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AI-ASSISTED SCHOLARLY WRITING IN APPLIED LINGUISTICS AND LANGUAGE EDUCATION IN KAZAKHSTAN: A SCOPING REVIEW

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Abstract. This scoping review studies the essential concepts and research methodologies best suited for exploring AI-assisted academic writing, with a focus on the context of applied linguistics and language education in Kazakhstan. The objectives included identifying key concepts, mapping methodological approaches, assessing emerging trends, revealing gaps and inconsistencies, and offering recommendations for improved practices. Using the PCC framework, the included studies involved scholars, educators, and students in Kazakhstan who addressed the use of AI tools in academic writing. Studies unrelated to academic writing, the Kazakhstani context, or the relevant fields were excluded. Searches were carried out in April 2025 across Scopus, Google Scholar, IEEE, and local databases, and conference proceedings 2021 and 2025 in English. A total of 40 relevant references were analyzed thematically and synthesized narratively. These studies focused on higher education and the use of tools like AI-driven writing assistants, grammar checkers, and plagiarism detection software in academic publishing. Findings indicated growing but cautious adoption of AI technologies, with common themes including improved writing quality, concerns over plagiarism, and the need for clear guidelines. The review underscores the importance of localized research, institutional policy development, and educator training to ensure ethical and effective AI integration in academic writing practices.

Keywords: Academic writing, AI-assisted academic writing, applied linguistics, higher education, scoping review, language education, artificial intelligence (AI), ChatGPT

Introduction

Artificial intelligence (AI) has swiftly emerged as a pivotal element in the fields of applied linguistics and language education, fundamentally altering the interactions of students, educators, and researchers with academic writing. A notable breakthrough in this field is the development of a large-scale solution. ChatGPT, a large language model (LLM), utilizes a 175-billion-parameter

framework and training dataset of over 570GB of textual information to assist in various tasks, such as paraphrasing, summarization, translation, and formatting [1]. These AI applications have been integrated into scholarly practices to enhance efficiency, streamline text creation, and offer tailored feedback. In the field of higher education, there is an increasing adoption of AI tools by both students and educators to improve the process of acquiring knowledge, refining writing abilities, and developing critical thinking skills. One study shows that approximately 79% of students at one university in Kazakhstan regularly engage with ChatGPT and similar technologies for their daily tasks [2]. This trend indicates a significant shift in scholarly approaches. The learning environment as well as the growing reliance on these technologies raises ethical concerns about the authenticity of information and the development of independent academic skills. The significance of AI extends beyond individual applications, as evident in national education priorities across different countries, such as Kazakhstan. This emphasizes the importance of understanding how AI tools like ChatGPT are being used in academic settings and their impact on writing instructional and scholarly discussions in a multilingual context.

In this scoping review, AI-assisted scholarly writing is defined as the use of artificial intelligence technologies to aid in the creation, editing, and formatting of academic papers. This includes LLMs like ChatGPT (https://chat.openai.com) along with other tools like Write and Improve (https://writeandimprove.com), Babbel (https://www.babbel.com), Grammarly (https://www.grammarly.com), and Duolingo (https://www.duolingo.com), which offer improvements in writing, vocabulary assistance, or automated feedback through natural language processing (NLP). These resources assist in the creation and improvement of written content by imitating human-like language skills obtained from an extensive collection of data. Specifically, ChatGPT is a type of artificial intelligence model that can generate coherent text responses based on user prompts. It functions as a productivity booster and an educational tool within academic settings, effectively aiding the scholarly writing process through interactive prompts that provide suggestions, corrections, and text generation specifically designed to meet the objectives of the user.

The integration of artificial intelligence into academic writing processes presents both advantages and challenges. On one hand, applications such as ChatGPT and writing and improvement can dramatically enhance the quality of student writing by offering prompt, automated feedback on crucial elements such as coherence, vocabulary usage, and grammatical precision that are essential for effective communication. This is particularly important in standardized tests such as IELTS [3]. These applications also assist in expanding vocabulary and organizing written content, which can foster learner autonomy. Conversely, ongoing ethical concerns surrounding authorship, plagiarism, data privacy, and overreliance on automation continue to be unresolved [4]. For example, student

use of AI to create or alter significant content raises concerns about academic integrity and the authenticity of educational results. These challenges are particularly significant in areas where digital literacy and academic standards are still in the process of being established. Additionally, the impact of AI tools varies across different disciplines. For instance, engineering students exhibit more concern about the use of artificial intelligence in surveillance compared to their peers in business disciplines [2]. The differences in perceptions, expectations, and actual usage trends across various disciplines emphasize the importance of having a comprehensive understanding of these factors.

Scoping reviews provide a broader overview of the existing literature and are particularly useful for exploring emerging or complex topics. To synthesize the diverse range of tools, user demographics, and institutional settings related to AI-supported academic writing, this scoping review will encompass studies that:

- investigate the use of AI tools in academic writing or language instruction.
- concentrate on higher education settings (students, educators, researchers); and
- analyze topics such as the effectiveness of tools, ethical issues, user attitudes, writing quality, and educational outcomes.

