



Developing Reading Literacy Instruction Skills and PIRLS Awareness Among Pre-Service Primary Teachers in Kazakhstan

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Article Info

Received: June 03, 2025

Accepted: October 07, 2025

Published: November 7, 2025



10.46303/jcsr.2025.28

How to cite

Sarmurzin, Y., Kozhamberdina, M., Kerimbekova, B., Kazhimova, K., Dauyenov, Y., & Amanova, A. (2025). Developing Reading Literacy Instruction Skills and PIRLS Awareness Among Pre-Service Primary Teachers in Kazakhstan. *Journal of Curriculum Studies Research*, 7(2), 412-442.

<https://doi.org/10.46303/jcsr.2025.28>

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ABSTRACT

This research investigates how pre-service primary school teachers in Kazakhstan develop the ability to teach reading literacy through their knowledge of global assessment frameworks, such as the Progress in International Reading Literacy Study (PIRLS), while also evaluating the challenges they encounter. Using a questionnaire and semi-structured interviews, the study involved 135 pre-service primary school teachers from five regional universities in Kazakhstan. Research has shown a significant disparity between the theoretical knowledge taught in teacher education programs and the practical challenges encountered in the classroom. This disconnect becomes especially clear during international assessments such as the PIRLS, where pre-service teachers show limited ability to interpret and use PIRLS data to improve reading instruction. This indicates a clear need for specific training in this field. The study provides recommendations for connecting theory and practice in teacher training, highlighting the importance of training in large-scale assessments, such as the PIRLS, to promote proficient and confident literacy instruction.

KEYWORDS

PIRLS; reading literacy; pre-service teachers; large-scale assessments; Kazakhstan.

INTRODUCTION

In recent years, both global and national policymakers have increasingly turned to data from international large-scale assessments (ILSAs), such as the Programme for International Student Assessment (PISA) and the Progress in International Reading Literacy Study (PIRLS), to monitor educational outcomes and provide policy reform guidance (Li et al., 2025; Sarmurzin et al., 2021; van Rijn et al., 2024). The government of Kazakhstan has demonstrated its commitment to educational progress by aligning national standards with international benchmarks and enhancing reading literacy through participation in PIRLS and related reforms (Sarmurzin, Kerimbekova et al., 2025). The current educational discourse highlights how essential evidence-based reforms have tackled widespread academic challenges and synchronized educational systems with changing national and international educational standards (Crato & Patrinos, 2025; Jerrim, 2024). Recent research indicates that educators experience ongoing issues with assessment literacy, especially among pre-service teachers, who report a lack of preparedness to use data effectively (Hull & Vigh, 2025; Oo et al., 2022). Current educational initiatives emphasize the necessity of utilizing assessment data as a tool for refining teaching methods and curricular content while simultaneously developing teachers' professional skills (Ryspayeva et al., 2025; Sarmurzin et al., 2025). However, a critical deficiency persists within Kazakhstani primary teacher training. Major international large-scale assessments that contain valuable data and insights remain unutilized in Kazakhstani primary teacher education programs, resulting in future teachers missing information about student learning challenges, global educational trends, and the large-scale data analysis skills required for precise pedagogy.

PIRLS, conducted by the International Association for the Evaluation of Educational Achievement (IEA), is a significant asset for individuals engaged in educational research, policymaking, and school-level instruction. The purpose of these assessments extends beyond classroom use providing aggregated data at national and regional scales to guide system-level decisions (Mullis et al., 2023). According to Childs and Lawson (2003), educators must combine their classroom observations with national assessment data to make decisions regarding reporting and teaching methods. Despite the growing emphasis on data-driven instruction, many pre-service teachers in Kazakhstan show limited knowledge of large-scale assessments, a direct result of initial teacher education curricula only minimally featuring these studies (Sarmurzin, Kerimbekova et al., 2025). This phenomenon is not unique to Kazakhstan; research by Ioannidou et al. (2017) found that most German future teachers exhibited little interest in, or knowledge of, international comparative studies such as PISA. This widespread issue indicates a critical disconnection between global educational insight and teacher training.

Teacher education faces a continuous issue whereby pre-service teachers lack the skills necessary to apply assessments to enhance student learning. Multiple factors lead to this challenge, such as a lack of understanding of essential assessment and measurement principles, insufficient training in assessment methods and teachers' failure to apply assessment guidelines effectively for their students (Bichay-Awadalla & Bulotsky-Shearer, 2022; Di Liberto et al., 2022;

Popat et al., 2017; Samosa, 2022). Future educators require training to assess test reliability and limitations, as well as implementing proper preparation strategies while interpreting results from a pedagogical perspective (Fernandez & Martínez, 2022). PIRLS provides valuable data on reading literacy development, yet it demands a fundamental understanding of its structural objectives and interpretive methods. This deficiency in teacher preparation programs restricts pre-service teachers' ability to successfully utilize assessment data in reading instruction. A key finding of this study is that university educators have limited practical experience with PIRLS and often fail to incorporate PIRLS-related skills into their teaching practices. We argue that pre-service primary school teachers should undergo detailed, practice-based education on ILSAs to boost their preparedness for literacy instruction. This training should be considered equally important as the ongoing professional development of in-service primary school teachers.

It is essential to understand how initial teacher education strongly influences beginner teachers' development (Orynbekova et al., 2024; Sarmurzin, 2024). Through high-quality teacher preparation programs, pre-service teachers gain foundational pedagogical knowledge and learn how to connect their instructional methods with international education standards, such as PIRLS assessments. Recent studies indicate that many pre-service primary school teachers experience a sense of unpreparedness to effectively teach reading, even though they have completed formal literacy instruction courses (Ariyanti et al., 2023; Nel, 2024). The discrepancy between teachers' self-assessed readiness and their real-world ability calls for immediate enhancements to both the theoretical and practical elements of literacy education in teacher training programs (Oo, Alonzo, & Asih, 2022; Daniel et al., 2025).

The aims of this study were to (1) examine pre-service teachers' readiness to teach reading; (2) assess their knowledge of PIRLS and their perception of its usefulness; and (3) explore data-informed instructional skills for literacy teaching as a challenging skill. The conceptual essence of this study is the consideration of PIRLS knowledge in teacher education as a foundation for data-informed reading instruction. This study addressed the following research questions:

- To what extent do pre-service teachers in Kazakhstan consider themselves prepared to teach reading literacy?
- To what extent are pre-service teachers in Kazakhstan familiar with the PIRLS framework, and how do they perceive its relevance to their future reading instruction?
- What are the key obstacles pre-service teachers in Kazakhstan encounter when attempting to develop their practical reading skills?

