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ANALYSIS OF 4TH GRADE STUDENTS' READING LITERACY IN THE CONTEXT OF DIGITAL TRANSFORMATION BASED ON PIRLS STUDY RESULTS

Abstract

This article provides an analytical examination of the development of reading literacy among primary school students within the digital transformation, based on the results of the international PIRLS study. In today's education system, the widespread integration of digital technologies has fundamentally transformed the ways students interact with texts, requiring a new perspective on reading literacy. In this regard, reading literacy is viewed not only as the ability to comprehend a text, but also as a set of skills involving locating, integrating, interpreting, and evaluating information.

The theoretical section of the study presents the concept of reading literacy as defined in international assessments (PIRLS, PISA) and identifies the specific characteristics of the digital reading environment. The "Materials and Methods" section describes the structure of the PIRLS-2016 and PIRLS-2021 cycles, the assessment formats, participant samples, and the transition to digital testing. The data allow for an analysis of the dynamics of reading literacy among Kazakhstani students.

The results analysis compares students' achievements in literary and informational texts as well as their performance in paper-based and digital formats. Special attention is given to tasks based on the literary text "The Empty Pot," which are used to analyze students' abilities to locate information, identify cause-and-effect relationships, understand metaphorical meaning, and interpret characters' emotional states. The conclusion highlights the importance of developing methodological and strategic approaches to support reading literacy in a digital learning environment.

Keywords: reading literacy, digital transformation, PIRLS international study, primary school students, digital learning.

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АНАЛИЗ ЧИТАТЕЛЬСКОЙ ГРАМОТНОСТИ УЧАЩИХСЯ 4-Х КЛАССОВ В УСЛОВИЯХ ЦИФРОВОЙ ТРАНСФОРМАЦИИ НА ОСНОВЕ РЕЗУЛЬТАТОВ ИССЛЕДОВАНИЯ PIRLS

Аннотация

В статье представлена аналитическая интерпретация проблемы формирования читательской грамотности учащихся начальных классов в условиях цифровой парадигмы на основе результатов международного исследования PIRLS. В современной системе образования широкое внедрение цифровых технологий коренным образом изменяет способы работы учащихся с текстом и требует нового подхода к пониманию читательской грамотности.

В этом контексте читательская грамотность рассматривается не только как способность понимать текст, но и как совокупность умений находить, интегрировать, интерпретировать и оценивать информацию.

В теоретической части исследования раскрывается понятие читательской грамотности в интерпретации международных исследований (PIRLS, PISA), а также определяются особенности цифровой среды чтения. В разделе «Материалы и методы» описываются структура исследований PIRLS-2016 и PIRLS-2021, формат оценивания, контингент участников и особенности перехода к цифровому формату. Полученные данные позволяют выявить динамику уровня читательской грамотности казахстанских школьников.

В ходе анализа результатов рассматриваются различия в читательских достижениях по литературным и информационным текстам, а также сравнительные показатели выполнения заданий в бумажном и цифровом форматах. Особое внимание уделено заданиям по литературному тексту «Пустой кувшин», на основе которых анализируются умения учащихся находить информацию, устанавливать причинно-следственные связи, понимать метафорическое значение и интерпретировать эмоциональное состояние персонажей. В заключении обосновывается необходимость принятия методических и стратегических решений, направленных на развитие читательской грамотности в условиях цифрового обучения.

Ключевые слова: читательская грамотность, цифровая трансформация, международное исследование PIRLS, учащиеся начальной школы, цифровое обучение.

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ЦИФРЛЫҚ ТРАНСФОРМАЦИЯ ЖАҒДАЙЫНДА 4-СЫНЫП ОҚУШЫЛАРЫНЫҢ ОҚУ САУАТТЫЛЫҒЫН PIRLS ЗЕРТТЕУІ НӘТИЖЕЛЕРІ НЕГІЗІНДЕ ТАЛДАУ

Аңдатпа

Мақалада цифрлық трансформацияда бастауыш сынып оқушыларының оқу сауаттылығын қалыптастыру мәселесі PIRLS халықаралық зерттеуінің нәтижелері негізінде аналитикалық тұрғыда талданды. Қазіргі білім беру жүйесінде цифрлық технологиялардың кеңінен енгізілуі оқушылардың мәтінмен жұмыс істеу тәсілдерін түбегейлі өзгертіп, оқу сауаттылығын жаңа қырынан қарастыруды талап етуде. Осы тұрғыда мақалада оқу сауаттылығы тек мәтінді түсіну дағдысы ретінде емес, ақпаратты табу, біріктіру, интерпретациялау және бағалау қабілеттерінің жиынтығы ретінде қарастырылады.

