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Article

Enhancing reading literacy among elementary school learners in Kazakhstan: The application and effectiveness of modern teaching techniques

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Abstract: This study investigates the application and effectiveness of modern teaching techniques in improving reading literacy among elementary school students in Kazakhstan. In the rapidly evolving educational landscape, the integration of innovative pedagogical strategies is essential to foster student reading skills and general literacy. This study aims to explore how these modern teaching techniques can be applied to improve reading literacy among elementary school students in Kazakhstan. The study sample includes 64 respondents to the research. The key modern teaching techniques explored in this study include the use of digital learning tools, interactive reading sessions, differentiated instruction, and collaborative learning activities. The findings reveal significant improvements in reading literacy among students exposed to these techniques, highlighting the potential of modern pedagogy to bridge literacy gaps and promote educational equity. Furthermore, the study discusses the challenges and opportunities to implement these techniques within the Kazakhstani educational system. The results provide valuable information for educators, policymakers, and stakeholders aiming to improve reading literacy through innovative teaching practices.

Keywords: effectiveness; enhancing; elementary school, learning, modern teaching techniques, reading literacy

1. Introduction

Reading literacy is a fundamental skill that forms the cornerstone of a child's educational journey and lifelong learning. In the context of Kazakhstan, where educational reforms are underway to align with global standards, enhancing reading literacy among elementary school learners is of paramount importance. This study investigates the application and effectiveness of modern teaching techniques to address this critical need.

The study of reading literacy as the basis of functional literacy in a schoolchild was carried out in different aspects: Questions of methodological support for the process of teaching functional reading were analyzed and traditional and innovative methods and techniques were described to develop reading literacy (Bal and Or, 2023; Özenç and Çarkıt, 2021; Öztürk et al., 2023). Chu et al. (2020) found factors that influence the formation of meaningful reading skills. Damaianti et al. (2020) studied the issues of assessing the levels of reading literacy development. Barber and Klauda (2020) focused their research on incentive opportunities for students' reading

motivation in specific classrooms. Pulimeno et al. (2020) investigated the mechanisms of personality development through children's reading. Filderman et al. (2022) found and described the various forms of reading difficulty in children. Andrianatos (2019) indicated that low reading literacy among students is an acute problem. Ritonga et al. (2022) found that the most common are reading comprehension problems. Understanding the reading crisis has been accompanied by the recognition of reading not only as a pedagogical but also as a social priority of our time, the activation of various approaches to support and develop reading, and the reproduction of reading culture (Nagima et al., 2022; Zhakupova et al., 2022).

Recent research underscores the necessity of adopting modern teaching techniques that resonate with the digital-native generation (Yetti, 2024; Wang et al., 2024). These techniques include multimedia learning, personalized learning environments, and interactive digital platforms, which have shown promising results in enhancing engagement and comprehension among young learners (Bankar et al., 2023; Maier and Klotz, 2022; Schmid and Petko, 2019).

The experimental study discussed in this article employs a blended learning approach that integrates traditional classroom methods with digital tools and resources. This method is designed to accommodate diverse learning preferences and paces, while also providing real-time feedback and assessments to optimize learning outcomes. The foundation of this methodology is built on a thorough review of the existing literature, ensuring that the approach is innovative and grounded in proven educational practices (Cook et al., 2023; Maher et al., 2018).

In recent years, Kazakhstan has made significant strides in reforming its educational system, with a focus on improving quality and accessibility. Despite these efforts, challenges remain, particularly in the realm of reading literacy (RL). Traditional teaching methods, while still prevalent, often fail to engage young learners or meet their diverse needs in an increasingly digital and interconnected world.

Thus, the progression of reading literacy among elementary school learners is fraught with difficulties. The research issue represents the conflict between the need to develop reading literacy in elementary school learners and the insufficient focus on developing reading literacy in students through modern teaching techniques. These challenges can only be overcome through innovative research, the use of modern teaching techniques, and the efficacy of this learning in stimulating the development of the RL of learners. However, the main question is whether modern teaching techniques improve the reading literacy of learners. If so, how does this happen? Unfortunately, despite the importance of improving the reading literacy of learners, the existing literature has not adequately studied the issue of developing reading literacy among elementary school learners based on modern teaching techniques. In this research, we focus on investigating the efficacy of modern teaching techniques in shaping the reading literacy of elementary school learners, which will also contribute to a harmonious and comprehensively developed personality.