By setting these boundaries, the review aims to encompass a wide range of studies that demonstrate the intricate role of AI in scholarly writing, with a focus on its impact on the field of language education in Kazakhstan. For example, Ghorbandordinejad and Kenshinbay [3] analyze the enhancement of error correction in language acquisition through AI-driven feedback mechanisms, while Dilzhan [4] highlights the ethical dimensions of student reliance on generative AI. Collectively, these investigations establish a substantial foundation for synthesis, indicating that a thorough scoping review could effectively delineate existing knowledge, pinpoint deficiencies, and facilitate future inquiries.

This scoping review aims to investigate and consolidate the existing literature on AI-supported academic writing within the domains of Applied Linguistics and Language Education. It aims to identify fundamental concepts, outline the research methodologies utilized, examine trends in methodology, reveal gaps and inconsistencies in current research practices, and offer evidence-based suggestions for optimal research methodologies in forthcoming studies.

Methods and Materials

This scoping review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [5] guidelines. The review aimed to systematically map and synthesize existing research on AI-assisted scholarly writing within the domains of Applied Linguistics and Language Education, focusing on studies carried out in Kazakhstan between 2021 and 2025. The overall structure and eligibility criteria of the review were guided by the Population, Concept, and

Context (PCC) framework, recommended by the Joanna Briggs Institute [7] for scoping reviews as outlined in Table 1.

Table -1 Eligibility criteria

Category	Inclusion Criteria	Exclusion Criteria
Population	Scholars, university faculty, undergraduate students, researchers, postgraduate students in Applied Linguistics or Language Education in Kazakhstan	Individuals outside Kazakhstan, pupils or not people who are not involved in language-related academic writing
Concept	Research focused on the use of AI tools for writing	Research about AI tools in other aspects of educational activity, including materials development, curriculum planning, and communicative language learning.
Context	Kazakhstani academic and research environment, particularly within applied linguistics and language education, related to integration and perception of AI in scholarly writing processes	Blogs, social media content, news articles, and non-academic sources

To identify relevant literature for this scoping review a systematic and comprehensive search strategy was developed. The search was conducted across a range of international and local academic databases and scholarly indexes, including Scopus, Web of Science, IEEE, Google Scholar, the National Repository of Open Access (http://nur.nu.edu.kz), the Abai Kazakh National Pedagogical University repository, the KazNU digital library, and the Russian Science Citation Index (RSCI). The search strategy utilized a combination of controlled vocabulary terms and free-text keywords, connected using Boolean operators to ensure the retrieval of a broad yet focused range of studies. The following search terms were applied: ("AI-assisted writing" OR "AI academic writing" OR "artificial intelligence writing support") AND ("language education" OR "applied linguistics") AND ("Kazakhstan") AND ("ChatGPT" OR "Grammarly" OR "Write and Improve"). The search was restricted to studies published between January 2021 and May 2025. Additionally, a manual hand-search of the reference lists of added studies acted to identify any additional relevant literature that may not have been captured via the database searches.

The selection of studies pursued a systematic and transparent process based on the PRISMA ScR (Preferred Reporting Items for Systematic Reviews

and Meta-Analyses extension for Scoping Reviews) guidelines [5]. All records retrieved from the database searches and manual reference searches were imported into Rayyan, an online screening tool designed to facilitate the management of systematic review processes. Duplicate records were automatically found and removed.

Subsequently, two reviewers independently screened the titles and abstracts of the remaining records against the pre-defined eligibility criteria guided by the PCC framework. Studies that did not meet the inclusion criteria were excluded at this stage, with disagreements resolved through discussion or consultation with a third reviewer when necessary.

The study selection process followed the PRISMA-ScR framework, and the results are presented using a flow diagram. A total of 89 records were identified through database searches and additional manual searches. After removing 9 duplicates, 80 records remained for title and abstract screening. During this initial screening phase, studies were assessed based on the predefined inclusion and exclusion criteria. 30 records were excluded at this stage for reasons such as irrelevance to the topic, non-scholarly sources, or lack of focus on AI-assisted scholarly writing.

Table 4 maps the reviewed publications to thematic clusters identified during the analysis, allowing for structured categorization of scholarly trends. Table 5 outlines the data analysis and presentation approach, detailing how themes were derived and synthesized from the coded data using the PCC framework and thematic analysis techniques.

Subsequently, 50 full-text articles were retrieved and assessed for eligibility. After thorough review, 3 studies were excluded, primarily due to a mismatch with the target population, context, or concept, as well as methodological ineligibility. Finally, 40 studies were included in the scoping review.