This study explores the ongoing gap between the educational theory taught in teacher preparation programs and the real-world requirements of teaching literacy in classrooms. Pre-service teachers in many Kazakhstani universities learn abstract teaching concepts but rarely get opportunities to practice these methods in actual teaching environments. Pre-service teachers frequently report feeling inadequately prepared to teach reading lessons that meet curriculum standards and assessment requirements. This research highlights teachers' need for

specialized training on ILSAs, which provide essential information about reading development and teaching effectiveness. Targeted training programs will enable future teachers to improve their reading instruction skills through better lesson planning, delivery, and evaluation.

Background and Context

Progress in International Reading Literacy Study

PIRLS serves as an autonomous global evaluation of the reading literacy skills of fourth-grade students who have successfully completed the initial phase of primary schooling in line with the educational framework followed in numerous nations, including Kazakhstan (Mullis et al., 2023). Before this age, children acquire the fundamental skills necessary for reading, then they use these skills to acquire knowledge and information (Martin et al., 2017). Therefore, it is essential that children develop proficient reading skills by the end of primary school. PIRLS provides young participants with two distinct genres of text: literary and informational (Mullis et al., 2023). The PIRLS 2021 framework defines reading comprehension through two main goals: reading for a literary experience and reading to acquire and use information. Within each purpose, the four cognitive processes evaluated are retrieving stated information, focusing on details, making basic inferences, and interpreting ideas while integrating information and assessing both content and textual components. Cognitive processes during reading occur through interactions between reader background knowledge and reading context. Participants completed reading tasks to exhibit these comprehension processes, and their ability to process texts at multiple cognitive levels was measured (Mullis & Martin, 2020).

The PIRLS study included cognitive assessments and contextual questionnaires for students and their parents along with teachers and school principals. These tools collect information about teaching methods, home literacy settings, and school assets to provide a comprehensive view of the factors that promote reading development (Mullis et al., 2023). Although the PIRLS instrument itself is a useful research tool for studying reading achievement and other related factors, country participation also provides information about each participating country's learning context. In this respect, Kazakhstan's PIRLS participation can be informative about the status of reading literacy and its learning environment.

The participation of Kazakh students in the PIRLS study began in 2016 (IAC, 2018) and consists of over 5,000 fourth-grade students from over 170 schools in Kazakhstan, including both Kazakh- and Russian-language schools from all regions and major cities of the country. The results demonstrated positive performance, as Kazakhstan achieved an average score of 536 (± 2.5 SE) in PIRLS 2016, which was significantly above the centerpoint of 500 on the PIRLS scale (Mullis et al., 2017). Among the 50 countries included in the study, Kazakhstan ranked 27th, indicating its placement within the middle range of countries (IAC, 2018).

There was a significant increase in Kazakh student participation in PIRLS 2021 compared to their numbers in 2016. In total, 11,082 students from 389 schools nationwide participated in the assessment. According to PIRLS 2021, Kazakhstan's reading score fell by 32 points from the 2016 level of 536 (± 2.5 SE) to 504 (± 2.7 SE) in 2021 (Mullis et al., 2023). Consequently,

Kazakhstan dropped from the 27th position to the 38th position (Taldau, 2023). The expansion of the participant pool to include a wider array of schools and children in Kazakhstan impacted the national averages, underscoring the significance of contextual variables in the interpretation of the PIRLS data. Furthermore, it is important to acknowledge that this research was undertaken in the immediate aftermath of a pandemic that adversely affected global student performance globally (Zierer, 2021).

Reading Literacy and Kazakhstan

Kazakhstan consistently shows poor performance in international reading assessments, indicating ongoing national challenges in reading literacy. Thus, the country took part in PISA in 2009, 2012, 2015, 2018, and 2022. According to the latest assessment cycle (OECD, 2023), students from Kazakhstan achieved an average reading literacy score of 386 points, which is 90 points lower than the OECD average score of 476. Kazakhstan's reading performance scores have remained low throughout the PISA assessments since its initial participation, when 2009 showed a score of 390 (Sarmurzin et al., 2021). These findings indicate that reading literacy is a persistent challenge from the early educational stages, as shown by the PIRLS results through adolescence.

Additionally, based on the findings of the Programme for the International Assessment of Adult Competencies (PIAAC), a significant proportion of individuals in Kazakhstan, between the ages of 16 and 65, can comprehend and interpret only brief, uncomplicated information, and they encounter challenges when it comes to engaging in critical thinking (Level 1). Only 1.5 percent of the population demonstrated the highest levels of reading literacy (4 and 5). A significant portion of the population (48%) are categorized as level 2 (OECD, 2019).

To address the unsatisfactory outcomes of both the PISA and initial PIRLS cycles, Kazakhstan has implemented systematic preparation measures by introducing several initiatives. In 2020, the country launched the "Reading School's Reading Nation" initiative, a substantial project aimed at improving literacy (Aimagambetov, 2020; Makhanov, 2023). As a part of this project, various initiatives have been implemented to support school reading. These include providing books to schools, improving the professional competence of librarians, repairing and opening school libraries and co-working centers, and organizing reading competitions among school students. Additionally, activities such as dedicating 20 minutes of reading time in school have been introduced to encourage a passion for reading (Zamzayeva, 2024). Over the past two years, approximately four million books have been purchased for public school libraries. As part of this project, world fiction literature has also been translated into Kazakh, including Daniel Keyes's *Flowers for Algernon* and *Harry Potter* by J. K. Rowling (Aimagambetov, 2020; Mukanova, 2024; Hegay, 2023). While the project sought to build students' reading habits, teachers objected to its limited approach, which concentrated solely on school accountability and failed to reach parents, the media, and the broader society. As one teacher explained, "The whole emphasis is on the school, but the 'reading nation' has been neglected. Adult populations, especially parents, should also be included. They should set an

example for their children” (Sarmurzin, Kerimbekova et al., 2025, p. 15). Educators proposed that engaging public figures and media celebrities would be an effective strategy to boost reading among youth, because these individuals serve as cultural role models and influence young audiences.

In a further demonstration of its dedication, Kazakhstan officially declared 2021 the Year of Support for Children’s and Youth Reading (Makhanov, 2023). This initiative triggered a wide range of other activities that strengthened the country’s focus on promoting reading among students. In addition, the government of Kazakhstan has dedicated financial funding to the publication of a diverse selection of new books, especially tailored for pre-school and junior high school students (Aimagambetov, 2020). Kazakhstan’s commitment to promoting early literacy and academic development among the youth is demonstrated through its strategic investment in educational resources.

In response to the ongoing challenges identified in international studies, Kazakhstan has introduced additional actions aimed at addressing previous activities. Since 2022, a comprehensive tool known as the Monitoring of Educational Achievements of Students (MEAS) has been implemented nationwide to assess the quality of education. The MEAS serves as a thorough nationwide evaluation of learning quality and is executed independently of educational institutions. In 2022, a MEAS assessment was conducted for fourth- and ninth-grade students. The evaluation consisted of comprehensive assessments across three domains: reading literacy, mathematics literacy, and science (Government, 2023).

