

2 Бөлім
ОҚЫТУДАҒЫ ҚАЗІРГІ БІЛІМ БЕРУ ТЕХНОЛОГИЯЛАРЫ
Раздел 2
СОВРЕМЕННЫЕ ОБРАЗОВАТЕЛЬНЫЕ ТЕХНОЛОГИИ
ОБУЧЕНИЯ
Part 2
MODERN EDUCATIONAL TECHNOLOGIES OF TEACHING

UDC 373.016.81'243

IRSTI 14.35.09

<https://doi.org/10.48371/PEDS.2026.82.3.045>

**TEACHING READING LITERACY IN THE DIGITAL AGE: FROM
TRADITIONAL STRATEGIES TO DIGITAL AND AI-BASED TOOLS**

*Sembekova A.M.¹, Nurtayeva A.B.², Kamenskaya Y.A.³

^{*1,2}Kazakh National Women's Teacher Training University, Almaty, Kazakhstan

³Nazarbayev Intellectual School of Science and Mathematics in
Medeu district of Almaty, Almaty, Kazakhstan

Abstract. Reading literacy in the digital age increasingly requires learners not only to comprehend screen-based and multi-source texts, but also to navigate information environments, evaluate source credibility, and use AI tools critically and responsibly.

The aim of this study is to synthesize research published between 2015 and 2025 on digital reading, online source evaluation, and AI-supported reading instruction, including implications for EFL/EAL contexts. A PRISMA-oriented systematized review was conducted using Scopus, Web of Science, and ERIC, supplemented by a targeted and reproducible Google Scholar search. Eligible sources included peer-reviewed empirical studies, systematic reviews and meta-analyses, and foundational conceptual models addressing reading comprehension in educational settings together with a digital, online, or AI component. The findings were integrated through thematic synthesis. Of 163 identified records, 10 studies met the inclusion criteria. The evidence formed four thematic clusters: strategic digital reading and task-route design; navigation and source evaluation through source prompts, civic online reasoning, and lateral reading; AI-based scaffolding through chatbots and text adaptation; and conditions that shape effectiveness, including digital inequality, ethics, and academic integrity. The analysis indicates that digital and AI tools are pedagogically valuable when they structure learners' reading strategies, support verification, and preserve independent meaning-making, whereas poorly designed or substitution-oriented use may weaken comprehension and learner autonomy.

The scientific contribution of the study lies in an integrative model linking pre-, during-, and post-reading instruction with bounded digital and AI support.

Practically, the review provides teachers with guidance on designing multi-source tasks, embedding routine source-checking procedures, using safe AI prompts, and reducing risks associated with overreliance on automated assistance. The relatively small and heterogeneous evidence base limits generalization, so the conclusions should be interpreted as converging thematic patterns rather than pooled effect estimates.

Keywords: reading literacy, digital reading, online search and comprehension, source evaluation, EFL; artificial intelligence, chatbots, reading strategies, multiple documents, multi-source reading, lateral reading, civic online reasoning

Introduction

The shift toward digital reading formats changes what counts as reading literacy: learners must navigate hypertext, select sources, evaluate credibility, and synthesize information for a purpose. International monitoring highlights persistent deficits and inequalities in reading literacy, motivating evidence-informed pedagogical solutions [1]. Within new literacies theory, online comprehension is framed as a goal-driven sequence (goal → search → evaluation → synthesis), where outcomes depend on reading skills and the task-defined information pathway [2]. Purposefully designed source prompts can make provenance “visible” and support intertext model formation when students read sets of web pages [3].

Evidence on screen-based versus paper-based reading indicates an elevated risk of shallow processing in screen reading; maintaining depth depends on task structure, comprehension monitoring, and reading conditions [4]. The connected reading approach conceptualizes digital reading as coordinated comprehension, navigation, and evaluation around the learning goal [5]. For critical evaluation of online information, interventions grounded in civic online reasoning and instruction in lateral reading improve credibility checking when evaluative strategies are embedded in task design and response criteria [6; 7].

Methodological transparency in reviews is supported by PRISMA 2020 for selection reporting [8], and theme development can be guided by reflexive thematic analysis [9]. In parallel, classroom use of AI tools has expanded: chatbots may foster self-regulated reading in EFL (goal setting, questioning, self-checking) under pedagogical oversight [10], while AI-based text simplification may support comprehension but requires safeguards against substituting meaning-making with “ready-made answers” [11].

In Kazakhstan, national digitalization benchmarks and analytical materials reinforce the relevance of digital reading literacy and the need for evidence-informed instructional solutions [12]. Regional studies highlight teachers’ perspectives on internet reading pedagogy, factors shaping digital literacy in schools, and assessment approaches relevant to reading literacy, pointing to the importance of aligning instruction, assessment, and academic integrity when introducing digital and AI-supported reading [13; 14; 15].