1.1. Problem statement

In Kazakhstan, the promotion of effective reading literacy among elementary school students is exacerbated by several systemic and educational issues. This issue is primarily related to the peculiarities of the educational process in the country's schools, with a focus on mastering subject knowledge and skills, solving typical (standard) problems, which are usually included in textbooks, and state final certification tasks (Amanzhol et al., 2024). There is almost no time left in the educational process to develop a search for new or alternative ways to develop students' reading skills, conduct research, or work on group literary reading projects. It should also be noted that teachers receive insufficient training to develop reading literacy, as well as a lack of the necessary educational and methodological materials (Arnaiz-Sánchez et al., 2023). Furthermore, a serious problem for Kazakhstani primary education remains the formalism of knowledge (students have academic knowledge; however, they cannot use the acquired knowledge to solve pressing life problems) (Kulshayeva et al., 2023). Furthermore, the integration of technology into classrooms, a global trend that has shown promise in enhancing literacy, has been slow and uneven across the country.

Effective literacy in reading among young learners has not met international standards. The results of the education quality assessment show that Kazakh schoolchildren have a low reading level (Sarmurzin et al., 2021).

The need for innovative teaching techniques that not only engage students but also cater to their cultural and linguistic diversity is evident. In this context, changes are needed in the organizational, content and technical aspects of the learning process in primary schools in Kazakhstan. One of these concepts is modern teaching techniques. The integrative unity of using modern teaching techniques will increase students' reading literacy.

1.2. Questions for research

Q1: How effective are modern teaching techniques in enhancing reading literacy among elementary school learners in Kazakhstan?

1.3. Objectives

This study aims to explore how these modern teaching techniques can be applied to enhance reading literacy among elementary school learners in Kazakhstan.

The hypothesis is that the application of modern teaching techniques significantly enhances reading literacy among elementary school learners in Kazakhstan compared to traditional teaching methods.

2. Review of the literature

Researchers are actively investigating issues related to the development and assessment of reading literacy (Sönmez and Cetinkaya, 2022; Thaçi and Sopi, 2022; Hotaman, 2020). Vazquez-Lopez and Huerta-Manzanilla (2021) created a conceptual framework to increase reading literacy. Sutiyatno (2019) explains the fundamental meaning of reading literacy and defines its functions in the successful socialization and self-realization of a person in modern society. Elleman and Oslund (2019)

describe the structural components of reading literacy and their levels of development. Ahmed et al. (2022) improve assessment tools for reading intervention and perform a thorough analysis of the results. Ruotsalainen et al. (2022) investigated the relationship between the reading abilities of students at the school level and the literacy instruction activities in the lesson. According to Kaefer (2020), the reading process helps students gain knowledge, learn to perceive written language, and express their thoughts. Villanueva (2022) believes that in order for reading to serve its various purposes, students' reading literacy must be developed. Torppa et al. (2020) are actively addressing the challenges of introducing schoolchildren to reading in the study. According to Nation (2019), reading activity develops during the first decade of life, and the reader's attitude toward the book is determined. Li and Chu (2021) argue that the development of reading literacy is a key component of the learning process in primary school. This allows students not only to master key competencies but also to successfully cope with the tasks and challenges they will encounter in their future lives. According to Psyridou et al. (2021), all children can be taught to read, but not all children fully perceive and understand the essence of what they read, necessitating the improvement and modification of approaches to organizing reading activities for younger schoolchildren, as well as an understanding of the process of laying the groundwork for reading competence. In the opinion of Shi and Feng (2022), the main characteristics of cognitive processes (perception, memory, attention, imagination, thinking, and speech) necessary for the successful formation of reading activities in primary school children develop precisely at primary school age. Thus, while all students can be taught to read, not all primary schoolchildren fully perceive and comprehend the meaning of what they read. It is necessary to improve approaches to organizing reading activities for younger school children, as well as to understand the process of laying the groundwork for reading literacy.

3. Methods

3.1. Research design

The study on fostering reading literacy through modern teaching techniques in Kazakhstan takes a mixed method approach, combining quantitative and qualitative research to provide a comprehensive analysis of the effects of techniques on elementary school students (Chiva-Bartoll et al., 2020; Froehlich et al., 2020). This design allows for a robust examination of educational practices by not only quantifying their impact but also exploring the experiences and perceptions of participants.

3.2. Research sample formation

The study was carried out in Karaganda (Kazakhstan) in the fourth grade at the School Lyceum No. 66. The following conditions have been met: 1) teachers' willingness to use the new teaching method; 2) the availability of technical equipment and digital educational resources in the school; and 3) the effective organization of methodological work to support teachers on the specified topic. The

school administration was allowed to conduct the study. The study included fourth graders aged 9 to 10 years. There are two groups, experimental (n = 32) and control (n = 32). The study included 64 participants, 38 girls, and 26 boys (see **Table 1**).