Table 2 - Data extraction

Study	Authors (Year)	Population	AI Tool/ Intervention	Study Design	Key Outcomes
The Evolution of Language Learning	Konyrova L. (2024)	ESL learners	AI in general	Theoretical	Personalized, adaptive ESL learning; socio-cultural impact
Adaptive Learning with AI	Toishybekova & Toishybekov (2024)	ESL learners	Adaptive AI tools	Conceptual	AI enables personalization in ESL learning
ChatGPT in Scholarly Writing	Kocyigit & Zhaksylyk (2023)	Scholars	ChatGPT	Analytical	Enhances writing; raises ethical concerns
Students' Success in Using AI	Uaidullakyzy et al. (2024)	50 students, 239 parents, 25 teachers	AI in general	Mixed methods	Positive attitudes; limited teacher confidence

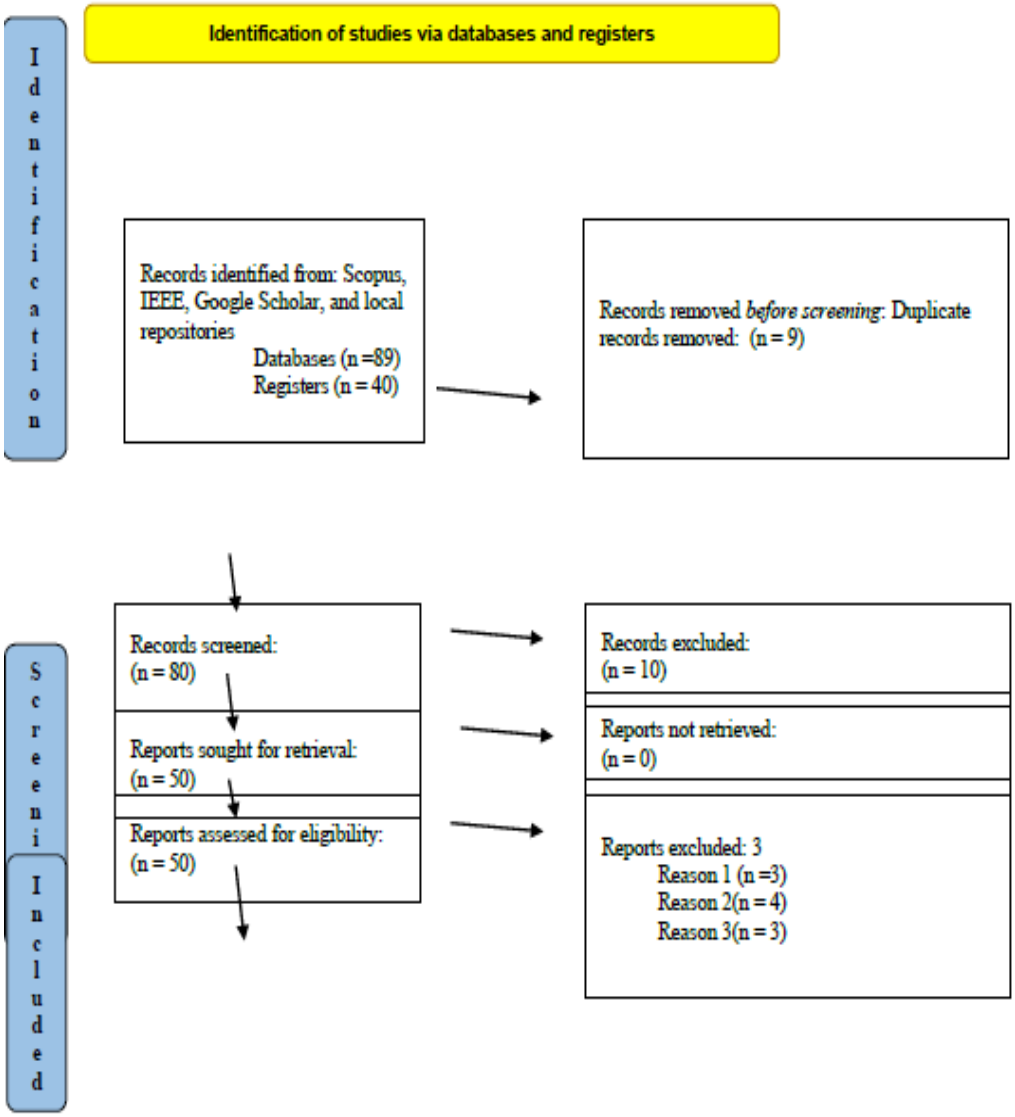
Google/Yandex Translation Detection	Kulikov et al. (2021)	1800 sentences	Google/ Yandex Translate	Experimental	Yandex more effective for Kazakh-Russian-English
AI Writing Assistants in EMI	Fitria R. (2025)	101 EMI students	AI writing tools	Mixed methods	Supports pre-writing/editing; overreliance a concern
Internet Apps & English Literacy	Meiramova & Bayassilova (2021)	38 university students	Mobile AI apps	Mixed methods	Increased literacy through mobile learning
AI-Driven Feedback in L2 Writing	Ghorbandor dinejad & Kenshinbay (2024)	L2 learners	CALL tools with AI	Theoretical	Adaptive feedback improves writing
AI in Higher Ed English Teaching	Tleuzhanova et al. (2024)	150 university students	Speech analysis, ML	Mixed (survey + review)	AI improves effectiveness; needs optimization
ChatGPT as Linguo-Creative Resource	Nauryzbayeva & Bimagambetova (2024)	25 teachers + 250 surveys	ChatGPT	Mixed methods	Positive perception; cultural considerations
Innovative Language Learning & AI	Nurtazina & Nurseltov (2024)	General learners	AI in general	Theoretical	Individualized learning; teacher as guide
AI and Self-Study for Master's	Tazhitova et al. (2025)	164 first-year master's students	AI tools	Survey	Enhanced self-study; risk of reduced critical thinking
AI in ELT: Traditional vs Digital	Kudaibergen A.M. (2022)	General	AI in language learning	Review	Personalized learning; ethical concerns
AI in Kazakh Education System	Orynbassar et al. (2023)	General	AI in general	Policy review	Positive trends; training and access gaps
AI-Supported Creative Writing	Assylbekova N. (2022)	25 Secondary students	AI text generator	Pre-post-test	Improved creativity and coherence
AI in Higher Ed Writing	Alzhanova A.Y. (2024)	15 teachers, 15 students	Grammarly, ChatGPT, etc.	Mixed methods	Improved accuracy; ethical concerns
Publication Activity Analysis	Yessirkepov et al. (2015)	Researchers	Scopus, indexing	Analytical	Growth with ongoing challenges
AI for Low-Resource Kazakh	Asmaganbetova et al. (2024)	NLP systems	OCR, TTS, NLP	Experimental	85% OCR accuracy; improved translation tools
AI for Academic Writing	Nurzhan A.B. (2023)	MA students	AI writing tools	Review	Supports grammar, critical thinking, exam prep
AI in EFL: Effectiveness & Prospects	Kemelbekova et al. (2024)	11 teachers, 51 students	AI chatbots	Quasi-experimental	AI group outperformed in speaking