Despite growing research, evidence remains fragmented across (a) screen-

reading conditions, (b) navigation and source evaluation, and (c) AI-supported reading. This review addresses the practical gap by integrating these strands within the pedagogical logic of a “reading route” and by clarifying transferability to EFL/EAL and Kazakhstani implementation conditions.

Research aim. To systematize evidence (2015–2025) on reading literacy development in digital environments and to specify the pedagogically justified role of digital and AI tools as supports—within the logic of “strategy enhancement rather than substitution”—with attention to critical source evaluation and the Kazakhstani context.

Hypothesis. Digital reading instruction is most effective when a deliberate reading route (goals–stages–questions–response criteria–source checking) is designed and when digital/AI tools support specific phases (clarifying questions, self-checking, structuring) rather than replace reading and argumentation.

Scientific novelty. The review integrates evidence on digital comprehension frameworks, source-evaluation interventions, and AI-supported reading in EFL within a single synthesis, and links findings to regional (Kazakhstani) implementation conditions.

Structure of the article. Materials and Methods describe the review design and selection; Results present the PRISMA flow, study characteristics, and thematic clusters; Discussion integrates findings into a pre-/during-/post-reading model with bounded AI roles and outlines implications, limitations, and future directions.

Materials and Methods

The present study was conducted as a PRISMA-oriented systematized review with transparent screening and full-text appraisal; findings were integrated through thematic synthesis. The search window covered 2015–2025; searches were conducted between 10 and 15 January 2026, with a final database update on 15 January 2026.

Protocol. A working protocol specified the aim, inclusion/exclusion criteria, data sources, screening stages, and data-extraction fields. The protocol was not preregistered (e.g., PROSPERO/OSF), but procedures are described here to support reproducibility.

Materials (Data Sources). Scopus, Web of Science, and ERIC constituted the core sources. Targeted Google Scholar searches complemented database coverage. Normative and analytical documents (e.g., PISA and national reports) were used for contextualization only and were excluded from PRISMA selection counts and effect-related interpretation [1; 12].

Search Strategy. Queries combined three blocks: (1) reading literacy/reading comprehension; (2) digital/screen/online and multi-source reading (hypertext, multiple documents); and (3) AI support tools (chatbot*, adaptive learning, automated feedback). Searches were applied to Title/Abstract/Keywords and limited to 2015–2025, peer-reviewed publications, educational contexts, and English/Russian language. An EFL qualifier (EFL/ESL/foreign or second language) was used where necessary.

Example search strings (adapted to each database syntax). Scopus/WoS (TITLE-ABS-KEY): (“reading literacy” OR “reading comprehension”) AND (“digital reading” OR “online reading” OR “screen* reading” OR hypertext OR “multiple documents” OR “online research and comprehension”) AND (AI OR “artificial intelligence” OR chatbot* OR “automated feedback” OR “adaptive learning”). ERIC: (reading literacy OR reading comprehension) AND (digital reading OR online reading OR multiple documents OR hypertext) AND (artificial intelligence OR AI OR chatbot OR adaptive learning OR automated feedback). When relevant, the query was refined with EFL/ESL/foreign language/second language qualifiers.

Google Scholar Procedure (Reproducibility). Between 10 and 15 January 2026, three to four refined queries were screened (sorted by relevance; year filter 2015–2025). For each query, the first five pages of results (~50 records) were examined; duplicates with database results were removed. Only peer-reviewed studies were counted as additional sources; grey literature was used for context only.

Inclusion and Exclusion Criteria. Studies were included if they addressed reading literacy/comprehension in education (including EFL/EAL), featured an explicit digital/online/AI instructional component, and reported empirical data, secondary research, or directly applicable conceptual frameworks. Studies without a didactic component, unrelated to reading, or lacking interpretable procedures/metrics were excluded. PRISMA selection was applied only to peer-reviewed publications from 2015–2025; grey literature did not enter the PRISMA corpus [8].

Screening and Selection. Selection proceeded via (1) title/abstract screening and (2) full-text eligibility assessment. Two reviewers screened independently; disagreements were resolved by discussion and re-checking the eligibility criteria. The selection procedure followed the PRISMA 2020 stages of identification, screening, eligibility assessment, and inclusion [8].

Data Extraction and Synthesis. For each included publication, an evidence matrix recorded context (including EFL/EAL), design, outcomes/indicators, digital/AI intervention characteristics, and key findings/limitations. Thematic synthesis followed reflexive thematic analysis procedures (coding, theme development, and coherence checks) [9].

Quality Appraisal. A checklist appraisal was applied across three domains (design/sample; measures/analysis; intervention transparency and inference). Summary confidence levels were used to weight interpretations rather than as strict exclusion criteria.