Зерттеудің теориялық бөлігінде оқу сауаттылығы ұғымының халықаралық зерттеулердегі (PIRLS, PISA) түсіндірмесі беріліп, цифрлық оқу ортасының ерекшеліктері айқындалады. Материалдар мен әдістер бөлімінде PIRLS–2016 және PIRLS–2021 зерттеулерінің құрылымы, бағалау форматы, қатысушы контингенті және цифрлық форматқа көшу ерекшеліктері сипатталады. Зерттеу деректері Қазақстандық оқушылардың оқу сауаттылығы деңгейінің динамикасын анықтауға мүмкіндік береді.

Нәтижелерді талдау барысында әдеби және ақпараттық мәтіндер бойынша оқу жетістіктеріндегі айырмашылықтар, қағаз және цифрлық форматтағы тапсырмаларды орындау нәтижелерінің салыстырмалы көрсеткіштері қарастырылған. Әсіресе «Бос құмыра» әдеби мәтініне берілген тапсырмалар негізінде оқушылардың ақпаратты табу, себеп-салдарлық байланысты анықтау, метафоралық мағынаны түсіну және кейіпкердің эмоциялық күйін интерпретациялау дағдылары талданады. Сонымен қатар қорытындыда цифрлық оқыту жағдайында оқу сауаттылығын дамытуға бағытталған әдістемелік және стратегиялық шешімдер қабылдаудың маңыздылығын негіздейді.

Түйін сөздер: оқу сауаттылығы, цифрлық трансформация, PIRLS халықаралық зерттеуі, бастауыш сынып оқушылары, цифрлық оқыту.

Introduction. The modern education sector, as a result of the rapid development of digital technologies, requires new approaches to organizing the learning process. In particular, the issue of forming reading literacy of primary school students is one of the main priorities in the country's human capital development strategy. At the same time, the digital transformation requires the formation of new formats for organizing students' learning activities, new types of skills for perceiving and processing information. This situation has increased the relevance of the issue of developing reading and digital literacy of primary school students, making it the main direction of research at the national and international levels.

The methodological instruction for the 2025-2026 academic year states that «In modern times, digital technologies have become an integral part of the educational process and play an important role in increasing student motivation, individualizing learning, and enlivening the content of education» and «It is important to form and develop reading literacy in order to achieve the main goal of students' ability to use the acquired knowledge and skills in solving various situations in life» [1].

The international PIRLS study is a reliable tool for assessing the reading skills of primary school students and allows for comparison of the quality of education at the global level. PIRLS data provide a comprehensive analysis of factors that affect students' academic achievement - such as family environment, school conditions, teaching methods, level of use of digital tools, motivation and learning strategies. The complete transition of research to a digital format in recent years has provided a unique opportunity to determine the level of understanding of text in a digital learning environment by students.

The issue of reading literacy and digital learning is widely discussed in the world scientific literature. These works comprehensively study the impact of digital technologies on students' reading skills, the transformation of educational materials and the psycholinguistic features of working with digital texts. Kazakhstani researchers have also written scientific works on digital education and reading literacy in recent years. However, there is a lack of special studies in the available sources that comprehensively analyze PIRLS results in the context of the digital transformation. This indicates the need to consider the issue from a new perspective.