AI in Tourism English Education	Sak (2024)	Tourism students	AI in ELT	Literature review	Personalized learning; needs human-AI balance
Digital Resources in FL Teaching	Zhanikeyeva & Zhumabekova (2025)	Gen Z students	Quizlet, Youglish	Mixed methods	Boosted motivation and performance
Academic Integrity in EFL	Nesterova & Smakova (2024)	Literature base	AI tools & plagiarism	Literature review	Factors influencing misconduct analyzed
ChatGPT Adoption Tool	Zhakupova et al. (2024)	30 participants	ChatGPT	Quantitative model	Academic self-efficacy most influential
AI in Project-Based Language Ed	Azamatova et al. (2023)	64 students	AI + digital tools	Experimental	AI boosts achievement and retention
Kazakh Paraphrase Models	Kassenkhan et al. (2024)	NLP systems	Diffusion/ Transformer models	Experimental	Progress in low-resource NLP
AI in Language Teaching	Aitbayeva B. (2024)	Language learners	Mobile AI, apps	Conceptual	Personalized learning paths
ChatGPT in Academic Research	Frigerio (2023)	Researchers	ChatGPT	Exploratory	Ethics, authorship, bias challenges
Games & Tech in Language Ed	Karimova & Galym (2021-2022)	Language learners	Digital games, AI	Theoretical	Engagement, fluency, creativity
ChatGPT and Critical Thinking	Kani A. (2024)	52 students	ChatGPT	Quasi-experimental	Positive impact on critical thinking
TEFL Students & ChatGPT	Bekturova et al. (2025)	334 TEFL students	ChatGPT	Quantitative	Satisfaction predicts continued use
AI-powered tools in English as a foreign language (EFL) Education	Sadiyeva et al. (2023-2024)	General EFL learners	AI-powered apps	Literature review	Personalized, reflective learning with risks
Artificial intelligence in education	Smagulov et al. (2025)	50 University teachers, 30 students	AI in education	Survey + strategy review	Supports AI integration in CS education
AI & Academic Integrity	Askarkyzy & Zhunusbekova (2024)	840 students	ChatGPT, AI tools	Survey	65% use weekly; call for clear policy