A questionnaire survey was conducted within the framework of the MEAS initiative, focusing on learners, teachers, and leaders of educational organizations. The Altynsarin National Academy of Education undertook a comprehensive evaluation of educational institutions and offered methodological recommendations aimed at improving educational quality (Government, 2023; Sarmurzin, Kerimbekova et al., 2025).

Educational Context

Kazakhstan’s education system is highly centralized (Yeleussiz & Qanay, 2025). The tertiary education system operates under central regulation by the Ministry of Science and Higher Education (MSHE), which adheres to the State Compulsory Education Standard (SCES) that determines educational program structures and learning outcomes for accredited universities (Sarmurzin, 2024; MSHE, 2025). All higher education institutions, regardless of their public or private status, must adhere to SCES to maintain uniform educational quality standards throughout the nation (Sarmurzin, Kerimbekova et al., 2025). Admission to teacher education programs is competitive; to enter pedagogical programs, prospective students need to clear the Unified National Testing (UNT) by scoring at least 75 points out of 140 across five subjects. Applicants must complete an additional specialized subject examination in pedagogy (National Testing Center, 2024). The new reforms implemented through the Law on the Status of Teachers now demand tougher selection criteria to identify robust teaching candidates (Sarmurzin, 2024).

Alongside other developments, government programs have begun to modernize teacher education and upgrade educational resources (Yeleussiz, 2024). The 2015 curriculum reform at the school level focused on developing students' functional literacy and abilities in critical thinking, problem-solving, collaboration, and communication (Sarmurzin, Kerimbekova et al., 2025). However, established educational priorities have not been completely adopted in initial teacher education programs. A four-year bachelor's degree in pedagogy and methods of primary education serves as the foundation for primary school teacher preparation. Teacher education programs include general pedagogical courses, subject-specific methodology courses, and school-based practicums, which typically occur during students' third and fourth years (Khan et al., 2018). The reform of in-service teacher development is substantial, yet initial teacher education continues to follow traditional models (Makoelle & Burmistrova, 2021; Ospanova, 2024). This study explored teacher preparation methods for literacy instruction by examining five university curricula from distinct regions of Kazakhstan using a unified platform of higher education (<https://epvo.kz>). The investigation demonstrated that although courses include methods of teaching literacy, reading literacy, and children's literature in teacher preparation programs, there is no compulsory systematic training following international standards such as PIRLS. Teacher education programs deliver minimal formal training to enable students to critically evaluate and use school textbooks, which function as fundamental instructional materials (Ospanova, 2024).

LITERATURE REVIEW

Research on the ability of teacher-education programmes in Kazakhstan to prepare educators to work with international assessment data remains limited. Despite policy documents acknowledging PISA and PIRLS outcomes as important national indicators, pre-service teacher programs show little evidence of routinely including these results in their teacher education curricula, with a specific focus on reading instruction (Sarmurzin et al., 2021; Ryspayeva et al., 2025). Research has shown that many candidate teachers in Kazakhstan receive inadequate practical training on how to utilize assessment data to make teaching decisions (Sarmurzin et al., 2025). The current state of teacher education fails to integrate teacher training with international standards for data-driven literacy education, even as the country engages in global assessment programs (Sarmurzin et al., 2023; 2024).

Kuralbayeva et al. (2023) comprehensively investigated the reading preferences and habits of future primary school educators in Kazakhstan. The findings revealed that reading levels among the study groups were significantly lower than those reported in comparable studies, indicating a distinct lack of established reading habits. Prospective teachers demonstrated notably lower engagement with books and newspapers. This trend highlights a significant issue regarding the lack of engagement with diverse reading materials, which could potentially affect future educational methods. The study found insufficient evidence of direct causation; however, low reading engagement among pre-service teachers created concerns

about their potential to support reading motivation and demonstrate strong literacy practices for students. This study underscores the necessity of implementing strategies aimed at enhancing reading practices among primary school educators in Kazakhstan.

Stark et al. (2015) noted that many primary pre-service teachers demonstrated a deficiency in both the content and pedagogical knowledge necessary for effective early reading instruction. However, preliminary training frequently does not adequately address the difficulties faced by educators (Best et al., 2018). The foundational knowledge base of future teachers represents a key concern, because it may not adequately prepare them for effective literacy instruction. Discussions regarding the quality of educators frequently focus on the academic competencies of pre-service student teachers, along with the quality of the teacher-education curriculum and instructional methods employed in initial teacher education programs (Meeks & Kemp, 2017). The design of educational curricula critically influences how well prepared teachers are, because it defines both the range and complexity of the teaching skills they learn throughout their training. The quality of these programs must be prioritized, as they significantly influence teachers' capacity to apply research-informed practices in their classrooms. Teachers' educational curricula should match academic standards and include modern evidence-based reading instruction methods. For pre-service primary teacher-preparation courses, it is essential to incorporate content grounded in robust evidence.

Espinosa et al. (2003) emphasized the importance of both pre-service and in-service teachers having a strong understanding of measurement theory, research, and terminology to evaluate assessments and their outcomes analytically. Lammert and Brice (2024) found that engaging in even a single conversation with a reading interventionist can substantially strengthen pre-service teachers' confidence in teaching literacy. Recent research in Kazakhstan confirms that candidate teachers show deficiencies in assessment literacy and lack the confidence and habits necessary for developing a reading culture in their classrooms (Kekeeva et al., 2020; Kalimova et al., 2022). Pre-service teachers displayed minimal motivation to engage with reading materials, while also showing inadequate knowledge of integrating classroom practice methods. The scarcity of opportunities within teacher training programs to work with real educational data or learn innovative reading instruction methods exacerbates these challenges. Experimental studies show that simple interventions, such as workshops and digital tool integration, can markedly increase pre-service teachers' readiness for reading instruction (Abildina et al., 2024). A successful teacher-education curriculum needs both theoretical knowledge of measurement and practical experiences that enable future teachers to interact with concepts while reflecting on and applying what they learn.

Gill (2008) found that teaching students only one comprehension method might have a substantial impact on their capacity to understand. Employing techniques such as activating past knowledge, questioning while reading, visualizing the text, generating inferences, formulating predictions, describing, identifying important concepts, assessing, integrating information, summarizing, and employing graphic organizers are crucial for the development

of comprehension abilities. According to Gill (2008), those can comprehend the narrative structure, characters, location, viewpoint, and themes of texts are more proficient in interpreting written information.