The Progress in International Reading Literacy Study (PIRLS) was first conducted in 2001. Over the past 15 years, the IEA has conducted five PIRLS studies in 2001, 2006, 2011, 2016, and 2021. The scope of the study has expanded significantly over the years: the number of countries participating in PIRLS has increased each year. The assessment format has also been updated in recent years by switching to computer-based testing, which has paved the way for the introduction of modern methods of measuring reading literacy. The sixth cycle of PIRLS will be held in a fully digital format in June 2026. All participating countries will assess students' reading ability using an electronic system. This will allow for uniform and high-quality assessment. [2]. This change is directly related to the general digitalization process in the education system. Today, digital learning is considered the ability to meet the requirements of the 21st century through digital literacy, critical thinking, effective communication, and high performance. Terms such as «digital classrooms», «computer-based learning», «digital literacy», «interactive classrooms», «electronic content rooms», «projection classrooms» are used interchangeably to describe the use of digital technologies in higher education institutions [3].

The target group of the international PIRLS study is students who are about to complete the fourth grade of primary school. It is no coincidence that PIRLS focuses on fourth graders – it is at this age that students finish «learning to read» and begin to «read to learn». Fourth graders are developing the foundations of information processing and critical thinking necessary for lifelong learning and learning. However, given the cognitive requirements of the assessment, fifth graders, who are on average 9.5 years old at the time of testing, can also participate in PIRLS [4]. In addition, PIRLS uses rigorous sampling methods to ensure that trends in student performance around the world are accurately and reliably measured.

In the modern education system, digital transformation is bringing significant changes to both teaching content and instructional methods. In this context, the development of reading literacy among primary school students has become an especially important issue.

In international research, reading literacy is generally understood as the ability to comprehend texts, analyze them, and apply the acquired information in various situations. The PIRLS study conducted by Mullis I.V.S. and Martin M.O. is specifically aimed at assessing these skills [5]. In addition, the studies of Scherer L. emphasize that educational outcomes depend not so much on the technology itself, but rather on how effectively it is integrated into the teaching process from a pedagogical perspective [6]. This suggests that the effectiveness of digital tools largely depends on the methods of their implementation and use.

Continuing these perspectives, Russian researchers examine reading literacy in connection with students' cognitive activity and engagement in the learning process. Alexander Asmolov interprets education through the lens of personal development and highlights the importance of learning activities in shaping students' abilities [7]. Likewise, Kovaleva G.S. argues that comprehension skills in primary school children are formed and developed through active participation in educational activities [8].

At the national level, studies on the development of reading literacy are considered in continuity with international educational practices. The works of the B.I. Altynsarin National Academy of Education present effective approaches and strategies for working with texts in the learning process [1].

However, despite the existing body of research discussed above, the issue of analyzing the reading literacy of 4th grade students in the context of digital transformation based on PIRLS study results has not yet been sufficiently explored. Therefore, the present study is aimed at clarifying and addressing this research problem.

The digital transformation requires a new approach to reading literacy. This is because primary school students perceive text not only in traditional formats, but also through digital materials in various formats that combine elements such as text, images, diagrams, hyperlinks. In addition, interpreting PIRLS results in the context of digital learning allows us to provide science-based recommendations and strategic solutions to improve the reading skills of primary school students. In particular, it identifies areas for modernizing teaching methods, improving digital learning materials, and increasing motivation for learning.

Methods and materials. General reading literacy is a key component of communicative competence and a diagnostic term used to assess and evaluate students' educational achievements. This concept is included in the Program for International Student Assessment (PISA) [9].

«Reading literacy» means the ability of a person to understand written texts, reflect on them, use their content in accordance with their goals, and develop knowledge and skills in order to participate in society [10].

In 2016, our country participated in the international PIRLS study for the first time. The average score of 4th grade students was 536 points on the international scale. 4,925 students from 172 schools participated in the paper-based test. In PIRLS-2021, 10,230 5th grade students from 389 schools in 14 regions and 3 cities of republican significance (Astana, Almaty, and Shymkent) participated on behalf of Kazakhstan, scoring 504 points [11].

In 2021, the sample of Kazakhstan was significantly increased compared to 2016. The study involved 10,230 fifth-grade students from 389 general education schools in 17 regions of the country. As a result of statistical measurements, the study participants corresponded to the total number of fifth-grade students in Kazakhstan, that is, the sample included 95% of the total number of fifth-grade students (the remaining 5% were students from special schools, small-group schools, and schools with education in the language of other nationalities) [11].