Formation of Ethical Competencies for AI Use	Abisheva et al. (2024)	60 EFL teachers from Kazakhstani universities	General AI integration in EFL; ethical competence	Mixed methods (survey + interviews)	Identified 6 core ethical competences; teachers lacked confidence in ethical AI use
Teaching English and Artificial Intelligence	Dilzhan (2024)	11 EFL teachers in Kazakhstan	ChatGPT in EFL teaching	Qualitative (semi-structured interviews)	Recognized benefits (idea generation, engagement, writing support);
The Impact of AI and Peer Feedback on Research Writing Skills	Zheldibayeva, 2024	36 Bolashak scholars in a US university	CGScholar platform integrating AI and peer feedback	Survey-based mixed-methods study (multiple-choice, open-ended questions)	Positive correlations between AI familiarity and openness to feedback;
The Role of Artificial Intelligence in the Development of Academic Writing Skills	Bakzhanqyzy, 2023	Master' s students and teachers	Various AI-based writing tools	Analytical article/ review	AI tools improve academic writing skills, save time, boost motivation, and enhance organization, grammar, vocabulary, and critical thinking;
Leveraging AI to enhance writing skills of senior TFL students in Kazakhstan: A case study using "Write & Improve"	Bodaubekov et al., 2025	Undergraduate students in a two-foreign-language program, private university in Kazakhstan	Write & Improve platform for automated writing feedback	Quasi-experimental	No significant difference between AI-generated and teacher feedback in improving writing skills; Write & Improve equally effective as traditional feedback
Students' Perception of Chat GPT: A Technology Acceptance Model Study	Yilmaz et al., 2024	239 university students	ChatGPT	Quantitative, survey	Positive overall perception of ChatGPT; gender differences in ease of use; major and prior experience influenced perceptions

The detailed study selection process, along with reasons for exclusions at the full-text stage, is visually summarized in the PRISMA-ScR flow diagram (Figure 1).

Table – 3 PRISMA 2020 flow diagram for new systematic reviews which included searches of databases and registers only



Once the 40 publications were selected, they were mapped into three clusters related to the study's research questions. As demonstrated in Table 5, studies that related to multiple clusters were included in each cluster and analyzed separately.

Table 4 – Mapping the publications to the clusters

	Authors and Year	Cluster 1: Key Concepts and Theoretical Perspectives on AI-Assisted Scholarly Writing	Cluster 2: Research Methodologies Applied to Study AI-Assisted Writing Practices	Cluster 3: Applications, Impact, and Challenges of AI Writing Tools in Language Education
1	Frigerio A., 2023	∨		∨
2	Fitria, 2025	∨		
3	Nesterova & Smakova, 2024	∨		∨
4	Kocyigit & Zhaksylyk, 2023	∨		∨
5	Abisheva et al., 2024	∨		∨
6	Dilzhan, 2024	∨		
7	Kani, 2024	∨		∨
8	Aitbayeva, 2024	∨		∨
9	Yessirkepov et al., 2015		∨	
10	Orynbassar et al. 2023	∨		∨
11	Meiramova & Bayassilova, 2024	∨		
12	Kudaibergen, 2022		∨	
13	Askarkyzy & Zhunusbekova, 2024	∨		∨
14	Zheldibayeva, 2024	∨		∨
15	Assylbekova, 2022		∨	
16	Ghorbandordinejad & Kenshinbay, 2024	∨	∨	
17	Yilmaz et al., 2024	∨		∨
18	Zhakupova et al., 2024	∨		∨
19	Karimova & Galym, 2021–2022	∨		∨
20	Kassenkhan et al., 2024	∨		
21	Uaidullakyzy et al., 2024		∨	
22	Assylbekova Nazik, 2022		∨	
23	Bekturova et al., 2025	∨		∨
24	Konyrova, 2024	∨		∨
25	Azamatova et al., 2023	∨		∨
26	Tazhitova et al., 2025	∨		∨
27	Alzhanova, 2024	∨		∨
28	Kulikov et al., 2021	∨		∨
29	Sak, 2024	∨		∨
30	Bakzhanqyzy, 2023	∨		∨
31	Bodaubekov et al., 2025	∨		∨
32	Zhanikeyeva & Zhumabekova, 2025	∨		∨
33	Nauryzbayeva & Bimagambetova, 2024	∨		∨
34	Nurtazina & Nurseltov, 2024	∨		∨
35	Kemelbekova & Myrzakhmetkyzy, 2022		∨	
36	Toishybekova & Toishybekov, 2024	∨		∨
37	Tleuzhanova et al., 2024	∨		∨
38	Asmaganbetova et al., 2024	∨		∨
39	Sadiyeva et al., 2024	∨		∨
40	Smagulov et al., 2025	∨		∨

Thematic analysis is the most appropriate analytical method to identify patterns within large datasets. The process includes an iterative process of coding, starting with open codes followed by collapsing and combining similar codes into categories and themes [6]. The clusters served to organize findings deductively, while the coding of themes and subthemes within each cluster was done inductively. In addition, the discrepancies amid the two sets of clusters can be attributed to thematic overlap, which the reviewers interpreted more broadly. Consequently, the reviewers tended to consolidate and expand the thematic groupings beyond the narrower structure produced by the software. A summary of clusters, key themes, and subthemes are presented in Table 5.