Results

Following the search strategy, 163 records were identified (151 from Scopus, Web of Science, and ERIC; 12 from additional sources). After removing 37 duplicates and excluding 4 records on formal grounds, 122 publications remained for title/abstract screening and 95 were excluded. Full texts were sought for 27 publications, of which 2 could not be retrieved. The remaining 25

full texts were assessed for eligibility, and 15 publications were excluded because of thematic misalignment or insufficient methodological transparency. The final PRISMA corpus comprised 10 studies. The complete study-selection process is presented in Figure 1 [8].

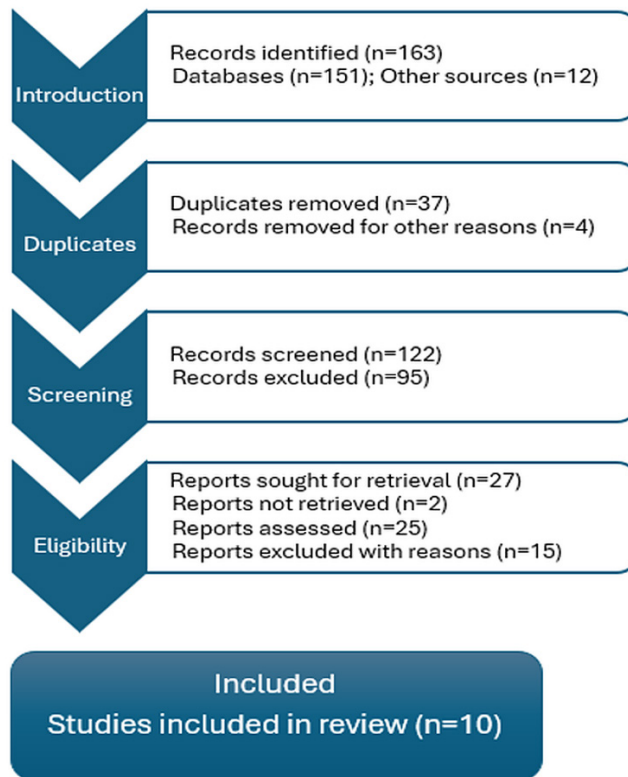


Figure 1 - PRISMA flow diagram of publication selection for the 2015–2025 review.

The results reported below are based on the included PRISMA corpus (2015–2025, peer-reviewed). Contextual sources (including OECD/PISA and national documents) were used only for problem framing and regional interpretation and are not counted among the included studies.

Characteristics of the Included Studies. The final PRISMA corpus ($n = 10$) comprised empirical studies, secondary research, and peer-reviewed conceptual frameworks applicable to digital reading task design. The EFL/EAL context was explicitly represented in studies examining AI-supported self-regulation and AI-based text adaptation; other sources articulated mechanisms transferable to language learning when supported by instructional design.

Quality Appraisal. Given design heterogeneity, evidence was interpreted as a thematic synthesis with confidence-weighted conclusions. Overall, 3 studies were treated as higher-confidence and 7 as moderate-confidence, with common constraints including context dependence, short intervention durations, and heterogeneous outcome measures.

Thematic Clusters of Findings. Findings converged on four themes: (1) strategic reading in digital environments; (2) digital navigation and critical source evaluation; (3) AI tools as support for reading operations; and (4) implementation conditions and constraints. For each theme, we summarize what the included studies reported and the main boundary conditions/limitations.

Strategic reading and task-route design. Across the PRISMA corpus, online/digital comprehension is conceptualized as goal-directed activity (goal-search-evaluation-synthesis) that requires an explicit reading route and coordination of comprehension monitoring with navigation [2; 5]. Evidence comparing screen and paper reading suggests that depth of comprehension is most vulnerable under long-text conditions, time pressure, and low task accountability; however, well-specified goals, guiding questions, and response criteria help maintain comprehension on screen [4]. Accordingly, the effective instructional unit is not “reading a text” but a structured route (set a purpose; locate relevant segments; check understanding; integrate across sources) with accountability through evidence-based written responses. Limitation: effects vary by text type, device/context, and outcome measures, which constrains direct comparisons across studies.

Navigation and source evaluation. Included interventions indicate that credibility checking improves when sourcing and verification are embedded into tasks rather than treated as an add-on. Source prompts that make provenance visible (author/organization/date) support intertextual integration and more accurate judgments in website reading [3]. Civic online reasoning and lateral reading instruction improve performance on fact-checking and evidence-evaluation tasks by training learners to cross-check claims with independent sources, leave the original site, and justify judgments with explicit evidence using rubrics [6; 7]. These effects are strongest with repeated practice, explicit modeling, and assessment-aligned criteria. Limitation: transfer to new domains and long-term retention are uneven, so verification routines should be revisited across topics and grade levels.

