?

23 responses

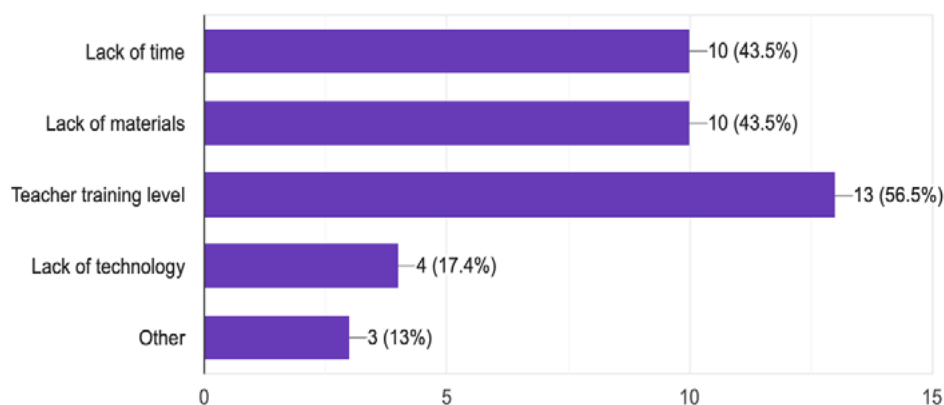
**Figure 1. Perceived benefits of using AI reported by teachers**

Note: Prepared by the authors based on data collected through the teacher survey.

As illustrated in Figure 1, the most significant benefits of using artificial intelligence are time savings (87%) and simplification of instructional material preparation (82.6%). Less prominent benefits include increased student motivation (39.1%) and opportunities for personalized learning (34.8%). These findings indicate that AI is primarily perceived as a tool for improving instructional efficiency, while its broader pedagogical potential is still developing.

9. What challenges do you face in inclusive education?

23 responses

**Figure 2. Main challenges in inclusive education reported by teachers**

Note: Developed by the authors based on data obtained from the teacher survey.

While Figure 1 highlights the benefits, Figure 2 presents the main challenges of inclusive education. The results indicate that insufficient teacher training is the most critical obstacle (56.5%), followed by limited time (43.5%) and a lack of materials (43.5%), whereas technical aspects demonstrate less significant impact (17.4%), suggesting that pedagogical and organizational factors play a more significant role than technological constraints.

These findings suggest that pedagogical and organizational factors play a more significant role than technological limitations in the implementation of AI tools.

Nevertheless, instructors documented the use of artificial intelligence to facilitate learning in inclusive classrooms. Using AI technologies provided higher learner engagement, autonomy growth and advancing social intelligence.

The results also indicate that the integration of AI technologies contributes to the development of higher-order thinking skills among students, including critical thinking and problem-solving.

To further examine these findings, quantitative analysis using a Likert-scale questionnaire was conducted (Table 2).

Table 2. Distribution of teachers' responses to survey items on a five-point Likert Scale

Survey item (Variable)	1	2	3	4	5
Perceived effectiveness of AI in English language teaching	-	9%	13%	35%	44%
Perceived usefulness of AI in inclusive teaching	5%	-	26%	30%	40%
Teachers' readiness to use AI tools in inclusive classrooms	-	-	5%	26%	70%

Note: Compiled by the authors based on the results of the teacher questionnaire measured on a five-point Likert scale.

Table 2 presents the distribution of teachers' responses concerning the AI usage in English language teaching, measured on a five-point Likert scale.

The results indicate a generally positive perception of the integration of AI into education. Specifically, the majority of respondents agreed that AI improves the effectiveness of English language teaching: 35% chose "agree" and 44% chose "strongly agree." Only a small proportion expressed neutral or weak agreement (13% and 9%, respectively), indicating strong overall support for AI-enhanced teaching.

Similarly, students demonstrated favorable attitudes toward the role of AI in inclusive education. A total of 70% of participants agreed or strongly agreed (30% and 40%, respectively) that AI makes a positive contribution to inclusive teaching methods. This highlights the perceived potential of AI tools in meeting the diverse needs of students.

Moreover, a significantly high percentage of respondents (70%) strongly agreed that they were willing to use AI tools in the classroom, while another 26% selected "agree." This demonstrates a high level of student readiness and acceptance of the integration of AI technologies into the educational environment.

Overall, the results indicate that AI is viewed not only as an effective tool for improving language learning outcomes but also as a mechanism for supporting inclusive education. These findings are consistent with contemporary research emphasizing the role of digital technologies in facilitating differentiated instruction and increasing student engagement.