Table 5 - Data analysis and presentation

Cluster	Key Themes (Subthemes)
Cluster 1: Key Concepts and Theoretical Perspectives on AI-Assisted Scholarly Writing (n=34)	- Definitions and scope of AI-assisted scholarly writing (e.g., generative capabilities, tool classifications, stages of writing process, disciplinary applications) - Theoretical frameworks (e.g., socio-cognitive, digital literacy, academic integrity) - Perceptions and attitudes toward AI writing tools (student and instructor perspectives, cultural and institutional differences, perceived impact on learning) - Ethical and pedagogical considerations (plagiarism and authorship, transparency and disclosure, instructional design, policy and governance)
Cluster 2: Research Methodologies Applied to Study AI-Assisted Writing Practices (n=7)	- Research methods (qualitative, quantitative, mixed-methods) - Data collection techniques (surveys, interviews, corpus analysis, experiments) - Methodological challenges and gaps (lack of longitudinal studies, inconsistent definitions, underrepresented populations) - Reporting and analysis standards (transparency in AI use, absence on common metrics, lack of ethical declarations)
Cluster 3: Applications, Impact, and Challenges of AI Writing Tools in Language Education (n=29)	- Types of AI tools used (ChatGPT, Grammarly, etc.) - Effects on writing skills, academic writing practices, and student engagement (surface-level improvements, increased motivation or confidence, shifts in writing process) - Issues of academic integrity and plagiarism (detection limitations and student misunderstanding on institutional policies) - Reported benefits, barriers, and best practices (accessibility and support, time efficiency)

Results

Recent research on AI-assisted scholarly writing within Applied Linguistics and Language Education in Kazakhstan is gradually emerging, including diverse theoretical frameworks and key concepts. This section presents findings from a thematic analysis of 40 studies that explored the integration and impact of AI in academic writing practices. The revealed data capture major themes on key concepts and theoretical perspectives, research methodologies, applications, impact, and challenges of AI writing tools in language education. These themes

divided by clusters highlight the evolving role of AI tools in shaping scholarly communication, language instruction, and research engagement.

One of the most prominent frameworks applied is the thematic analysis model, which guided the qualitative exploration of students' perceptions and attitudes toward AI in writing assistance [8]. This model helps structure qualitative data into meaningful themes, which has proven beneficial for interpreting the pedagogical affordances and limitations of AI writing tools.

Bodaubekov, A., Agaidarova, S., & Zhussipbek, T. carried out a case study on the AI tool "Write and Improve", situating their work within the sociocultural theory of Vygotsky to explore how AI support writing development among TFL (Teaching Foreign Languages) students [9]. Their work emphasized the interplay between AI feedback and instructional writing culture.

Another crucial trend involves ethical competence frameworks and need for explicit instruction on responsible AI usage. For example, Kudritskaya et al. approached AI-assisted writing via the Responsible AI framework, balancing innovation, and ethical considerations, specifically based on academic integrity, plagiarism, and authorship in cross-national settings including Kazakhstan [10].

Dilzhan [4] explored teacher perceptions of ChatGPT in Kazakhstan, applying Technology Acceptance Models (TAM) blended with pedagogical agent theory, revealing gaps in digital competence and acceptance that impact on the effectiveness of AI tools.

Emergent themes in these studies comprise:

- AI as a facilitator of self-directed learning and autonomous academic writing.

- The integration of adaptive feedback mechanisms and their alignment with second language acquisition (SLA) theories, particularly focusing on writing fluency.

Overall, research from Kazakhstan emphasizes an eclectic mix of sociocultural, ethical, technological acceptance, and adaptive feedback frameworks, with increasing attention to academic integrity and authorship dilemmas in the era of AI. Studies explore challenges to traditional authorship, ethical issues around originality, and varying levels of acceptance among educators and students. Feedback models also show how AI is reshaping writing support and teacher-students interaction.

Between 2021 and 2025, research on AI-assisted scholarly writing in applied linguistics and language education in Kazakhstan has witnessed notable methodological evolution, reflecting shifts from exploratory to more rigorous and diversified approaches. To answer RQ 2, which examines the main methodologies used to study AI tools in Kazakhstan language education, we provide a chronological overview of research trends. We organize the findings into three phases to guide the reader through the field's development:

Early Phase (2021-2023): Exploratory and Descriptive Focus

Initially, studies leaned heavily on descriptive case studies and qualitative observations, focusing on teacher and student perceptions of AI tools such as ChatGPT and Write and Improve [9]. These studies frequently lacked robust data triangulation and were limited to small samples within specific institutions.

Transition Phase (2023-2024): Mixed-methods and Early Experimental Designs

From 2023, researchers like Zheldibayeva [12] and Chen & Gong [8] adopted mixed-methods designs, integrating quantitative pre- and post-tests alongside thematic qualitative interviews.

Zheldibayeva introduced Cope & Kalantzis's CGScholar platform in Kazakhstan, combining AI and peer feedback and measuring improvements in writing quality utilising both statistical and discourse analysis methods [12].

Recent meta-reviews and bibliometric studies reflect the field's maturity by mapping research trends and evaluating methodological approaches. The analysis helps identify gaps, guide future research, and signal a toward more coordinated and theory-informed studies on AI in language education.