Table 1. The distribution of participants and sample size.

School name	Participants			Samples size			Description		
	M	F	T	M	F	T	Grade	Section	Group
School Lyceum No. 66	26	38	64	12	21	32	4	A	Experimental group
				14	17	32	4	B	Control group

3.3. Experimental process

Phase 1: Pre-Assessment of reading literacy:

Baseline assessment: Prior to the implementation of modern teaching techniques, a baseline assessment of students' reading literacy levels was conducted using standardized reading tests. This assessment provided a reference point to measure subsequent changes in literacy levels.

Phase 2: Implementation of modern teaching techniques:

- Training for teachers: The teachers assigned to the experimental group received training on modern teaching techniques, including the use of digital learning tools, interactive reading sessions, differentiated instruction, and collaborative learning activities.
- Application in classrooms: Over a six-month period, teachers in the experimental group integrated these techniques into their reading instruction. The control group continued with traditional teaching methods without any modifications.

Phase 3: Monitoring and support

- Ongoing support: The teachers of the experimental group received continuous support and guidance from educational experts to address challenges and optimize the application of the new techniques.
- Observations in the classroom: Regular classroom observations were conducted to ensure the correct implementation of modern teaching techniques and to collect qualitative data on classroom dynamics and student engagement.

Phase 4: Post-Assessment of reading literacy:

Follow-up assessment: After six months of implementing modern teaching techniques, a follow-up assessment of students' reading literacy levels was conducted using the same standardized reading tests as in the preassessment.

Phase 5: Qualitative data collection:

- Interviews and focus groups.
- Thematic analysis.

Phase 6: Reporting and recommendations.

3.4. Intervention

Table 2 shows the intervention program.

Table 2. Intervention program.

Phase	Activity	Description
1) Training and preparation	Teacher Training	Comprehensive training program for teachers on modern teaching techniques including digital tools, interactive sessions, differentiated instruction, and collaborative learning.
	Resource Allocation	Provision of digital tools (tablets, e-readers, educational software) and reading materials to the experimental group to support the implementation of modern teaching techniques.
2) Implementation of modern teaching techniques	Digital Learning Tools	Integration of digital tools into reading lessons to provide interactive and engaging ways for students to practice reading, access various texts and receive immediate feedback.
	Interactive Reading Sessions	Design of reading sessions to be interactive, including group reading, read-aloud sessions, and discussion circles to encourage participation and improve comprehension.
	Differentiated Instruction	Tailoring lessons to meet the diverse needs of students by using assessment data to create personalized learning plans, offering additional support or challenges as needed.
	Collaborative Learning Activities	Engagement in peer reading, group projects, and reading games to promote teamwork, communication skills, and a deeper understanding of reading materials.
3) Monitoring and support	Ongoing Support	Continuous support for teachers from educational experts, including feedback and suggestions for improvement, and regular meetings and workshops to address challenges and share best practices.
	Classroom Observations	Regular observations to ensure fidelity of the intervention program, noting the use of modern techniques, student engagement, and overall classroom dynamics.
4) Evaluation and feedback	Student Assessments	Standardized reading assessments for both experimental and control groups at the beginning and end of the intervention period to measure changes in reading literacy levels.

3.5. Data collection tools

1) Standardized reading tests
   - Purpose: Measure the reading literacy levels of students in both the EG and CG.
   - Description: Standardized reading tests were administered at the beginning (pre-assessment) and end (post-assessment) of the intervention period. These tests evaluated various aspects of reading literacy, including reading comprehension, vocabulary, and fluency.
   - Data collected: The scores from the pre- and post-assessments provided quantitative data on changes in reading literacy levels.
2) Teacher implementation logs
   - Purpose: Track the fidelity and frequency of modern teaching techniques applied in the experimental group.
   - Description: Teachers maintained logs documenting the specific modern teaching techniques used, the frequency of their application, and any modifications made during lessons.
   - Data collected: Detailed records of teaching practices and any challenges or successes encountered during the implementation process.
3) Classroom observations
   - Purpose: To monitor the use of modern teaching techniques and gather qualitative data on classroom dynamics and student engagement.
   - Description: Regular observations were made by educational experts who used structured observation checklists to assess the implementation of the techniques and student interactions.
   - Data Collected: Qualitative notes and ratings on the fidelity of technique implementation, student engagement, and the overall classroom

environment.