AI as scaffolding. In EFL-focused studies, AI chatbots can support self-regulated reading by prompting goal setting, generating comprehension questions, encouraging self-checking, and helping learners articulate evidence-based answers; benefits depend on teacher-designed prompts and constraints that preserve learners’ responsibility for meaning-making [10]. AI-based text simplification may reduce linguistic load and anxiety and thus increase access, but it can also weaken inferential and critical processing if argumentative cues are removed; therefore, simplification should be paired with inference and verification tasks and the output should be quality-checked [11]. Limitation: evidence remains limited in volume and duration, and classroom safeguards are required to prevent overreliance and academic-integrity risks.

Conditions and constraints. Implementation-oriented studies emphasize that sustainable effects depend on teachers’ methodological readiness, stable infrastructure, and alignment with assessment and academic integrity rules. In Kazakhstan, national modernization priorities strengthen demand for digital

reading skills, yet uneven access and digital literacy gaps shape feasibility; assessment logic and criteria influence what teachers prioritize and how progress is monitored [12; 15]. Practical constraints include time for instruction, availability of age-appropriate multi-source materials, and clear policies for ethical use of AI tools. Limitation: contextual studies specify boundary conditions for transferability rather than providing pooled effect estimates.

To maintain coherence between PRISMA selection and contextualization, sources were used at two levels: the PRISMA corpus, which provided the evidence for thematic synthesis, and contextual or normative–analytical documents, which were used for problem framing and regional interpretation. The functions of the included and contextual sources within the review are summarized in Table 1.

Table 1. Mapping of Key Sources and Their Role in the Review Findings

<i>Source</i>	<i>Role in the Study</i>	<i>Contribution to the Findings</i>
OECD [1]	Context	Rationale for relevance and the monitoring framework for reading literacy
Leu et al. [2]	PRISMA corpus	Operationalization of online comprehension as goal–search–evaluation–synthesis; the “reading route”
Kammerer et al. [3]	PRISMA corpus	Source prompts: strengthening intertextual comprehension and making source provenance visible in website reading
Clinton [4]	PRISMA corpus	Screen vs. paper reading: conditions under which depth of comprehension decreases or is maintained; the role of task design
Turner et al. [5]	PRISMA corpus	Connected reading: integrating comprehension, navigation, and information evaluation around a reading goal
McGrew et al. [6]	PRISMA corpus	Civic online reasoning: interventions for evaluating online information and verifying claims
Breakstone et al. [7]	PRISMA corpus	Lateral reading: instruction in critical evaluation of online sources in course/module formats
Page et al. [8]	Methodology	PRISMA 2020: transparency of selection, reporting standards, and systematic review structure
Braun & Clarke [9]	Methodology	Reflexive thematic analysis: coding procedures and theme/cluster development
Pan et al. [10]	PRISMA corpus	AI chatbots for reading self-regulation in EFL: text questioning, self-checking, and strategy support
Çelik et al. [11]	PRISMA corpus	AI-based text simplification: effects on comprehension/inference and anxiety; conditions for appropriate design
Ministry of Education of the Republic of Kazakhstan [12]	Context	National framework for modernization/digitalization and relevance to the education system
Aida et al. [13]	PRISMA corpus	Teachers’ perspectives on internet reading pedagogy and implementation conditions
Balbagabayeva et al. [14]	PRISMA corpus	Digital literacy in Kazakhstani schools: psychological and pedagogical conditions
Talapova et al. [15]	PRISMA corpus	Approaches to adapting didactic materials in teaching a foreign language

Discussion

The Discussion integrates convergent patterns across the thematic clusters and specifies how digital and AI tools can be aligned with instructional phases without substituting learners’ meaning-making. Given the heterogeneity of designs, conclusions are framed as evidence-informed conditions of effectiveness rather than pooled effect estimates.

An Integrative Model as an Outcome of the Synthesis. Across the thematic clusters, effective instruction emerged as strategy-oriented and based on a deliberately designed reading route that integrates goal setting, guiding questions, comprehension monitoring, and verification of claims and sources. On this basis, an integrative pre-, during-, and post-reading model was developed, with clearly defined supportive roles for digital and AI tools. The resulting model is presented in Figure 2.