Another crucial aspect is vocabulary enhancement. Teachers may enhance comprehension by helping learners understand important terminology and ideas included in their reading material as well as by demonstrating techniques for reading unknown words (Gill, 2008). Research conducted by Kekeeva et al. (2020) demonstrates that pre-service teachers in Kazakhstan exhibit limited interaction with texts and face challenges when interpreting and analyzing different writing styles within digital environments. Students' academic development suffers from low reading culture levels, which constrains their capacity to demonstrate reading strategies for future students.

According to Block et al. (2002), proficient literacy instructors demonstrate a significant dedication to promoting passion for reading and writing. These educators use a range of methods tailored to the specific requirements of each student, guaranteeing the best possible learning results. Reading-related pedagogy requires foundational attitudes and beliefs about successful instruction.

Professional preparation is an essential element of teachers' attitudes. Studies have shown that teachers with advanced degrees and specific reading instruction training demonstrate greater effectiveness in supporting student learning. For instance, Myrberg et al. (2018), using PIRLS 2011 data, showed that students achieved better reading outcomes when taught by teachers who received grade-level and subject-specific training.

The assessment of literacy is a key factor. Research by Johansson et al. (2014, 2015) demonstrated that teachers possessing stronger pedagogical expertise evaluate students' reading abilities more accurately than standardized test scores alone. Yan and Cai (2022) showed that systematic guidance on reading strategies has a strong connection to student reading performance, underscoring the importance of ongoing support for reading pedagogy.

Hence, it is essential to include training on how to apply data from ISLAs in the curriculum of pre-service teacher training programs. Skaar et al. (2018) argued that teacher education programs should focus on literacy. This guarantees that newly hired educators have the necessary skills to transfer to their professional roles, where such assessments are standard and provide useful perspectives. Recent research has shown that pre-service teachers in some countries are not adequately prepared to offer research-based reading instruction. For instance, according to the National Council on Teacher Quality (Ellis et al., 2023), less than 30% of elementary teacher preparation programs in the U.S. provide adequate instruction on all the core elements of the science of reading (e.g., phonemic awareness, phonics, fluency, vocabulary, comprehension), and future teachers are not given opportunities to practice evidence-based teaching techniques. Similarly, Porter et al. (2023) showed that pre-service teachers' knowledge of foundational literacy skills is a strong

predictor of student learning outcomes. However, many teacher education programs do not ensure that such knowledge is thoroughly acquired.

While PIRLS offers useful findings on how teaching and learning conditions impact reading performance (Mullis et al., 2019), little research has been conducted on whether pre-service teachers are aware of such international assessments or whether they can apply the outcomes in real classroom situations. This gap is even more pronounced in Kazakhstan, where the teacher-education curriculum has little to do with international assessment frameworks, despite their increasing policy importance. Our study aims to fill this gap by exploring Kazakhstani pre-service teachers' skills in teaching reading literacy and their awareness of PIRLS, thus contributing to national and international conversations on teacher preparation.

METHODS

Research Design

This study used a sequential, explanatory, mixed-methods design (Creswell & Plano Clark, 2018) to examine the readiness of pre-service primary school teachers in Kazakhstan for reading instruction and their ability to apply international assessment data, such as PIRLS. The research design allowed for an initial quantitative evaluation of pre-service teachers' perceptions, before moving to a qualitative exploration that explained key quantitative patterns and provided deeper insights into the identified challenges.

The initial quantitative research phase used a structured questionnaire to evaluate pre-service teachers' perceived readiness for reading literacy instruction, while measuring their PIRLS awareness and the practical skill development barriers they face. The second phase of qualitative research used semi-structured interviews to delve deeper into the quantitative findings and to clarify the identified patterns. Researchers chose semi-structured interviews because they allow researchers to examine specific topics with the flexibility to capture unforeseen insights (Galletta & Cross, 2013). The selected method proved especially effective for exploring pre-service teachers' experiences in preparing for reading instruction and their interactions with the PIRLS data. The purpose of the interviews was to identify the fundamental causes of restricted knowledge and readiness, while examining participants' interactions with teacher education programs and assessment literacy training.

The mixed-methods approach was accomplished in several ways. At the design stage, important quantitative results were used to identify interviewees from various subgroups and to refine the interview protocol. At the interpretation stage, the qualitative results were triangulated with the quantitative data to arrive at a fuller understanding of pre-service teacher' preparedness and the use of assessment data to inform reading instruction.

The purpose of the explanatory research design dictated the combined quantitative–qualitative approach (Creswell & Plano Clark, 2018). The researchers used quantitative findings to create an interview protocol and to determine which participants were included in the

interviews. The study used qualitative data to understand and place the findings within context through an investigation of pre-service teachers' experiences and perceptions, together with the institutional elements that led to the discovered gaps. Through this integration, researchers gained a full understanding of pre-service teacher challenges in data-informed reading instruction competencies and provided practical insights to enhance teacher-training programs in Kazakhstan.

Participants

This study was conducted with pre-service primary education teachers from five regional universities in Kazakhstan (Table 1). Participants were selected using convenience sampling due to pragmatic constraints related to institutional access, time, and available resources (Etikan et al., 2016). Although convenience sampling affects the generalizability of the results, it enables researchers to involve diverse groups of students across institutions, which supports data collection. The researchers recognized the limitations of this sampling method in the discussion section. The inclusion criteria included students enrolled in full-time primary education programs with a minimum of two years of completed coursework. Students on academic leave or enrolled in part-time study tracks were excluded.

Table 1.

Participant Profile

Year of University Program	Counts	% of Total	Cumulative %
Fourth Year	91	67.4%	67.4%
Third Year	44	32.6%	100.0%

Table 2.

Frequencies of Region of Kazakhstan

Region of Kazakhstan	Counts	% of Total	Cumulative %
Abai region	28	20.7%	20.7%
Atyrau region	19	14.1%	34.8%
Karagandy region	39	28.9%	63.7%
Pavlodar region	17	12.6%	76.3%
Shymkent	32	23.7%	100.0%

A total of 135 female pre-service teachers participated, all of whom were enrolled in a four-year teacher-training program. Each student was invited to participate in an online interview; 37 pre-service primary education teachers volunteered to participate in the interviews, and theoretical saturation (Guest et al., 2006) was used to determine the total number of interviews conducted. The researchers concluded that saturation was reached when

additional interviews failed to produce any new themes regarding preparedness to teach reading literacy awareness of PIRLS and perceived obstacles. Based on these findings, the qualitative sample size was adequate. The participant profiles are presented in Table 2.

Data Tools

Questionnaire

The research team created the questionnaire based on their research objectives and previous studies on reading literacy, teacher preparation, and assessment awareness. The questionnaire included 33 items that were divided into five distinct thematic categories. The survey collected basic demographic details such as study year and geographic region, along with participants' understanding of PIRLS and whether their coursework included PIRLS content, their reading habits and preferences, and their awareness of primary school reading literacy challenges.