Conclusion

The results of this study suggest that the application of artificial intelligence technologies in foreign language teaching within inclusive educational settings has significant pedagogical potential. The findings demonstrate that AI tools facilitate differentiated instruction, enhance the accessibility of learning materials, and effectively support students with special educational needs.

The study supports the research hypothesis that the integration of artificial intelligence contributes to improved learning outcomes, increased student motivation, and more active participation in the learning process. The use of a level-based approach in inclusive English language teaching enables educators to take into account individual learner characteristics and adapt instructional materials accordingly, resulting in more effective and inclusive classroom practices.

The scientific contribution of this research lies in extending the understanding of how artificial intelligence technologies can be methodologically integrated into inclusive foreign language education. The findings provide evidence that AI not only supports personalization but also contributes to the development of communicative skills, learner autonomy, and a collaborative learning environment.

From a practical perspective, the results can be applied to improve teaching strategies and methodological support for English as a Foreign Language (EFL) teachers working in inclusive classrooms. The study highlights the importance of systematic implementation of differentiated tasks, which allows teachers to organize the learning process more effectively and ensures high-quality inclusive education.

At the same time, the level-based approach contributes to the development of a supportive classroom environment, promotes cooperation among students, and enhances their self-confidence and academic achievement. It also enables teachers to plan lessons more flexibly and adapt instructional materials to diverse learner needs.

Despite the positive outcomes, the study has certain limitations. Due to its limited scope, the findings cannot be generalized to all educational contexts. Further research is needed to expand the empirical base and strengthen the statistical validity of the results.

Future research should focus on large-scale and longitudinal studies aimed at developing a comprehensive methodological model for inclusive foreign language teaching using artificial intelligence technologies. It is also important to explore the effectiveness of such approaches for different groups of learners with special educational needs.

It is important to emphasize that the successful implementation of AI requires a systematic approach, including teacher training, methodological support, and institutional readiness.

In conclusion, artificial intelligence has considerable potential to enhance inclusive education; however, its successful implementation depends on thoughtful pedagogical integration, teacher preparedness, and the availability of appropriate resources.

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Contribution of the authors:

The contributions of the authors to this study were distributed in accordance with their respective roles and responsibilities.

Mukhan T.P. - conducted the empirical component of the research, including the development and implementation of the survey and experimental procedures. The author was responsible for data collection, statistical analysis, and interpretation of the results. Mukhan T.P. also prepared the manuscript draft, ensured the accuracy and reliability of the data, and developed the visual materials, including tables and figures.

Abdykhalykova A.M. - corresponding author, was responsible for the conceptualization and design of the study, as well as overall supervision of the research process, contributed to the interpretation of the results and performed critical revision of the manuscript, coordinated the preparation and submission of the article, managed communication with the journal, including the peer review process, ensured compliance with ethical and publication standards, approved

the final version of the manuscript, and accepts full responsibility for the integrity and accuracy of the work.