Current Phase (2024–2025): Advanced Experimental Designs and Ethical Considerations

In the most current studies, rigorous quasi-experimental methods, longitudinal tracking, and multi-site data collection have been tremendously adopted. Ashirbekova & Childibayaev integrated ethical audits into research protocols, emphasizing academic integrity and authorship dilemmas in AI-assisted writing [11].

Overall Evolution and Future Directions

The evolution from anecdotal and perception-focused studies to data-driven, mixed-methods, and ethically nuanced approaches signifies a maturing field in Kazakhstan. However, scholars still call for broader comparative studies, integration of critical AI literacy, and longitudinal impact assessments.

Methodological Gaps and Inconsistencies

First, studies like Chen and Gong identify significant issues with small sample sizes, limited participant diversity, and overreliance on case study designs, which impede the extrapolation of results to broader academic settings [5]. Additionally, there is inconsistency in the research methods used, often mixing qualitative reflections with weak quantitative measurements, which raises concerns about validity and replicability, as seen in the systematic review by [13]. Further, through a meta-analysis, pointed out that many studies fail to adequately describe intervention procedures, participant demographics, or control conditions, thus weakening the meta-analytical aggregation of data.

Best Practices for Future Research

Mixed Methods & Longitudinal Designs: Combining qualitative inquiry with rigorous experimental or quasi-experimental designs over extended periods can help assess both immediate and sustained impacts of AI-assisted writing [8].

Diverse Participant Pools: Expanding beyond English-major students or EFL learners to include multilingual, multidisciplinary, and marginalized learner populations, as recommended by Bacon and Maneerutt, would enhance generalizability [14].

Critical AI Literacy Integration: Incorporating Critical AI Literacy (CAIL) frameworks, as demonstrated by Wang and Wang, can help explore how learners critically engage with AI feedback rather than passively accepting outputs [15]

Focus on Pedagogical Integration Models: Studies should move toward testing pedagogically sound integration models, such as the APSE model or peer-assisted AI writing tasks, to examine how AI can complement rather than replace traditional instruction [15]

In conclusion, systematic, ethically grounded, and pedagogically informed research methodologies are urgently needed to overcome the present fragmentation and to support evidence-based practices in AI-assisted scholarly writing.

Discussion

The findings of this review and synthesis reveal that research on AI-assisted scholarly writing in Kazakhstan's applied linguistics and language education sectors is evolving but still displays several methodological and theoretical gaps. Between 2021 and 2025, there has been a clear shift from exploratory, perception-based studies to more data-driven and mixed-method approaches. This aligns with global trends in AI-assisted language learning research [9] but shows distinctive local dynamics influenced by Kazakhstan's multilingual education policies and technological infrastructure, [12].

A key development is the incorporation of peer feedback mechanisms alongside AI tools, reflecting an emerging notion that AI is not capable of completely substituting human interaction in the academic writing process. This blended approach, as showcased by studies using platforms such as CGScholar, has been shown to enhance writing quality while also fostering collaborative learning and critical engagement [12].

Despite these advancements, the methodological rigor of multiple studies remains uneven. While more recent studies have adopted quasi-experimental and longitudinal designs, limitations persist in terms of participant diversity, ethical considerations, and integration of critical AI literacy frameworks [11], [14]. Moreover, there is a noticeable gap in cross-institutional and cross-cultural comparative studies, which could illuminate how various educational settings mediate AI tool effectiveness and user acceptance.

The emphasis on developing ethical AI literacy, academic integrity awareness, and culturally responsive AI practices is gaining momentum but requires systematic inclusion in both research and pedagogy [8]. Additionally, corpus-based and computational approaches, though promising, are still underutilized in Kazakhstan's applied linguistics research ecosystem, suggesting an area for future growth.

Conclusion

This scoping review highlights the emerging role of AI-assisted tools in enhancing scholarly writing within the fields of applied linguistics and language education in Kazakhstan. While global advancements demonstrate crucial potential for AI to support academic productivity, language accuracy, and research dissemination, the adoption and integration of such technologies in Kazakhstan remains at an early stage. Existing studies reveal a mixture of optimism about AI's capabilities and concerns regarding ethical issues, such as authorship integrity and cultural appropriateness.

The review identifies a clear need for more localized research to explore how AI tools can be effectively tailored to the linguistic, educational, and institutional contexts of Kazakhstan. Additionally, the establishment of clear guidelines and training for researchers and educators is specific challenges and examine the pedagogical impact of AI-assisted writing in higher education,

Overall, this review provides a foundation for understanding the current landscape and points toward promising directions for integrating AI-assisted scholarly writing in Kazakhstan's applied linguistics and language education sectors, ultimately contributing to the advancement of academic quality and international visibility.