Due to the closure of schools and the transition to a distance learning format during the COVID-19 pandemic, the study was conducted in five time periods from November 2020 to July 2022. The study in Kazakhstan was postponed to the beginning of the 2021-2022 academic year (September-October). This is 6 months later than originally planned. In this regard, in fact, 5th-grade students participated in the study. This made it possible to estimate the initially planned contingent of students. The PIRLS-2021 core study in Kazakhstan was conducted from September 27 to October 28, 2021 [12].

The international PIRLS study used two types of texts to assess the reading literacy of primary school students: literary (fiction) and informational texts. Literary and informational texts are presented in equal amounts in the PIRLS study (Table 1). This allows for a comprehensive assessment of reading literacy and the identification of students' skills in working with different types of text.

Table 1– List of literary and informational texts for PIRLS-2021

<i>Text's type</i>	<i>Name of the text</i>	<i>Difficulty level</i>	<i>Format</i>	
Literary text	«Shiny straw" "Oliver and the Gryphon" "The Man Who Drinks Ink"	Difficult	Paper and computer	
	"Empty Jar" "Pemba Sherpa" "Ostrich and Hat"	Average		
	"Dad's Summer When He Was Ten" "The Library Mouse" "Learning a New Language"	Easy		
	Informational text	"Where is the honey" "Icelandic horses" "World bank for seeds"		Difficult
		"Sharks" "How did we learn to fly?" "Marie Curie - Nobel Prize Winner"		Average
		"Eight Legs" "Training a Deaf Polar Bear" "The Hungry Plant"		Easy

Literary texts are aimed at assessing students':

- understanding of the work of art;
- analysis of the actions and behavior of the characters;
- reasoning about the plot;
- expressing an emotional and critical attitude to the content of the text. These texts determine students' skills in explaining, interpreting and evaluating the text.

Informational texts are designed to test students':

- finding specific data;
- systematizing information in the text;
- identifying cause-and-effect relationships;
- drawing conclusions by combining several pieces of information.

Informational texts play an important role in the formation of functional reading literacy and assess students' abilities to find and integrate information.

In the context of Kazakhstan students, these texts show how functional the skills formed during reading are, that is, the ability of students not only to read the text, but also to understand, analyze and evaluate it.

The study took as its starting point the literary text "The Empty Jar" [13] (Figure 2), one of the literary texts used in the international comparative study PIRLS–2021.

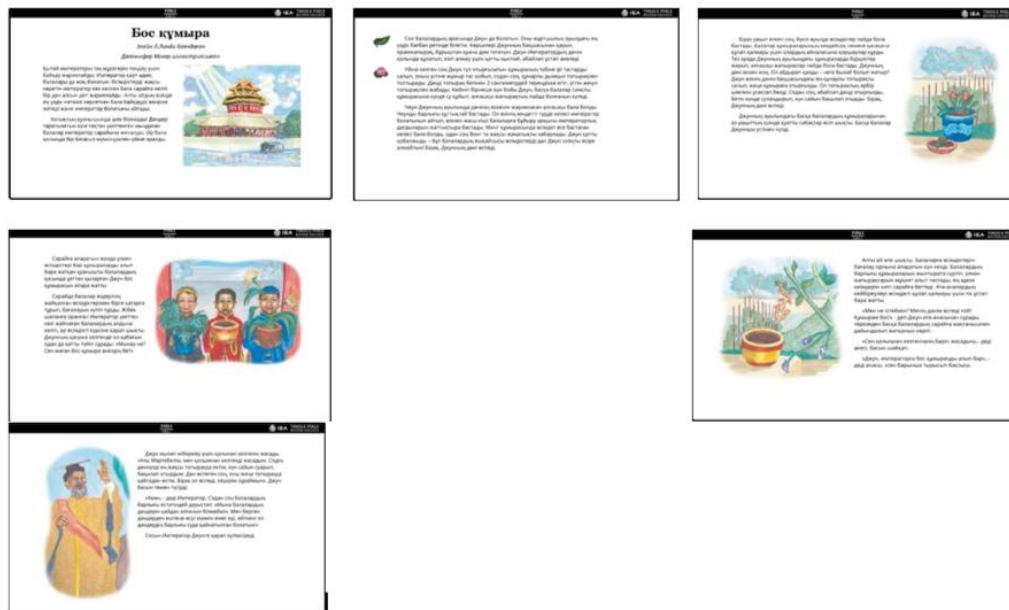


Figure 2: Literary text presented in the international PIRLS-2021 study

The above-mentioned literary text («Empty Jar») is given several tasks in accordance with the PIRLS–2021 research methodology. The tasks are aimed at assessing the level of understanding of the literary text and the skills of meaningful work with the content of the text.