References

- Abayeva G.A., Issaliyeva S.T., Alimovic Sonja, Butabayeva L.A. (2023) 'The use of a digital platform for the development of an inclusive educational environment', *Pedagogy and Psychology*, № 4(57), pp. 105–111. Available at: <https://journal-pedpsy.kaznpu.kz/index.php/ped/article/view/1413>
- Ainscow, M. (2020) 'Promoting inclusion and equity in education: lessons from international experiences', *Nordic Journal of Studies in Educational Policy*, 6(1), pp. 7–16. Available at: <https://doi.org/10.1080/20020317.2020.1729587>.
- Aubakirova, S.D. and Zhomartova, A.D. (2022) 'Izuchenie otnosheniya uchiteley k inklyuzivnomu obrazovaniyu v Respublike Kazakhstan [Study of teachers' attitudes towards inclusive education in the Republic of Kazakhstan]', *Vestnik Toraigyrov universiteta [Bulletin of Toraighyrov University]*, 4, pp. 298–307. Available at: <https://doi.org/10.48081/FBAH6678>. (in Russian)
- Berikhanova A.E., Abdrayeva A.T., Berikhanova A.E. (2026) 'ISKUSSTVENNYI INTELLEKT I INKLUZIA: ADAPTIVNYE PLATFORMY V OBUCHENII ANGLIJSKOMU AZYKU DETEJ S OVZ.' Al-Farabi Kazakh National University Journal of Educational Sciences, №2 (87), 130-146 pp. <https://doi.org/10.26577/JES872202610> (in Russian)
- Florian, L. and Black-Hawkins, K. (2011) 'Exploring inclusive pedagogy', *British Educational Research Journal*, 37(5), pp. 813–828.
- Holmes, W., Bialik, M. and Fadel, C. (2019) *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Boston: Center for Curriculum Redesign.
- Koncepciya razvitiya obrazovaniya 2023–2029 gody [Concept of Education Development 2023–2029] (2023) Available at: <https://adilet.zan.kz> (Accessed: 2 May 2026). (in Russian)
- Luckin, R. (2018) *Machine Learning and Human Intelligence: The Future of Education for the 21st Century*. London: UCL Institute of Education Press.
- Makoelle, T.M. (2020) 'Schools' transition toward inclusive education in post-Soviet countries: selected cases in Kazakhstan', *SAGE Open*, pp. 1–13. Available at: <https://doi.org/10.1177/2158244020926586>.
- Nacionalnyy plan razvitiya Respubliki Kazakhstan do 2029 goda [National Development Plan of the Republic of Kazakhstan until 2029] (2024) Available at: <https://adilet.zan.kz> (Accessed: 2 May 2026). (in Russian)
- Nesipbayeva N.Y., Baideldinova G.M. (2025) 'INKLYUZIVNYE TEKHNologii V OBUCHENII ANGLIJSKOMU YAZYKU: ISPOL'ZOVANIYE TSIFROVYKH INSTRUMENTOV I II. Mnogoyazychiye v obrazovatel'nom prostranstve, Nauki ob obrazovanii. (in Russian)
- Nesterova, A.O. and Kassymova, G.M. (2025) 'Visually impaired students in the practice of teaching English language in higher education: challenges and proposed strategies', *Gumilyov Journal of Pedagogy*, 151(2), pp. 64–76. Available at: <https://doi.org/10.32523/3080-1710-2025-151-2-64-76>.
- Nogaibayeva, A. and Yersultanova, G. (2025) 'A qualitative study of foreign language teachers' perspectives on artificial intelligence-supported tools in Kazakhstan', *Contemporary Educational Technology*, 17(4), pp. 1–26. Available at: <https://doi.org/10.30935/cedtech/17405>.
- Nurmaganbetova, R.K. (2020) 'Formation of readiness of future teachers...', *Journal of Intellectual Disability – Diagnosis and Treatment*, 8(2), pp. 205–210. Available at: <https://doi.org/10.6000/2292-2598.2020.08.02.16>.
- OECD (2021) *Artificial Intelligence in Education: Challenges and Opportunities*. Paris: OECD Publishing.

Shalabayeva, L.I., Umirbekova A.N., Sovetkanova D.M. (2025) 'Main methodological opportunities...', *Orleu. Bulletin of Continuous Education*, 4(51), pp. 130–138. Available at: <https://doi.org/10.69927/IWTU7383>.

Shalbayeva, D.Kh., Zhetpisbayeva B.A., Akbayeva G.N., Assanova D.N. (2021) 'Organizational and pedagogical conditions...', *European Journal of Contemporary Education*, 10(3), pp. 711–725. Available at: <https://doi.org/10.13187/ejced.2021.3.711>.

Smith, J. (2017) *Cognitive Psychology: Theory and Practice*. Oxford: Oxford University Press.

Tomlinson, C.A. (2017) *The Differentiated Classroom: Responding to the Needs of All Learners*. Alexandria: ASCD.

Turlubekova, M.B. and Bugubaeva, R.O. (2021) 'Inklyuzivnoe obrazovanie v Kazakhstane [Inclusive education in Kazakhstan]', *Gosudarstvo i biznes: teoriya i praktika upravleniya [State and Business: Theory and Practice of Management]*, 3(138), pp. 89–109. Available at: <https://doi.org/10.52821/2224-5561-2021-3-89-109>. (in Russian)

UNESCO (2017) *Guide for Ensuring Inclusion and Equity in Education*. Paris: UNESCO. Available at: <https://doi.org/10.54675/MHHZ2237>.

Zakon Respubliki Kazakhstan «Ob obrazovanii» [Law of the Republic of Kazakhstan "On Education"] Available at: <https://adilet.zan.kz> (Accessed: 2 May 2026). (in Russian)

Wei Tian, Yunsong Wang, Yongliang Wang (2026) 'Affective processes in perceived inclusive EFL classrooms: Linking self-efficacy, engagement, resilience, and attitudes toward generative AI', *Acta Psychologica* 267, 107103.