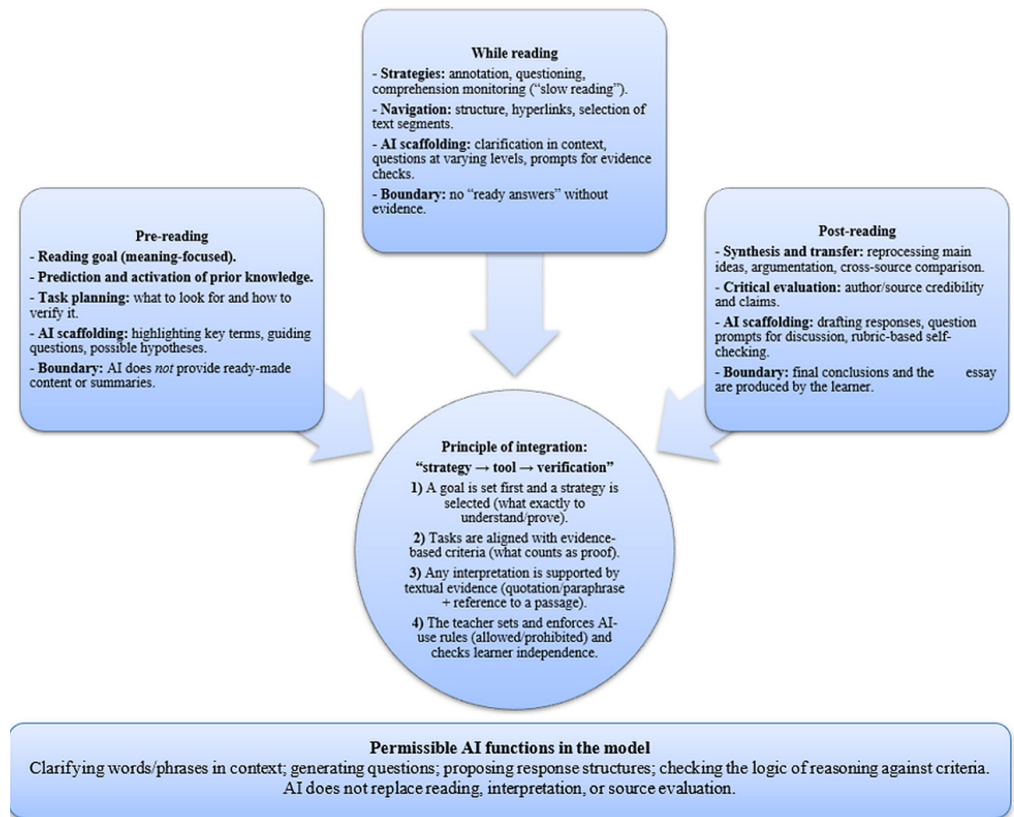


Figure 2 - Integrative model: linking reading strategies and digital/AI tools across the pre-/during-/post-reading cycle (based on the thematic synthesis of the PRISMA corpus).

Key implications. The synthesis suggests that digital reading becomes productive when goals, route, and source-checking requirements are explicit and assessed, which is particularly important for screen-based reading.

AI tools should be constrained to supportive functions (clarification, question generation, structuring, self-checking) and should not generate finished interpretations in place of learners' independent argumentation [10; 11].

Transferability and context. Mechanisms of sourcing, verification, and self-regulation are transferable to EFL when tasks maintain clear language-learning objectives and response criteria. In Kazakhstan, implementation depends on methodological coherence, teacher readiness, and aligned assessment under modernization benchmarks.

Practical Recommendations (for Classroom Instruction). Based on the synthesis, it is advisable to:

1. set a measurable reading goal and specify response criteria [4; 5];
2. maintain the pre-/during-/post-reading logic with embedded self-check and explicit source/credibility verification;
3. use AI only for bounded support operations (clarification, questioning, structuring, logic self-checking), disallowing "ready-made interpretations";
4. assess not only answer correctness, but also evidence quality, source handling, and reasoning coherence.

Review Limitations. The PRISMA corpus is small ($n = 10$) and heterogeneous; measures and contexts vary across studies, and Google Scholar screening was bounded by a predefined segment of results, which may limit coverage and introduce selection bias.

Future Research Directions. Further longitudinal and comparative studies are needed, including development of valid criteria for digital comprehension and source evaluation and evaluation of bounded AI-supported reading scenarios across contexts.

Conclusion

The systematic review (2015–2025; final PRISMA corpus $n = 10$) indicates that reading literacy in digital environments hinges on a strategically designed reading route (goal–questions–comprehension monitoring–verification of grounds/sources) and task quality, not on isolated tools. Credibility verification procedures embedded in task requirements (source prompts, civic online reasoning, lateral reading) are pivotal for critical digital reading.

AI tools are pedagogically justified when they scaffold specific reading operations (self-regulation, questioning, self-checking, bounded text adaptation) under teacher oversight; substituting reading with "ready-made interpretations" risks weakening independent argumentation [10; 11].

Implementation in Kazakhstan is shaped by access, teacher readiness, and alignment between instruction, assessment, and academic integrity rules; moving from episodic tool use to sustainable strategies requires school-level routines for source checking and bounded AI use.

Limitations include the small and heterogeneous evidence base, which supports thematic convergence rather than pooled effect estimates and motivates further comparative and longitudinal research.