The preparedness scale items included three core questions measuring pre-service teachers' confidence in teaching reading, their university preparation to teach reading, and their knowledge of instructional strategies to use when teaching reading. Three additional questions were included, exploring their perceived preparedness to plan lessons, select materials, and use diagnostic assessments. Reliability analysis of the six items using Cronbach's alpha showed an acceptable level of internal consistency ($\alpha = 0.72$), which was sufficient to support the use of these items on a single scale. The composite score was then used in subsequent analyses to identify patterns in teacher preparedness.

The expert panel for the questionnaire development process comprised three academics with at least five years of experience in teacher education and literacy studies. The constructs measured were linked to the research questions of the study as follows: items related to preparedness for reading instruction addressed RQ1; items on perceived obstacles to developing instructional skills in reading instruction (in)formed practice addressed RQ2; and items on PIRLS awareness and its perceived relevance to teaching practice addressed into RQ3.

The questionnaire featured Likert-scale, multiple-choice, and short-answer questions. The draft questionnaire received expert evaluations from five specialists in teacher education and literacy studies to confirm content validity. A pilot test of the questionnaire involved 12 pre-service primary education teachers from a university outside the main study sample. We recruited participants who were available and willing to participate in the study while confirming that they fit the profile of full-time pre-service teachers who had completed at least two years of coursework. The pilot feedback led to minor changes in the wording and layout of items. Participants completed the final questionnaire using the Qualtrics online platform.

Interviews

Semi-structured interviews were conducted to enhance the questionnaire's findings and to provide a more detailed understanding. The interviews explored how pre-service teachers experienced reading instruction during their training, how they perceived the PIRLS, and how they evaluated their readiness to teach reading. The online interviews via Zoom took place over durations ranging from 25 to 40 minutes. The interview participants gave their consent for

audio-recording before we conducted the interviews with Kazakhs or Russians, which we then transcribed and translated into English. Key themes and representative quotes from the interview transcripts underwent a selective back-translation process to ensure that the participants' intended meanings and cultural nuances remained intact in the English translation.

Data Analysis

Quantitative data were analyzed using Jamovi (version 2.6). The questionnaire results were analyzed using descriptive statistics – including frequencies, percentages, means, and standard deviations – to summarize the participants' responses. The study performed inferential analyses to understand the differences between groups and relationships among variables. To explore the relationship between participants' understanding of PIRLS and their perceived relevance of PIRLS in teaching practice, Spearman's rank-order correlation was conducted.

The interview transcripts were analyzed using thematic analysis in accordance with Clarke and Braun's (2017) six-step methodology. The process included familiarization, coding, topic generation, theme evaluation, theme definition and naming, and the creation of findings. The analysis involved the participation of two separate coders. At the beginning of the analysis process, both coders independently studied the data and created preliminary codes. The study did not perform a formal inter-rater reliability assessment, such as a kappa coefficient, but analytical rigor was maintained by the two analysts discussing codes with each other. Each of the two researchers coded half of the transcripts and then met several times to discuss the codes and agree on their final themes. An audit trail of memo-writing, coding decisions, and category development was also conducted using NVivo. Theme saturation was achieved by the 22nd interview, as no new themes were developed; however, interviews continued to be coded to ensure saturation and consistency.

The qualitative findings explained and contextualized the key patterns identified during the quantitative phase, according to the explanatory purpose of the mixed-methods design. Quantitative analysis showed that pre-service teachers had insufficient preparation to teach reading literacy and displayed both low awareness of PIRLS and diminished confidence in selecting reading materials.

The findings of the quantitative analysis determined the main topics for the qualitative interviews which explored pre-service teachers' experiences and perceptions. The qualitative data explained the quantitative patterns by showing how restricted practice teaching opportunities, inadequate PIRLS training integration, and a lack of instructional support led to the identified challenges. The combined analysis of both data strands produced a more thorough understanding of pre-service teachers' preparedness for teaching reading literacy in Kazakhstan.

Considerations of Ethics

Our research entailed collaborative engagement with the participants. This study rigorously followed three fundamental ethical principles: obtaining informed consent, ensuring confidentiality, and maintaining anonymity. To facilitate an informed decision regarding

participation in the study, prospective participants were provided with an information sheet outlining the study's characteristics, including the individuals involved, the nature of the study, and the process for opting out. Prior to the interview, participants were required to complete a consent form. The researchers informed all participants about their purpose and procedures while clarifying their right to voluntarily participate and withdraw at any time without facing any penalties. This study received ethical approval from the Eurasian National University. The Code of Ethics for Educational Researchers in Kazakhstan emphasizes the importance of considering the effects of translation and interpretation on participants' comprehension of the subject matter when conducting research in multiple languages (KERA, 2020).

Consequently, information was disseminated to both Kazakhs and Russians to promote precision and enhance accessibility. To maintain the confidentiality of the study participants, the researchers systematically removed names and other identifying information from the audio recordings and transcripts and subsequently stored the data in a distinct password-protected file. The decision was made to employ numeric identifiers for interpretation of the data, such as Student 1 and Student 10.

RESULTS

The thematic analysis revealed several key themes that demonstrated how pre-service primary teachers in Kazakhstan viewed reading instruction. The research findings are presented systematically to match the goals of the study and address the research questions. The initial thematic analysis explores pre-service teachers' readiness for literacy education and their familiarity with the PIRLS assessment. The second set of themes presents the challenges that pre-service teachers face in developing practical literacy instruction skills. This structure delivers a focused narrative that addresses the study's research questions, highlighting pre-service teachers' perceptions of their preparedness and the key challenges they face in literacy instruction. Consistent with the explanatory mixed-methods design of the study, each theme below contains questionnaire results and illustrative quotes from the interviews. Questionnaire data illustrate general trends, while interview data explore causes and meanings.

Discrepancies Between Academic Training and Teaching Experiences

The results of the quantitative survey demonstrated a perceived lack of preparation for literacy teaching among pre-service teachers. The specific comments regarding PIRLS align with broader survey data, which show that many pre-service teachers use independent learning to improve their literacy teaching skills. In response to the inquiry, *"How do you primarily acquire knowledge about literacy teaching strategies?"*, 57.78% (n = 78) of the participants indicated that they had to use independent learning methods, including online resources and research article reading, to enhance their knowledge of literacy teaching strategies. In contrast, 42.22% (n = 57) reported engaging in more formalized learning methods such as structured coursework or training programs.