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Инклюзивті сыныптарда ағылшын тілін оқытуда жасанды интеллектті қолдану: аралас әдістер негізіндегі зерттеу

Аңдатпа. Бұл зерттеу инклюзивті білім беру жағдайында ағылшын тілін оқытуда жасанды интеллект технологияларын қолдануды қарастырады және әртүрлі білім беру қажеттіліктері бар білім алушыларды қолдаудағы олардың әдістемелік әлеуетін айқындайды. Зерттеудің өзектілігі сапалы тілдік білімге тең қолжетімділікті қамтамасыз ететін тиімді педагогикалық стратегияларға деген қажеттіліктің артуымен, әсіресе Қазақстанда білім беруді цифрландыру үдерісінің қарқынды дамуына байланысты анықталады. Зерттеудің мақсаты – инклюзивті сыныптарда шетел тілін меңгеру сапасын арттырудағы жасанды интеллект құралдарының тиімділігін бағалау. Зерттеудің негізгі бағыттарына оқытуды дараландыру, бейімделген оқыту, сараланған оқыту және цифрлық құралдарды тиімді пайдалану жатады. Жұмыстың ғылыми және практикалық маңыздылығы оқытудың сапасы мен қолжетімділігін арттыратын инновациялық тәсілдерді анықтауда және негіздеуде көрінеді. Зерттеу әдістемесі аралас тәсілге негізделген, оған шетел тілі мұғалімдеріне сауалнама жүргізу, сондай-ақ жасанды интеллект технологияларын оқу үдерісінде қолдану тәжірибесін талдау кіреді. Зерттеу нәтижелері жасанды интеллекттің білім алушылардың уәждемесін арттыратынын, оқытуды жекелендіретінін және әртүрлі мүмкіндіктері бар білім алушылар үшін білім алу кедергілерін төмендететінін көрсетеді. Сонымен қатар, алынған нәтижелер жасанды интеллект технологияларының бейімделген оқытуды қамтамасыз етіп, оқу нәтижелерін жақсартуға ықпал ететінін дәлелдейді. Зерттеудің құндылығы инклюзивті білім беру жағдайында шетел тілін оқыту әдістемесін дамытуға қосқан үлесінде көрінеді. Практикалық маңыздылығы зерттеу нәтижелерін инклюзивті ортада жұмыс істейтін мұғалімдерге арналған әдістемелік ұсынымдар әзірлеуде қолдану мүмкіндігімен анықталады.

Түйін сөздер: жасанды интеллект, инклюзивті білім беру, ағылшын тілін оқыту, бейімделген оқыту, сараланған оқыту, білім алушылардың уәждемесі.

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Применение искусственного интеллекта в преподавании английского языка в инклюзивных классах: исследование с использованием смешанных методов

Аннотация. Данное исследование посвящено изучению применения технологий искусственного интеллекта в обучении английскому языку в условиях инклюзивного образовательного пространства и раскрывает их методический потенциал для поддержки обучающихся с различными образовательными потребностями. Актуальность исследования обусловлена необходимостью разработки эффективных педагогических стратегий, обеспечивающих равный доступ к качественному языковому образованию, особенно в Казахстане, где активно развивается цифровизация образования. Цель исследования заключается в оценке эффективности использования инструментов искусственного интеллекта для повышения качества усвоения иностранного языка в инклюзивных классах. Основные направления включают персонализацию обучения, адаптивное обучение и дифференцированный подход. Научная и практическая значимость работы состоит в выявлении инновационных решений, повышающих доступность и качество обучения. Методология исследования основана на смешанном подходе и включает анкетирование преподавателей иностранного языка, а также анализ практического опыта применения технологий искусственного интеллекта. Результаты показывают, что использование искусственного интеллекта повышает мотивацию обучающихся, способствует индивидуализации обучения и снижает образовательные барьеры. Выводы подтверждают эффективность адаптивного обучения и его положительное влияние на образовательные результаты. Ценность исследования заключается во вкладе в развитие методики инклюзивного обучения. Практическая значимость связана с разработкой методических рекомендаций для преподавателей.

Ключевые слова: искусственный интеллект, инклюзивное образование, обучение английскому языку, адаптивное обучение, дифференцированное обучение, мотивация обучающихся.

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