REFERENCES

- [1] OECD. PISA 2022 Results (Volume I): The State of Learning and Equity in Education [Electronic resource]. — Paris: OECD Publishing, 2023. — URL: <https://doi.org/10.1787/53f23881-en> [Date of access: 11.02.2026].
- [2] Leu D. J., Forzani E., Rhoads C., Maykel C., Kennedy C., Timbrell N. The new literacies of online research and comprehension: Rethinking the reading achievement gap // *Reading Research Quarterly*. — 2015. — Vol. 50, No. 1. — P. 37–59.
- [3] Kammerer Y., Meier N., Stahl E. Fostering secondary-school students' intertext model formation when reading a set of websites: The effectiveness of source prompts // *Computers & Education*. — 2016. — Vol. 102. — P. 52–64.
- [4] Clinton V. Reading from paper compared to screens: A systematic review and meta-analysis // *Research in Reading*. — 2019. — Vol. 42, No. 2. — P. 288–325.
- [5] Turner K. H., Hicks T., Zucker L. Connected reading: A framework for understanding how adolescents encounter, evaluate, and engage with texts in the digital age // *Reading Research Quarterly*. — 2020. — Vol. 55, No. 2. — P. 291–309.
- [6] McGrew S. Learning to evaluate: An intervention in civic online reasoning // *Computers & Education*. — 2020. — Vol. 145. — Art. 103711.
- [7] Breakstone J., Smith M., Connors P., Ortega T., Kerr D., Wineburg S. Lateral reading: College students learn to critically evaluate internet sources in an online course // *Harvard Kennedy School (HKS) Misinformation Review*. — 2021. — Vol. 2, No. 1.
- [8] Page M. J. et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews // *BMJ*. — 2021. — Vol. 372. — Art. n71.
- [9] Braun V., Clarke V. One size fits all? What counts as quality practice in (reflexive) thematic analysis // *Qualitative Research in Psychology*. — 2021. — Vol. 18, No. 3. — P. 328–352. — DOI: 10.1080/14780887.2020.1769238.
- [10] Pan M., Guo K., Lai C. Using artificial intelligence chatbots to support English-as-a-foreign-language students' self-regulated reading // *RELC Journal*. — 2025. — Vol. 56, No. 3. — P. 781–793. — DOI: 10.1177/00336882241264030.
- [11] Çelik F., Yangın Ersanlı C., Arslanbay G. Does AI simplification of authentic blog texts improve reading comprehension, inferencing, and anxiety? A one-shot intervention in Turkish EFL context // *The International Review of Research in Open and Distributed Learning*. — 2024. — Vol. 25, No. 3. — P. 287–303.
- [12] Ministry of Education and Science of the Republic of Kazakhstan, 'Information Analytic Centre' JSC. The National Report on the State and Development of the Education System of the Republic of Kazakhstan (as of 2020): Short version [Electronic resource]. — Nur-Sultan: Ministry of Education and Science of the Republic of Kazakhstan, 'Information Analytic Centre' JSC, 2021. — 143 p.
- [13] Nurbayeva A., Serikova S., Bugenova L., Smailova F., Atembayeva G., Baibolov A. Teachers' views on the methodology of teaching Internet literature

// Cypriot Journal of Educational Sciences. — 2022. — Vol. 17, No. 8. — P. 2946–2959.

[14] Balgabayeveva A. E., Aitzhanova R. M., Zhorabekova D. M., Tazhibayeveva E. R. Psychological and pedagogical conditions for the formation of digital literacy of students of the modern Kazakhstan schools // Bulletin of the Karaganda University. Pedagogy Series. — 2024. — Vol. 29, No. 1 (113). — P. 82–89.

[15] Talapova A. K., Chaklikova A. T., Temirgaliyeva S. Z., Islam A. The use of AI technologies to adapt didactic materials in teaching a foreign language // Bulletin of Ablai Khan KazUIRandWL. Series 'Pedagogical Sciences'. — 2026. — Vol. 80, No. 1. — P. 445–460.

ЦИФРЛЫҚ ДӘУІРДЕ ОҚУ САУАТТЫЛЫҒЫН ОҚЫТУ: ДӘСТҮРЛІ СТРАТЕГИЯЛАРДАН ЦИФРЛЫҚ ЖӘНЕ ЖАСАНДЫ ИНТЕЛЛЕКТКЕ НЕГІЗДЕЛГЕН ҚҰРАЛДАРҒА ДЕЙІН

* Сембекова А.М.¹, Нуртаева А.Б.², Каменская Ю.А.³

*^{1,2}Қазақ Ұлттық Қыздар Педагогикалық Университеті, Алматы, Қазақстан

³Алматы қаласы Медеу ауданындағы жаратылыстану-математика бағытындағы Назарбаев Зияткерлік мектебі, Алматы, Қазақстан

Аңдатпа. Цифрлық дәуірдегі оқу сауаттылығы білім алушылардан экрандық және көпдереккөзді мәтіндерді түсінумен қатар, ақпараттық ортада бағдарлай білуді, дереккөздердің сенімділігін бағалауды және жасанды интеллект құралдарын сыни әрі жауапкершілікпен пайдалануды талап етеді.