The structure of the tasks requires students not to repeat ready-made information, but to deeply understand the content of the text and draw logical conclusions. In this regard, screenshots of the tasks used in the PIRLS–2021 study on the literary text «Empty Jar» (Figure 2) are presented below. Since the literary texts used in the PIRLS–2021 international study and the specific tasks assigned to them are not fully published in accordance with copyright requirements, the text and tasks are presented in the study in the form of screenshots, for analytical and illustrative purposes only.

Мәтін сұрақтары

1. Инспектор неге бізге бармақсыз?

☐ Балалар неге бізге бармақсыз екенін білмеуіміз.

☐ Балалар неге бізге бармақсыз екенін білмеуіміз.

☐ Балалар неге бізге бармақсыз екенін білмеуіміз.

☐ Балалар неге бізге бармақсыз екенін білмеуіміз.

2. Балалардың бұл іс-шарасын неге жасады?

☐ Балалар неге бізге бармақсыз екенін білмеуіміз.

3. Неге бұл іс «Балалар күні» деп аталды?

☐ Бұл іс балалар күніне арналған екенін білмеуіміз.

☐ Бұл іс балалар күніне арналған екенін білмеуіміз.

☐ Бұл іс балалар күніне арналған екенін білмеуіміз.

☐ Бұл іс балалар күніне арналған екенін білмеуіміз.

4. Жармақтар суреті салынып оқытылған бейне.

Дүниежүзілік оқу күнін бағалауға неге қажет?

☐ Дүниежүзілік оқу күнін бағалауға неге қажет.

5. Төмендегідей келесі Дүниежүзілік оқу күні ретіндегі суретті бағалауға.

☐ Дүниежүзілік оқу күні ретіндегі суретті бағалауға.

6. Төмендегідей келесі Дүниежүзілік оқу күні ретіндегі суретті бағалауға.

☐ Дүниежүзілік оқу күні ретіндегі суретті бағалауға.

7. Оқып барып Дүниежүзілік оқу күнін бағалауға. Мәтінді оқып, оқып барып Дүниежүзілік оқу күнін бағалауға.

☐ Оқып барып Дүниежүзілік оқу күнін бағалауға.

☐ Оқып барып Дүниежүзілік оқу күнін бағалауға.

☐ Оқып барып Дүниежүзілік оқу күнін бағалауға.

☐ Оқып барып Дүниежүзілік оқу күнін бағалауға.

Figure 2: Tasks proposed in the PIRLS–2021 study on the literary text «Empty Jar»

Closed-ended tasks (questions 1, 3, 5, 6, 7, 8, 11) are mainly aimed at assessing students' skills in finding specific information in the text, determining cause-and-effect relationships, and understanding the main idea through multiple-choice answers. These tasks use illustrations (pictures of a jar, seeds, leaves, flowers) to test students' ability to understand the text and visual information in a unified way.

Open-ended tasks (questions 2, 4, 9, 10) require students to formulate and write their thoughts, evaluate the character's actions, and draw logical conclusions based on the content of the text. Such tasks are aimed at measuring the higher-level reading activities of the PIRLS study - interpretation, explanation, and evaluation skills.

In addition, the tasks assess students' understanding of the character's internal state (questions 9, 11), their reasoning about the meaning of decisions made during the story, and their understanding of the moral content. This allows us to reveal the literary specificity and educational potential of the text «Empty Jar».

Task 17 is an open-ended, high-cognitive question. This task requires students to identify the various feelings (hope, confusion, defeat) experienced by the main character June during the story, based on the content of the text, and to explain with evidence the reasons for each feeling.

The task aims to assess students' skills in understanding the character's inner state, analyzing the storyline from an emotional perspective, and systematically expressing their thoughts using evidence from the text. In addition, this question determines students' ability to work at the level of interpretation and evaluation, not just retelling the information in the text.