Participants often mentioned that their university professors failed to offer practical teaching insights because faculty members lacked real primary school classroom experience and presented theoretical knowledge that did not match classroom teaching realities. The gap between what pre-service teachers learned in their courses and the requirements of actual teaching work led them to believe that they were not adequately prepared for hands-on classroom activity. The interview participants observed that numerous faculty members showed minimal interest in present-day educational practices or the Ministry of Education reforms and lacked enthusiasm for conducting applied research that focused on teaching and learning in schools. Academic instruction frequently seems to be separate from the continually changing conditions in school education. Most participants expressed worries about applying their theoretical understanding to create functional teaching approaches, especially in teaching reading literacy. The ongoing separation between theory and practice strengthened their feelings of unpreparedness and uncertainty regarding upcoming teaching duties.

One of the pre-service teachers asserted:

“Professors without any experience of teaching at school instruct us on how to educate school students. Theoretically, everything could seem great. Reality, however, is very different.” - Student 3).

Student 7 agreed with this perspective, stating,

“Faculty members often demonstrate a disconnect from the practical realities of the school environment.”

The findings highlight a common problem in teacher education programs, marked by a disproportionate focus on theoretical frameworks, often at the expense of practical application. The absence of practical experience among university educators is a significant limitation, particularly in light of the necessity for pre-service teachers to cultivate a comprehensive understanding of real classroom interactions. It appears that there is a lack of understanding not only in the content but also in the context of university professors.

Student 21 expressed a desire for a more practical approach:

“I wish that practitioner teachers who are working in schools would also engage in teaching at the university.”

A comprehensive review of these findings suggests an effective approach: incorporating experienced in-service educators into university faculty may effectively connect theoretical frameworks with practical applications. Although this helps connect theoretical knowledge with classroom applications, it is still vital that pre-service teachers participate extensively in school practices to experience authentic teaching environments during their training.

In addition, Student 18 highlighted the differences between the teacher-education curriculum and the requirements of contemporary literacy education.

“I gained most of my knowledge about PIRLS through self-directed reading, rather than from my coursework. It is interesting how something so crucial to literacy education is not

emphasised in our training. How can we effectively measure and improve reading skills if we don't have a thorough understanding of these international frameworks?"

The dataset lacked an explicit preparedness metric, but multiple indicators showed that pre-service teachers believed that training did not match practical needs. During the questionnaire process, participants were asked the following question: *"Are you aware of the current level of reading literacy among elementary school students in Kazakhstan?"* A large number of pre-service teachers (72.6%) reported that they did not know the existing reading literacy levels of schoolchildren, and 68.9% of participants had no understanding of which text types presented difficulties for primary school students. University coursework provides few opportunities to connect theoretical learning with the actual teaching practices in schools.

As the results of the questionnaire were largely confirmed by the interview data, we can conclude that the lack of connection between university preparation and "real" class practice is not only a widespread perception, but also a lived experience for the majority of pre-service teachers. The questionnaire showed the scope of the problem, and the interviews provided some explanations. The most prominent explanations include the absence of recent experience in school settings for faculty at universities and a low proportion of "practice-based" instruction in their preparation courses.

Inadequate Awareness of PIRLS and Deficient Emphasis on Literacy Instruction

This theme represents the inconsistency between pre-service teachers' awareness of international assessments' value and their relatively limited knowledge of tools such as PIRLS. The quantitative findings offer evidence of perceived unpreparedness and low familiarity with PIRLS, and the interview responses suggest underlying factors and systemic gaps in teacher training.

The pre-service teachers' understanding of PIRLS and its goals was evaluated by asking participants the following question: *"On a scale of 1 to 5, how would you rate your understanding of PIRLS and its objectives?"* Participants demonstrated a significant lack of understanding of PIRLS (Table 3). However, in response to the question, *"How relevant do you think PIRLS is to your future teaching practice?"*, the majority of pre-service teachers acknowledged the importance of PIRLS in their prospective teaching careers, as 65.19% considered it relevant or highly relevant (Table 4).

Table 3.

Pre-service Teachers' Understanding of PIRLS

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
Understanding of PIRLS (1-5)	135	2.27	2	1.06	1	5

Table 4.*Relevance of PIRLS to Teaching*

Descriptives

	N	Mean	Median	SD	Minimum	Maximum
Relevance of PIRLS to teaching (1-5)	135	3.72	4	1.19	1	5

Student 19 raised her concerns about the lack of discussion on PIRLS during her coursework.

“Throughout my training, there was a noticeable absence of information about international largescale tests. It is quite puzzling that a tool that offers such valuable insights into reading literacy isn’t a central component of our literacy courses. Instead, the focus was scattered and rarely addressed practical approaches to effectively instructing literacy.”

Agreeing with this viewpoint, Student 25 expressed her concerns about feeling unprepared, attributing it to the insufficient focus on international literacy assessments.

“Our courses covered reading, but only in a broad manner. There was a lack of in-depth analysis on international assessments and their impact on literacy strategies. It feels like trying to find your way without any guidance, aware of the end goal but unsure of the path to take.”

The previously cited quotes highlight a significant concern within teacher training programs: the insufficient incorporation of critical assessment literacy into curricula. PIRLS serves as an essential resource for comprehending reading literacy on a global scale. However, it is primarily overlooked in the formal education of pre-service teachers, resulting in a lack of awareness of how to interpret and apply international reading literacy standards in their teaching preparation.

The responses add weight to the quantitative data and explain the differences in the perceived relevance and understanding of PIRLS. The survey indicated that most participants viewed PIRLS as relevant, yet the qualitative data showed that PIRLS was not integrated into their teacher education courses in a systematic or practical manner.

Table 5.*Perceived Preparedness to Teach Reading Literacy*

Preparedness Level	Percentage
Very Unprepared	34%
Somewhat Unprepared	34.15%
Prepared	31.85%

The results of the questionnaire reflected this concern with 68.15% of the surveyed participants feeling underprepared or only moderately prepared to teach reading literacy when asked, “How would you rate your readiness to teach reading literacy in primary school?” Only 15% of the participants reported feeling fully prepared (Table 5). The data show broad teacher unpreparedness that matches the qualitative findings about lacking systematic instruction in assessment tools such as PIRLS.

The relationship between PIRLS understanding and perceived relevance was explored using Spearman’s correlation calculations. Statistical analysis showed no meaningful connection between the two variables ($p = 0.003$, $p = .974$, $N = 135$), which implies that participants who rated PIRLS as highly relevant to their future teaching did not show a greater understanding of the assessment (Table 6).

Table 6.