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ҚАЗАҚСТАНДАҒЫ ҚОЛДАНБАЛЫ ЛИНГВИСТИКА МЕН ТІЛДІ БІЛІМІН ОҚЫТУДАҒЫ ЖИ КӨМЕГІМЕН ҒЫЛЫМИ ЖАЗУ: ШОЛУ МАҚАЛА

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Аңдатпа. Бұл шолу зерттеу Қазақстандағы қолданбалы лингвистика мен тіл білімін оқытудағы жасанды интеллект (ЖИ) көмегімен жүргізілетін

академиялық жазуды зерттеуге арналған негізгі ұғымдар мен ең қолайлы зерттеу әдістемелерін қарастырады. Зерттеудің мақсаты – ЖИ көмегімен жазылатын академиялық жазылымдағы негізгі ұғымдарды анықтау, әдіснамалық тәсілдерді жүйелеу, қалыптасып келе жатқан үрдістерді бағалау, бар олқылықтар мен қайшылықтарды айқындау, сондай-ақ тәжірибені жетілдіру бойынша ұсыныстар беру. PCC (Population-Concept-Context) құрылымына сәйкес, шолу Қазақстандағы оқытушыларды, зерттеушілерді және студенттерді қамтыған, ғылыми жазуда ЖИ құралдарын қолдануға бағытталған зерттеулерді қамтиды. Ғылыми жазуға, Қазақстан контекстіне немесе тиісті ғылыми салаларға қатысы жоқ зерттеулер шеттетілді. Деректер базасы бойынша іздеу 2025 жылғы сәуір айында Scopus, Google Scholar, IEEE, сондай-ақ жергілікті мәліметтер базалары және 2021-2025 жылдар аралығындағы конференция материалдары негізінде ағылшын тілінде жүргізілді. Нәтижесінде 40 өзекті дерек көздер іріктеліп, тақырыптық талдау жүргізілді және баяндауыш синтез арқылы өңделді. Бұл зерттеу жоғары білім беруде академиялық жариялау саласындағы жасанды интеллектке негізделген жазу көмекшілері, грамматиканы тексеру құралдары және плагиатты анықтау бағдарламаларын қолдануға бағытталған. Нәтижелер жасанды интеллект технологияларын қолдану үрдісінің біртіндеп, бірақ сақтықпен жүзеге асып жатқанын көрсететті. Негізгі тақырыптар қатарында жазу сапасының жақсаруы, плагиатқа қатысты алаңдаушылықтар және нақты нұсқаулықтардың қажеттілігі атап өтілді. Бұл шолу ЖИ-ді ғылыми жазу тәжірибесіне этикалық және тиімді түрде енгізу үшін жергілікті зерттеулердің, институционалдық саясаттың және оқытушыларды даярлау жүйесінің маңыздылығын көрсетеді.

Тірек сөздер: Академиялық жазылым, ЖИ көмегімен академиялық жазылым, қолданбалы лингвистика, жоғары білім беру, шолу зерттеу, тілдік білім беру, жасанды интеллект (ЖИ), ChatGPT

АКАДЕМИЧЕСКОЕ ПИСЬМО С ИСПОЛЬЗОВАНИЕМ ИИ В ПРИКЛАДНОЙ ЛИНГВИСТИКЕ И В ЯЗЫКОВОЙ ОБРАЗОВАНИИ: ОБЗОРНАЯ СТАТЬЯ

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Аннотация. Данный обзорный анализ посвящён исследованию ключевых понятий и методологических подходов к изучению научного письма с применением искусственного интеллекта (ИИ), с акцентом на

контекст прикладной лингвистики и языкового образования в Казахстане. Целями исследования являлись: выявление ключевых концепций, систематизация методов, оценка новых тенденций, выявление пробелов и несоответствий, а также разработка рекомендаций для улучшения практики. Включённые исследования, отобранные по модели PCC (Population-Concept-Context), касаются использования ИИ инструментов в научном письме среди казахстанских исследователей, преподавателей и студентов. Были исключены работы, не относящиеся к академическому письму, казахстанскому контексту или соответствующим научным областям. Поиск проводился в апреле 2025 года в базах Scopus, Google Scholar, IEEE, а также в местных источниках, и материалах конференций (2021–2025 гг.) на английском языке. Всего было проанализировано 40 релевантных источников с использованием тематического анализа и нарративного синтеза. Основное внимание исследований было направлено на высшее образование и использование таких инструментов, как ассистенты для написания на основе искусственного интеллекта, программы для проверки грамматики и программное обеспечение для обнаружения плагиата в академическом публикационном процессе. Результаты показали растущий, но осторожный интерес к ИИ-технологиям, с акцентом на повышение качества письма, проблемы плагиата и необходимость чётких нормативов. Обзор подчёркивает значимость локализованных исследований, развития институциональной политики и подготовки преподавателей для этичного и эффективного внедрения ИИ в академическое письмо.

Ключевые слова: Академическое письмо, академическое письмо с использованием ИИ, прикладная лингвистика, высшее образование, обзорная статья, языковое образование, искусственный интеллект (ИИ), ChatGPT

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