Results and discussion. A comparative analysis of published data from international studies PIRLS–2016 and PIRLS–2021 allows us to describe changes in the level of reading literacy of primary school students in Kazakhstan.

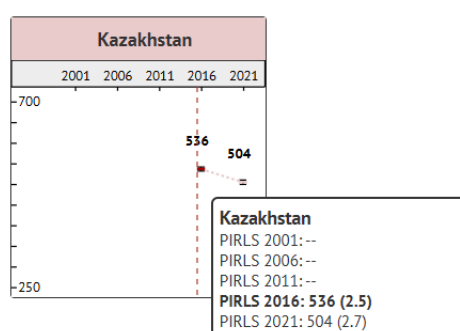
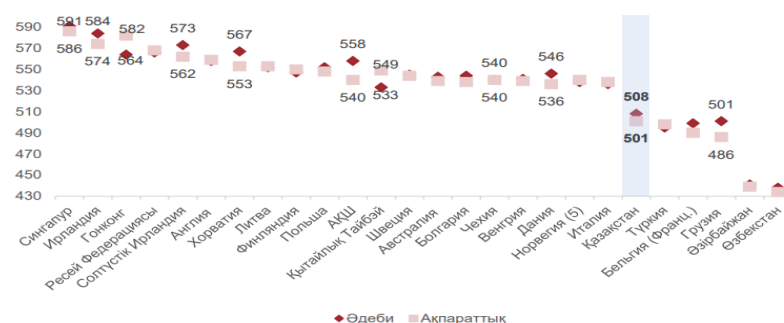


Figure 3 Graphs of changes in average reading literacy indicators over time

According to official results, Kazakhstan's average score in the PIRLS–2016 cycle was 536 points, while in the PIRLS–2021 study this figure decreased to 504 points. As a result, Kazakhstan ranked 38th among the countries participating in the PIRLS–2021 study. Moreover, the obtained figure is slightly higher than the international average (500 points) on the PIRLS scale [14].

The PIRLS-2021 study included nine literary texts, consisting of short stories and individual episodes, accompanied by additional illustrations. These texts consist of modern and traditional works of fiction with one or two main characters, built around one or two main storylines, and containing a common theme and idea. In general, the content of PIRLS texts is aimed at students' deep understanding of the plot, situations, actions of characters, artistic atmosphere, feelings and ideas, and interaction with them.



Дереккөз: PIRLS-2021 халықаралық есебі / PIRLS-2021 International Results in Reading

Figure 4 Difference score between countries' scores on literary and informational text

Figure 4 shows the difference in the average reading literacy scores of students from selected countries participating in the PIRLS-2021 study on literary and informational texts. The graph data shows that in many countries the scores on literary texts are higher than on informational texts.

Turning to the results of Kazakhstan, the average score on literary texts is 508, and on informational texts it is 501. The high score on literary texts indicates that Kazakhstani students are relatively successful in understanding the plot, mood of characters, and main idea in fiction. However, the low score on informational texts indicates that the tasks of analyzing data, finding specific information, and interpreting it are more difficult for students.

The study analyzed the literary text «Empty Jar» and the test tasks for this text, presented within the framework of PIRLS-2021. The tasks were aimed at testing the skills of understanding the content of the text, determining the main idea, recognizing cause-and-effect relationships, and integrating text and visual information.

The text «Why did the Emperor announce a competition?» According to the results of PIRLS-2021, Kazakhstani students showed high overall results on the first question, which has a medium level of complexity. The proportion of students who answered this question correctly was 76% in paper format, and 75% in digital format. The results are 1 percentage point higher in paper format than in digital format.

The second question, «What did each child receive from the emperor?», given in the text, has a low level of complexity and is focused on the process of finding clearly presented information. The task requires students to find and accurately indicate the information that is specifically stated in the introductory paragraph of the text. The correct answer is that the emperor gave each child one grain. In this regard, answers such as «grain», «boiled grain», «one imperial grain» are among the acceptable answers, while answers such as «pot», «plant», «flower», «observation» that are not directly mentioned in the text are not accepted.