Correlation Matrix

	Understanding of PIRLS (1-5)
Relevance of PIRLS to teaching (1-5)	Spearman's rho
	0.003
	df
	133
	p-value
	0.974
	N
	135

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

In sum, the quantitative data from the survey and the qualitative data from the interviews suggest that participants view PIRLS as relevant but do not understand it well. This difference in scores for relevance and understanding is not due to individual dispositions but appears to be systemic and is caused by a lack of attention to PIRLS within preparation courses. The absence of PIRLS in teacher-training programs is notable. The global significance of these assessments in literacy evaluation underscores the critical need for their integration into the curricula. Without this incorporation, pre-service teachers will remain inadequately prepared to address the challenges of contemporary educational environments. This oversight underscores a more significant concern within educational policy and curriculum development in teacher preparation, where the importance of integrating global literacy evaluations, such as PIRLS, into teacher preparation curricula remains insufficiently addressed.

Obstacles in Building Effective Literacy Instructional Competencies

This theme identified some of the complex challenges encountered when pre-service teachers became confident about planning and using effective literacy instructions. Low confidence in important instructional practices, including text selection, was observed in quantitative data.

Qualitative data showed that this lack of preparedness could be attributed to the curriculum, materials, and methods of training they had received.

An analysis of the data gathered from the study participants revealed numerous challenges that future primary school teachers might face. The participants expressed concerns regarding the critical analysis of texts, difficulties in assessing text complexity according to the age of the students, absence of methodologies that adhere to inclusivity, lack of updated materials, and shortage of recent publications in Kazakhs.

Pre-service teachers noticed the lack of care provided by professors, who only provided a reading list for the semester. There is an absence of discourse on these books, critical analysis, literary analysis, or other methodologies for literature assessment.

Survey data confirmed this lack of confidence. When participants were asked, *“How confident do you feel in selecting appropriate texts for different age groups of students?”*, only 33% reported feeling confident. In contrast, 45% indicated a moderate level of confidence, whereas 22% expressed complete lack of confidence. This notable disparity underscores the lack of teacher preparation programs that do not appear to give enough importance to the crucial skills of selecting appropriate texts. Choosing the right text is crucial for meeting the distinctive requirements of pre-service teachers and ensuring that the reading materials are suitable and interesting.

“To be fair, I am unsure of how to choose texts for children with special educational needs or for various age groups” – Student 7.

The ambiguity associated with choosing texts suitable for various age groups highlights fundamental issues within the curriculum of teacher training programs. Without adequate practical training and access to suitable resources, pre-service teachers encounter difficulties in developing the necessary skills to personalize reading materials to address the varied needs of their students. This highlights a notable gap in the resources provided to future educators who are expected to implement complex literacy strategies despite a lack of adequate training. Throughout the interviews, the participants expressed difficulties in describing their methods and strategies for teaching literary texts.

Participants were asked, *“Do you read books primarily for pleasure or for university assessments?”* The majority of participants reported that they read primarily for university assessments (41.48%) and personal pleasure (14.07%). This highlights a dual focus in which academic reading is given priority due to curricular requirements, possibly at the expense of reading for pleasure. Understanding the importance of creating an appropriate combination of these reading goals is evident, as it may promote deeper and more perceptive engagement with texts.

Additionally, participants noted a significant lack of up-to-date and applicable resources in Kazakhs regarding reading teaching. This hampers their capacity to participate effectively in contemporary educational methods and scholarly investigations. Insufficient resources limit their abilities to learn and develop future teaching methods. Many resources are available in

English or Russian, requiring translation and additional burdens. Moreover, participants in the study observed a deficiency in Kazakh literature regarding age-appropriate and language-proficient adapted fiction.

DISCUSSION

Convenience sampling represents a methodological constraint that limits the applicability of this study to wider contexts. Pragmatic limitations required this sampling approach but resulted in a sample that did not fully represent all pre-service primary education teachers in Kazakhstan. Adopting various sampling methods in future research could improve the external validity of the findings.

The results of this study require an analysis of Kazakhstan's overall literacy metrics nationwide. Kazakhstan achieves scores near the international average in PIRLS (Mullis et al., 2023); however, it faces significant literacy issues in later grades, which is evident through the declining PISA results (OECD, 2023). The education system establishes basic reading skills at the primary level yet fails to develop advanced reading comprehension and critical reading abilities.

Kazakhstan's State Compulsory Education Standard defines functional literacy development and lifelong learning skills as national educational priorities. The Concept for the Development of Pre-school, Secondary, Technical, and Vocational Education for 2023–2029 (Government of the Republic of Kazakhstan, 2023) defines participation in global comparative studies, such as PISA, PIRLS, TIMSS, and ICILS, as essential for national educational strategies. The government launched specific programs to prepare school students and active teachers for assessment participation, while fostering a national reading culture. The National Centre for Professional Development (Orleu) provides systematic training to in-service teachers who create tasks to boost students' functional literacy with the goal of high performance in international assessments (Bocharova, 2022). The Center for Educational Programs of Nazarbayev Intellectual Schools has developed methodological materials that specifically aid in PISA preparation (Bocharova, 2022). While these efforts are laudable for in-service teachers, the lack of equivalent infusion of PIRLS content into pre-service programs indicates a systemic disconnect in the development of assessment literacy. This gap implies that Kazakhstani teacher education curricula have not yet adequately aligned with the national agenda or global standards – a trend that has been highlighted as an issue in the literature on other teacher education systems (Raymond-West & Rangel, 2020).

Institutions tasked with training future educators mostly remained detached from these initiatives. Today, teacher education programs lack a systematic alignment with national literacy objectives and international assessment requirements. The existing gap highlights a critical requirement for reviewing teacher-training curricula to ensure that pre-service teachers gain the necessary competencies to promote reading literacy, according to national standards and international benchmarks. PIRLS could be used to offer teachers pre-service school-level

performance data to increase data-informed decision-making; however, there is no concrete use of PIRLS data in actual curriculum plans.

This study demonstrates that the theory–practice gap stems from fundamental structural problems in Kazakhstan’s teacher–education system. The disconnect from the DIDM perspective shows that academic programs fail to adequately respond to classroom data realities, including student learning results and educational challenges. Teacher education curricula depend heavily on abstract theoretical concepts but disregard the practical information gained from consistent school-based practice. Popova et al. (2019) indicated that some educational programs disproportionately focus on theoretical instruction, thereby failing to offer pre-service teachers essential hands-on experiences in the classroom setting. Similarly, Westbrook et al. (2013) observed that certain courses do not adequately prepare teachers for real-world scenarios and lack alignment with the national curriculum or education policy. This underscores the necessity to adopt a comprehensive and experiential methodology in the development of teacher-training programs (Amanzhol et al., 2024). Without strong school–university partnerships and methods to integrate practice-based insights into academic programs, the educational divide persists. Teacher preparation programs should incorporate structured school-based experiences into the teacher-education curriculum and enhance reflection through data analysis to connect theoretical understanding with practical teaching requirements.