Зерттеудің мақсаты – 2015–2025 жылдары жарияланған цифрлық оқу, онлайн дереккөздерді бағалау және жасанды интеллект қолдауымен оқуды оқыту мәселелеріне арналған еңбектерді, соның ішінде EFL/ EAL контекстері үшін маңызын жинақтау. Scopus, Web of Science және ERIC дерекқорлары негізінде PRISMA қағидаттарына бағдарланған жүйелендірілген шолу жүргізіліп, ол Google Scholar жүйесіндегі мақсатты және қайталанатын іздеумен толықтырылды. Іріктеуге рецензияланатын эмпирикалық зерттеулер, жүйелі шолулар мен метаталдаулар, сондай-ақ білім беру жағдайындағы мәтінді түсінуді цифрлық, онлайн немесе ЖИ құрамдасымен байланысты қарастыратын іргелі тұжырымдамалық модельдер енгізілді. Нәтижелер тақырыптық синтез арқылы біріктірілді. Анықталған 163 жарияланымның ішінен 10 зерттеу іріктеу талаптарына сай келді. Деректер төрт тақырыптық кластерді қалыптастырды: стратегиялық цифрлық оқу және тапсырманы орындау бағытын жобалау; дереккөзге қатысты нұсқаулар, азаматтық онлайн пайымдау және көлденең оқу арқылы ақпаратта бағдарлау мен дереккөздерді бағалау; чат-боттар мен мәтінді бейімдеу арқылы ЖИ негізіндегі қолдау; сондай-ақ цифрлық теңсіздік, этика және академиялық адалдықты қамтитын тиімділік шарттары. Талдау цифрлық және ЖИ құралдары білім алушылардың оқу стратегияларын құрылымдап, ақпаратты тексеруді қолдап және өз бетінше мағына

құрастыруды сақтаған жағдайда педагогикалық тұрғыдан құнды екенін көрсетті. Ал дұрыс жобаланбаған немесе оқушы әрекетін алмастыруға бағытталған қолдану мәтінді түсіну мен білім алушы дербестігін әлсіретуі мүмкін.

Зерттеудің ғылыми үлесі оқу алдындағы, оқу барысындағы және оқудан кейінгі кезеңдерді шектеулі цифрлық және ЖИ қолдауымен байланыстыратын интегративті модель ұсынуымен анықталады.

Практикалық тұрғыдан шолу мұғалімдерге көпдереккөзді тапсырмаларды әзірлеу, дереккөздерді тұрақты тексеру рәсімдерін енгізу, қауіпсіз ЖИ нұсқауларын пайдалану және автоматтандырылған көмекке шамадан тыс тәуелділік тәуекелдерін азайту жөнінде ұсынымдар береді. Дәлелдер қорының шағын әрі әртекті болуы жалпылау мүмкіндігін шектейді, сондықтан қорытындылар біріктірілген әсер бағалары емес, өзара үйлесетін тақырыптық заңдылықтар ретінде түсіндірілуі тиіс.

Тірек сөздер: оқу сауаттылығы, цифрлық оқу, онлайн іздеу және түсіну, дереккөзді бағалау, EFL, жасанды интеллект, чатботтар, оқу стратегиялары, көпқұжатты оқу, көпдереккөзді оқу, латералды оқу, азаматтық онлайн пайымдау

ОБУЧЕНИЕ ЧИТАТЕЛЬСКОЙ ГРАМОТНОСТИ В ЦИФРОВУЮ ЭПОХУ: ОТ ТРАДИЦИОННЫХ СТРАТЕГИЙ К ЦИФРОВЫМ И ИНСТРУМЕНТАМ НА ОСНОВЕ ИИ

* Сембекова А. М.¹, * Нуртаева А.Б.², Каменская Ю.А.³

*^{1,2}Казахский Национальный Женский Педагогический Университет,
Алматы, Казахстан.

³Назарбаев Интеллектуальная школа естественно-математического
направления района Медеу города Алматы, Алматы, Казахстан

Аннотация. Читательская грамотность в цифровую эпоху всё в большей степени требует от обучающихся не только понимания экранных и множественных текстов, но и умения ориентироваться в информационной среде, оценивать достоверность источников, а также критически и ответственно использовать инструменты искусственного интеллекта.