According to the results of the PIRLS-2021 study, Kazakhstani students performed this task at a high level. The proportion of students who answered correctly was 81.3% in digital format, and 82.8% in paper format. These indicators indicate that students have well-developed skills in finding specific, clearly presented information in the text. The slightly higher result in paper format than in digital format (1.5 percentage points) indicates that in traditional learning conditions, students are more effective in separating specific information from the initial part of the text.

The third question on the text, «Why was every grain called a priceless opportunity?», has a high level of complexity. This task requires students to carry out the process of evaluating and testing the content of the text and its elements. The content of the question is aimed at recognizing the meaning of the metaphor that takes the main place in the story, that is, explaining the author's idea in a figurative way.

According to the results of the PIRLS-2021 study, the proportion of Kazakhstani students who correctly completed this question was 55.5% in digital format, and 50.7% in paper format. In addition, the digital format score is 4.8 percentage points higher than the paper format, which indicates that working in a digital environment is relatively easier for students in understanding metaphorical meaning.

The fourth question, «Find the part of the story where the leaf is drawn. What proves that June is the best gardener in the village?», given in the text, has a high level of complexity. This task refers to the process of formulating direct conclusions and requires students to find evidence from a certain part of the text to confirm the given description of the character and draw a conclusion based on it. That is, the student must not only find information, but also interpret it as evidence that reveals the image of the character.

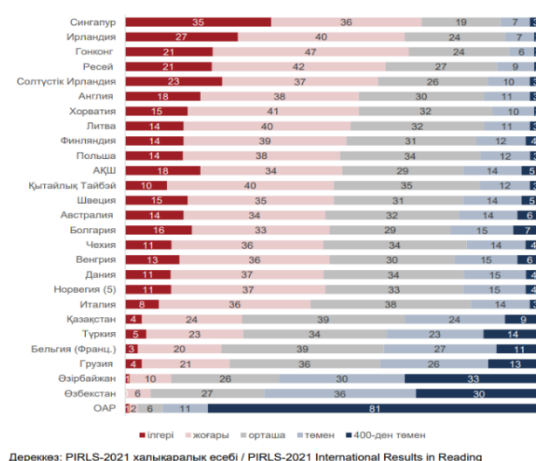
According to the results of PIRLS-2021, the proportion of Kazakhstani students who correctly completed this question was 78.1% in digital format and 70.9% in paper format. The data obtained show that the results in digital format are 7.2 percentage points higher than in paper format. This

difference indicates that students work relatively effectively in the digital environment when identifying the connection between parts of the text and selecting evidence related to the character.

The text-based question «Jun had different feelings during the event. Explain why Jun felt each of these feelings based on the text» has a high level of complexity. This task refers to the process of explaining and integrating ideas and information. Students are required to identify and explain the reasons for the character's feelings by connecting events in different parts of the text. That is, the task involves perceiving the event as a whole, establishing cause-and-effect relationships, and deeply interpreting the content of the text.

According to the results of PIRLS-2021, the proportion of Kazakhstani students who completed this question correctly was 69.0% in digital format and 71.6% in paper format. The 2.6 percentage points higher result in paper format compared to digital format indicates that students performed slightly better in traditional reading format in explaining the character's emotional state by connecting parts of the text.

In general, the results of the test tasks indicate that systematic preparation is necessary to improve students' reading literacy. PIRLS-2021 data show that the majority of Kazakhstani students remain at the medium level of difficulty, with a low proportion of students achieving advanced levels (39%). The proportion of students achieving each level of difficulty in individual participating countries is presented in Figure 7.



Дереккөз: PIRLS-2021 халықаралық есебі / PIRLS-2021 International Results in Reading

Figure 5 Proportion of students achieving each level of difficulty in individual participating countries, %

According to Figure 5, the highest proportion of students achieving an advanced level of complexity is recorded in Singapore (35%). On the contrary, this indicator is the lowest, at only about 1%. In Uzbekistan and Kosovo, students achieving an advanced level are not identified at all. In Kazakhstan, the proportion of students achieving an advanced level is 4% [14]. It is noticeable that the results of Kazakhstani students are significantly lower than in other participating countries. It is also important to take into account the specifics of the PIRLS study to be conducted in 2026. The PIRLS 2026 cycle will be organized in a completely digital format and the assessment process will be carried out in a computer environment. The study will include interactive texts, ePIRLS modules, elements of information search and navigation in an online environment [15]. Therefore, the PIRLS 2026 requirements require students to have the skills to work with information in a digital environment, to navigate through hyperlinks, to compare texts and to evaluate the information received, in addition to understanding traditional texts. This situation highlights the need to systematically develop functional reading literacy, critical thinking skills, and a digital reading culture in 4th grade students.