The study participants highlighted a significant gap in the presence of practicing teachers with relevant work experience in schools, a situation that stands in contrast to the regulatory standards set forth by the MSHE. According to the MSHE order, a minimum of 10% of educators teaching core subjects in higher education institutions must be active practitioners of their fields of expertise (MSHE, 2024). Nevertheless, an examination of student responses from five regional universities indicated that this requirement is either rigorously enforced or entirely overlooked, thereby considerably diminishing the quality of training for future educators. A combination of structural and administrative barriers leads to this inconsistency, including a shortage of qualified school-based practitioners, inadequate institutional incentives, and a lack of strong monitoring systems to enforce compliance. The original policy goals diminish while numerous candidate teachers remain deprived of real classroom experience. Similar patterns have been seen in teacher education programs in other countries, where the weak involvement of teachers in teacher education has been reported to decrease its effectiveness (Darling-Hammond, 2017).

A major factor undermining literacy instruction is the insufficient quality of university-level teaching, as reported by pre-service teachers. The participants’ comments indicated that these factors were insufficient to cultivate authentic passion for reading. Nonetheless, the survey findings indicated a significant difference between the participants’ individual perspectives and their planned reading habits. A significant proportion of participants indicated a decreased desire to read for enjoyment, highlighting a deficiency in the desire to engage with

texts beyond academic requirements. Similar challenges in reading comprehension, such as limited exposure to informational texts and lack of collaborative learning, were also identified by Moloi and Adegiori (2023), who suggested that using fictional stories as a learning strategy can enhance students' comprehension skills.

Research has shown that pre-service teachers commonly show limited enjoyment in reading activities. For instance, the study by Applegate et al. (2014), which included over 1,000 college students and 348 future teachers, revealed that less than half showed enthusiasm for reading and almost half of the pre-service teachers displayed no personal reading interest. This phenomenon, called the "Peter Effect," threatens the future ability of teachers to inspire their students with a passion for reading. These findings highlight the necessity of focusing on personal reading habits during teacher education programs, so that future educators can become genuine reading role models for their students. Additionally, the ability to read effectively supports academic success at the tertiary level, because it allows pre-service teachers to understand scholarly texts and develop their own arguments while engaging critically. Bergman (2024) identified these skills as fundamental to writing and knowledge creation in university education. Therefore, our findings align with research evidence that teacher education needs to focus more on personal reading motivation and teaching reading.

The results suggest that pre-service primary school teachers possess a constrained understanding and awareness of the significance and implications of PIRLS. Insufficient comprehension may be partly attributed to the restricted engagement with and incorporation of extensive international evaluations, such as PIRLS, into their educational curriculum. A considerable proportion of participants demonstrated an insufficient understanding of the potential applications of PIRLS data in enhancing their instructional practices and acquiring insights into pre-service teachers' reading competencies on a global scale, as well as in mastering reading strategies and pedagogical approaches to teaching reading. According to Raymond-West and Rangel (2020), teacher preparation programs fall short of effectively providing educators with the necessary skills to teach literacy, and pre-service teachers articulated the need for more extensive education on how to analyze and apply PIRLS domains, frameworks, and test results, as well as in teaching reading literacy. This finding aligns with other studies, in which a lack of alignment between preparation programs and the actual demands of teaching leaves novice educators unprepared to meet their students' instructional needs (Clark et al., 2013; Joshi et al., 2009; Grisham, 2000). Hindman et al. (2020) proposed including specialized strategies in pre-service training to enhance reading instruction, drawing on the successful strategies used by experienced teachers. With thorough preparation for teaching literacy, educators can assist elementary school students in establishing a strong foundation for their expected academic achievement (Sumarno et al., 2024).

Consequently, it is essential to incorporate training in large-scale assessments within initial teacher education programs. This approach will facilitate an easy transition for educators into professional practice where such evaluations are prevalent and generate significant

insights. This methodology ensures that educators, regardless of their experience, are thoroughly prepared to adhere to rigorous standards of teaching and assessment established on a global scale from the outset of their careers. Research from Brazil, the Philippines, and other nations has demonstrated that pre-service teacher training programs should include ILSA competencies (Garcia & Miranda, 2024; Espinosa et al., 2024; Rajapov, 2024). The integration process strengthens content teaching methods and raises pedagogical content knowledge while bringing curriculum elements into conformity with international literacy standards (Espinosa et al., 2024). According to some research, teacher education programs lack substantial ILSA content, including international assessments, and this deficiency potentially leaves new teachers unprepared for basic educational challenges (Garcia & Miranda, 2024). This study shows that many pre-service teachers in Kazakhstan cannot properly interpret and apply data from international assessments, such as PIRLS. Participants requested additional clear teaching and guided practice to help them effectively utilize large-scale data to meet student educational requirements.

The best teaching of reading material takes place when the didactic principles, the chosen text, and the students' characteristics are aligned in their development. The capacity for text comprehension varies among children and is influenced by factors such as age, literacy level, and vocabulary acquisition. Children of the same age may demonstrate different levels of comprehension when engaging in a text (Rahman et al., 2023). However, Andonovska-Trajkovska (2017) observed that educators do not select instructional strategies based on the ages of their students. Thus, in the training of pre-service primary school educators, it is crucial to emphasize the selection of texts and teaching strategies that align with the needs, ages, and abilities of their students. This observation was particularly significant, as highlighted by the participants of this study. It is essential for professors to consider these data when creating and improving curricula to ensure that educational experience aligns with the needs and characteristics of the student population.

CONCLUSION

The present study explored the attitudes of future primary school teachers toward their preparedness to provide reading literacy instruction and identified obstacles that limit pre-service teachers' ability to gain classroom-ready teaching skills. Participants seemed to be aware of the necessity of reading instruction and international literacy assessments such as PIRLS, but their knowledge of such frameworks and their instructional skills were extremely limited. This finding reveals a deep misalignment between pre-service teacher education and the realities of 21st-century reading instruction. Qualitative analysis revealed three main problems that persist in teacher training: a lack of connection between theory and practice, a shortage of support in selecting reading materials, and a lack of knowledge of literacy assessments and assessment strategies in general. These themes all point to structural limitations within teacher preparation that prevent pre-service teachers from learning how to provide classroom-ready reading

instruction aligned with international standards. The major methodological limitation of this study is the lack of data collected directly from pre-service teachers' classroom observations. This research on Kazakhstani pre-service teachers offers three recommendations. First, teacher education programs should provide training on international assessments such as PIRLS to build assessment literacy and develop data-driven literacy teaching practices. Second, cooperation between universities and schools should be fostered to provide pre-service teachers with more teaching opportunities that are closely guided and evidence-based. Third, university instructors should participate in professional development opportunities to meet international literacy expectations and model research-based teaching. International studies such as PIRLS and PISA should not be ignored by university teachers, as they create and define expectations that future generations of teachers need to know and meet.

Funding

This research has been funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. AP25797339).

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