Цель исследования заключается в обобщении работ, опубликованных в 2015–2025 годах и посвящённых цифровому чтению, оценке онлайн-источников и обучению чтению с поддержкой ИИ, включая их значение для контекстов EFL/EAL. Был проведён систематизированный обзор, ориентированный на принципы PRISMA, с использованием баз Scopus, Web of Science и ERIC, дополненный целевым и воспроизводимым поиском в Google Scholar. В обзор включались рецензируемые эмпирические исследования, систематические обзоры и метаанализы, а также основополагающие концептуальные модели, рассматривающие понимание прочитанного в образовательной среде во взаимосвязи с цифровым, онлайн- или ИИ-компонентом. Результаты были объединены посредством тематического синтеза. Из 163 выявленных публикаций критериям

включения соответствовали 10 исследований. Полученные данные сформировали четыре тематических кластера: стратегическое цифровое чтение и проектирование маршрута выполнения задания; навигация и оценка источников с помощью подсказок об источнике, гражданского онлайн-рассуждения и латерального чтения; поддержка на основе ИИ посредством чат-ботов и адаптации текста; а также условия эффективности, включая цифровое неравенство, этику и академическую добросовестность. Анализ показывает, что цифровые инструменты и ИИ обладают педагогической ценностью, когда они структурируют стратегии чтения, поддерживают проверку информации и сохраняют самостоятельное смыслообразование. Напротив, непродуманное или замещающее использование может ослаблять понимание текста и автономию обучающихся.

Научный вклад исследования состоит в разработке интегративной модели, связывающей этапы до, во время и после чтения с ограниченной цифровой и ИИ-поддержкой.

Практическая значимость обзора заключается в рекомендациях учителям по проектированию заданий с несколькими источниками, внедрению регулярной проверки источников, использованию безопасных ИИ-запросов и снижению рисков чрезмерной зависимости от автоматизированной помощи. Небольшой и неоднородный корпус данных ограничивает обобщение результатов, поэтому выводы следует рассматривать как сходящиеся тематические закономерности, а не как объединённые оценки эффекта.

Ключевые слова: читательская грамотность, цифровое чтение, онлайн-поиск и понимание, оценка источников, EFL, искусственный интеллект, чатботы, стратегии чтения, чтение нескольких документов, многоисточниковое чтение, латеральное чтение, civic online reasoning

Received / Мақала түсті / Стаття поступила: 04.03.2026

Accepted: / Жариялауға қабылданды / Принята к публикации: 25.09.2026

Information about the authors:

Ainur Meiramkyzy Sembekova - Master of Pedagogical Sciences, Doctoral Student, Kazakh National Women's Teacher Training University, Almaty, Republic of Kazakhstan, ainur.sembekova@gmail.com, ORCID: <https://orcid.org/0009-0009-5941-1924>

Aisulu Baltabaevna Nurtayeva - PhD, Senior Lecturer, Kazakh National Women's Teacher Training University, Almaty, Republic of Kazakhstan, aisulubaltabaevna72@gmail.com, ORCID: <https://orcid.org/0000-0001-5000-7874>

Yulia Aleksandrovna Kamenskaya - Teacher-expert, Nazarbayev Intellectual School of Science and Mathematics, Medeu District, Almaty, Republic of Kazakhstan, Kamenskaya_U@fmalm.nis.edu.kz, ORCID: <https://orcid.org/0009-0007-1084-1494>

Авторлар туралы мәлімет:

Сембекова Айнур Мейрамқызы - Педагогика ғылымдарының магистрі, докторант, Қазақ ұлттық қыздар педагогикалық университеті, Алматы қ., Қазақстан, ainur.sembekova@gmail.com, ORCID: <https://orcid.org/0009-0009-5941-1924>

Нуртаева Айсулу Балтабаевна - PhD, аға оқытушы, Қазақ Ұлттық Қыздар Педагогикалық Университеті, Алматы қ., Қазақстан, aisulubaltabaevna72@gmail.com, ORCID: <https://orcid.org/0000-0001-5000-7874>

Каменская Юлия Александровна - педагог-сарапшы, Алматы қаласы Медеу ауданындағы жаратылыстану-математика бағытындағы Назарбаев Зияткерлік мектебі, Алматы қ., Қазақстан, Kamenskaya_U@fmalm.nis.edu.kz, ORCID: <https://orcid.org/0009-0007-1084-1494>

Информация об авторах:

Сембекова Айнур Мейрамқызы - Магистр педагогических наук, докторант, Казахский национальный женский педагогический университет, г. Алматы, Казахстан, ainur.sembekova@gmail.com, ORCID: <https://orcid.org/0009-0009-5941-1924>

Нуртаева Айсулу Балтабаевна - PhD, старший преподаватель, Казахский национальный женский педагогический университет, г. Алматы, Казахстан, aisulubaltabaevna72@gmail.com, ORCID: <https://orcid.org/0000-0001-5000-7874>

Каменская Юлия Александровна - учитель-эксперт, Назарбаев Интеллектуальная школа естественно-математического направления района Медеу города Алматы г. Алматы, Казахстан, Kamenskaya_U@fmalm.nis.edu.kz, ORCID: <https://orcid.org/0009-0007-1084-1494>