Conclusion. In conclusion, the analysis of the results of the international studies PIRLS–2016 and PIRLS–2021 from the perspective of the digital transformation clearly demonstrated the relevance of the issue of developing reading literacy among primary school students in Kazakhstan. The results of

the study revealed that Kazakhstani students have relatively well-developed skills in finding and reusing explicit information in the text, but they have difficulties in tasks requiring interpretation, evaluation of information, and making high-level conclusions.

In addition, the higher results for literary texts than for informational texts indicate that students are more inclined to understand the plot of the literary text and the emotional state of the character. And the lower indicators for informational texts indicate the need for systematic development of functional reading literacy. The difference in the results of tasks in paper and digital formats indicates that, although in the digital environment, comparing parts of the text and selecting evidence is effective in some tasks, the traditional format is preferable in cases where emotional and holistic interpretation is required.

In this regard, it is important to improve teaching methodologies aimed at developing reading literacy in the primary education system, improve the quality of digital learning materials, and systematically work with tasks of a high cognitive level.

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ВЕБ-САЙТТАР – ҮЛГЕРІМІ ТӨМЕН БАСТАУЫШ СЫНЫП ОҚУШЫЛАРЫНЫҢ ПӘНДІК ҚҰЗЫРЕТТІЛІКТЕРІН ҚАЛЫПТАСТЫРУДЫҢ ҚҰРАЛЫ

Аңдатпа

Бұл мақала Веб-сайттар арқылы оқу жұмыстарын ұйымдастырумен үлгерімі төмен бастауыш сынып оқушыларының пәндік құзыреттіліктерін қалыптастырудағы бастауыш мектепте цифрлық ресурстарды қолданудың мүмкіндіктерін, тиімділігін және педагогикалық шарттарын жан-жақты талдауға бағытталды. Зерттеу жұмысы теориялық және эмпирикалық әдістер негізінде орындалып, құзыреттілік, пәндік құзыреттілік және үлгерімі төмен оқушы түсініктері ғылыми негізде қарастырылды. Білім беру үдерісіндегі заманауи веб-платформалардың (BilimLand, iMekter, LearningApps, Khan Academy Kids және т.б.) функциялары, интерактивті мүмкіндіктері және оқушының оқу мотивациясын қалыптастырудағы рөлі сипатталды.

Эксперименттік жұмыс барысында оқушылардың пәндік білім, оқу белсенділігі, өзіндік әрекет дағдылары және тапсырмаларды орындау динамикасы өлшенді. Нәтижелер веб-сайттарды жүйелі қолдану үлгерімі төмен оқушылардың пәндік құзыреттілігін арттыруға айтарлықтай ықпал ететінін көрсетті: орташа көрсеткіш 27,5 %-ға өсті, ал оқу белсенділігі 1,4 есеге артты. Зерттеу веб-ресурстарды қолданудың тиімді педагогикалық шарттарын айқындады: жеке оқу қарқынын ескеру, интерактивті тапсырмалар жүйесі, кезеңдік күрделендіру, кері байланыс пен өзін-өзі бағалауды ұйымдастыру.

Жалпы қорытынды бойынша веб-сайттар бастауыш сыныптағы пәндік құзыреттілікті қалыптастырудың инновациялық құралы болып табылады және үлгерімі төмен оқушылар үшін оқу мотивациясын, өзіне сенімділікті және оқу нәтижелерін жақсартуға нақты мүмкіндік береді.

Түйін сөздер: пәндік құзыреттілік, веб-сайттар, цифрлық білім ресурстары, үлгерімі төмен оқушылар, интерактивті оқыту, бастауыш білім, онлайн-платформалар.