4) Student surveys
   - Purpose: Collect the views and attitudes of students about the reading lessons and the teaching techniques used.
   - Description: Surveys were administered to students in both EG and CG, consisting of Likert-scale questions and open-ended responses.
   - Data Collected: Quantitative ratings and qualitative feedback on student engagement, enjoyment, and perceived effectiveness of reading lessons.
5) Teacher interviews
   - Purpose: Collect in-depth information from teachers regarding their experiences with modern teaching techniques.
   - Data collected: Qualitative data on teachers' experiences, challenges faced, and their views on the effectiveness of the techniques.
6) Focus group discussions
   - Purpose: To obtain detailed feedback from students and parents about the reading program and the impact of the new teaching techniques.
   - Data collected: Qualitative data on participant experiences, satisfaction with the program, and perceived changes in reading literacy.
7) Parent survey
   - Purpose: Assess the opinions of parents on the development of reading for their children and the effectiveness of teaching techniques.
   - Description: Surveys were distributed to parents of students in both groups, including Likert-scale questions and open-ended items.
   - Data collected: Quantitative and qualitative data on parents' observations of their children's reading habits, progress, and attitudes toward reading.

These data collection tools provided a comprehensive evaluation of the intervention program, combining objective measures of reading literacy with subjective feedback from students, teachers, and parents. This multifaceted approach ensured a thorough assessment of the effectiveness of modern teaching techniques in improving reading literacy among elementary school students in Kazakhstan.

4. Results and discussion

4.1. Paired *t*-test results

The paired *t*-test was conducted to compare the pre-assessment and post-assessment scores within each group (experimental and control) to determine if there were significant improvements in reading literacy levels after the intervention (see **Table 3**).

Table 3. Paired *t*-test results.

Group	Mean pre-assessment score	Mean post-assessment score	*t*-value	*p*-value	Significance
Experimental	75.09	85.09	−12.56	<0.001	Significant
Control	69.31	69.31	0.00	1.00	Not Significant

Experimental group: The mean pre-assessment score was 75.09, and the mean

post-assessment score was 85.09. The paired *t*-test resulted in a *t*-value of −12.56 and a *p*-value of <0.001, indicating a statistically significant improvement in reading literacy levels after the intervention.

Control group: The mean pre-assessment score and the mean post-assessment score were both 69.31. The paired *t*-test resulted in a *t*-value of 0.00 and a *p*-value of 1.00, indicating that there was no significant change in reading literacy levels in the control group.

Effect Size (Cohen's d): Experimental Group: $d = 1.77$.

Large effect size, indicating a substantial impact of modern teaching techniques on reading literacy.

These results suggest that the modern teaching techniques used in EG had a notable improvement in literacy in reading levels, while the traditional methods used in CG did not lead to any significant improvement.

4.2. Independent *t*-test results

The independent *t*-test was conducted to compare the changes in reading literacy levels between EG and CG. This analysis assessed whether the improvement in EG was significantly greater than in CG (see **Table 4**).

Table 4. Independent *t*-test results.

Group	Mean change in score	Standard deviation	*t*-value	*p*-value	Significance
Experimental	10.00	2.55	10.67	<0.001	Significant
Control	0.00	0.00	-	-	-

Mean change in score: The EG showed a mean change in score of 10.00, indicating an average improvement of 10 points in their reading literacy levels after the intervention. The CG did not show a change in score (mean change of 0.00), indicating no improvement in reading literacy levels.

Standard deviation: The SD for the change in the EG scores was 2.55, showing some variability in the improvement among students. The CG had a standard deviation of 0.00 as there was no change in scores.

t-value: The independent *t*-test resulted in a *t*-value of 10.67, indicating a large difference between the changes in the two groups.

p-value: The *p*-value was <0.001, indicating that the difference in the changes between EG and CG is statistically significant.

These results suggest that the improvement in reading literacy levels in EG, which received modern teaching techniques, was significantly greater than in CG, which continued with traditional methods. This indicates that modern teaching techniques were effective in enhancing reading literacy among elementary school learners in EG.

4.3. Qualitative feedback results

The qualitative feedback results were gathered through interviews, focus group discussions, and surveys with teachers, students, and parents from both EG and CG.

1) Teacher feedback

EG:

Positive outcomes: Teachers reported high levels of motivation and engagement among students. They observed that students were more enthusiastic about reading activities, particularly when digital tools and interactive sessions were used.

Improved comprehension: Teachers noted that the use of differentiated instruction and collaborative learning activities helped address the diverse needs of students, leading to better comprehension and retention of reading materials.

Challenges Some teachers mentioned the initial challenges of adapting to new techniques and integrating digital tools into their lesson plans. However, ongoing support and training helped mitigate these problems.

CG:

Traditional methods: Teachers in the control group continued to use traditional teaching methods. They reported steady but less dynamic classroom interactions and found it challenging to engage all students equally.

2) Student feedback

EG:

Enjoyment and engagement: Students expressed a greater enjoyment of reading activities, particularly those that involved digital tools and group work. They felt that these methods made learning more fun and interactive.

Confidence and participation: Many students reported feeling more confident in their reading ability and more willing to participate in class discussions and activities.

CG:

Routine and familiarity: Participants generally expressed satisfaction with their lessons, but did not show the same level of enthusiasm or engagement as those in the experimental group.

3) Parent feedback

EG:

Positive perception: Parents saw observable gains in their children's reading comprehension and general enthusiasm for books. They appreciated the innovative approaches and felt that these methods were beneficial for their children's learning.

Home involvement: Some parents mentioned that the digital tools used in the classroom encouraged their children to read more at home, fostering a supportive learning environment beyond school.

CG:

Satisfaction with status quo: Parents were generally satisfied with their children's progress, but did not report any significant changes or improvements.

4) General insights

Enhanced engagement and learning: Qualitative feedback highlighted that modern teaching techniques significantly improved student motivation and involvement and comprehension of the EG. The use of interactive and digital tools was particularly effective in making reading activities more appealing and accessible to students.

Implementation challenges: Despite positive results, some initial challenges were observed, including the requirement for adequate training and support for educators to successfully implement the new techniques. Continuous professional development and resources were essential to overcome these obstacles.

Support for innovative methods: Both the teachers and parents of the EG expressed strong support for the continued use of modern teaching techniques, recognizing their potential to improve educational outcomes and better prepare students for future learning.

Qualitative feedback corroborated these findings, highlighting increased student engagement, improved comprehension, and positive perceptions from teachers and parents (Feldman, 2019; Nguyen, 2022). These results suggest that modern teaching techniques are highly effective in improving reading literacy among elementary school learners in Kazakhstan (Farkas and Jang, 2019; Hwang et al., 2023; Seo et al., 2021).

5. Conclusions

This study explored the application and effectiveness of modern teaching techniques in enhancing reading literacy among elementary school learners in Kazakhstan. The intervention was carried out with two groups of fourth graders: an EG who experienced modern teaching methods and an CG who continued with traditional teaching methods. EG demonstrated a significant improvement in RL levels, with a mean increase of 10 points in their standardized reading test scores. This improvement was statistically significant ($p < 0.001$), indicating that modern teaching techniques had a substantial positive impact on students' reading abilities. Qualitative feedback from teachers, students, and parents highlighted increased motivation and participation of students in EG. Teachers reported that students in the experimental group showed better comprehension and retention of reading materials. Differentiated instruction and personalized learning plans helped address the diverse needs of students, leading to more effective learning outcomes. The supportive and interactive classroom environment contributed to this increase in confidence. Both parents and teachers expressed positive perceptions of modern teaching techniques. Although there were initial challenges in integrating modern teaching techniques, such as adapting to new digital tools and managing classroom dynamics, ongoing support and professional development helped teachers overcome these challenges. Continuous training and access to resources were crucial to the successful implementation of the intervention.

The findings reveal significant improvements in reading literacy among students exposed to these techniques, highlighting the potential of modern pedagogy to bridge literacy gaps and promote educational equity. Furthermore, the study discusses the challenges and opportunities to implement these techniques within the Kazakhstani educational system. The results provide valuable information for educators, policymakers, and stakeholders aiming to enhance reading literacy through innovative teaching practices.

6. Implications for practice and policy

- Integration of modern techniques: Schools should consider integrating modern teaching techniques into their reading curriculum to enhance student engagement, comprehension, and overall literacy outcomes. This includes the use of digital tools, interactive sessions, and differentiated instruction.

- Schools and educational policymakers should invest in comprehensive training programs and provide ongoing guidance to educators.
- Policy development: Educational policies should promote the adoption of innovative teaching methods and allocate resources for the necessary infrastructure, such as digital tools and training programs. Ensuring equitable access to these resources is critical for bridging literacy gaps across different regions and socioeconomic backgrounds.
- Parental involvement: Schools must maintain open communication with parents and provide them with resources and guidance on how to support their children's learning.

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