IRSTI 14.25.19
UDC 37.013.77
https://doi.org/10.52269/KGTD2532143

## TEACHING INFORMATION LITERACY AS A TOOL FOR PSYCHOLOGICAL SECURITY IN ADOLESCENTS IN DIGITAL AGE

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*This article focuses on teaching information literacy as a key tool for enhancing adolescents' psychological security. The study emphasizes the critical role that information literacy plays in the lives of young people, particularly in addressing the challenges of the digital age. The authors draw on the works of both domestic and international scholars in the field of information and psychological security. The aim of this study is to highlight the critical role of information literacy in adolescent development and investigate how strengthening these skills contributes to psychological security in the digital age. The study involved 136 tenth-grade students, divided into control and experimental groups. The analysis of results, conducted using the Wilcoxon signed-rank test and Spearman correlation analysis, revealed statistically significant improvements in information literacy and emotional well-being among students in the experimental group. The study confirmed the existence of a relationship between the level of information literacy and indicators of adolescents' psychological security in the digital environment. The obtained results indicate that the systematic integration of information literacy into the educational process may be important for developing adolescents' ability to withstand digital threats.*

***Key words:*** *information literacy, psychological security, teaching methods, digital environment, adolescents, development, education.*

## АҚПАРАТТЫҚ САУАТТЫЛЫҚТЫ ЦИФРЛЫҚ ДӘУІРДЕГІ ЖАСӨСПІРІМДЕРДІҢ ПСИХОЛОГИЯЛЫҚ ҚАУІПСІЗДІГІНІҢ ҚҰРАЛЫ РЕТІНДЕ ОҚЫТУ

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*Бұл мақалада жасөспірімдердің ақпараттық ортадағы психологиялық қауіпсіздігін арттырудың маңызды құралы ретінде ақпараттық сауаттылықты оқыту мәселесіне баса назар аударылады. Зерттеу ақпараттық сауаттылықтың жастар өміріндегі, әсіресе цифрлық дәуірдің сын-қатерлерін еңсеру тұрғысынан алғанда, шешуші рөл атқаратынын көрсетеді. Авторлар ақпараттық сауаттылық және психологиялық қауіпсіздік саласындағы отандық және шетелдік зерттеушілердің еңбектеріне сүйенеді. Бұл зерттеудің мақсаты – жасөспірімдердің дамуы үшін ақпараттық сауаттылықтың шешуші рөлін көрсету және осы дағдыларды нығайтудың цифрлық дәуірдегі психологиялық қауіпсіздікке қалай ықпал ететінін зерттеу. Зерттеуге 10-сыныпта оқитын 136 оқушы қатысты, олар бақылау және эксперименттік топтарға бөлінді. Нәтижелер Уилкоксон таңбалық рангілік критерийі мен Спирмен корреляциялық талдауы арқылы өңделіп, эксперименттік топ оқушыларының ақпараттық сауаттылық және эмоционалдық әл-ауқат деңгейлерінде статистикалық тұрғыдан маңызды жақсартуларды көрсетті. Зерттеу ақпараттық сауаттылық деңгейі мен жасөспірімдердің цифрлық ортадағы психологиялық қауіпсіздік көрсеткіштері арасындағы байланыс бар екенін растады. Алынған нәтижелер ақпараттық сауаттылықты білім беру үдерісіне жүйелі түрде енгізу жасөспірімдердің цифрлық қауіп-қатерлерге төтеп беру қабілетін және психологиялық қауіпсіздігін дамыту үшін маңызды болуы мүмкін екенін айқындайды.*

***Түйінді сөздер:*** *ақпараттық сауаттылық, психологиялық қауіпсіздік, оқыту әдістері, цифрлық орта, жасөспірімдер, дамыту, білім беру.*

## ОБУЧЕНИЕ ИНФОРМАЦИОННОЙ ГРАМОТНОСТИ КАК ИНСТРУМЕНТ ОБЕСПЕЧЕНИЯ ПСИХОЛОГИЧЕСКОЙ БЕЗОПАСНОСТИ ПОДРОСТКОВ В ЦИФРОВУЮ ЭПОХУ

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*В данной статье основное внимание уделяется обучению информационной грамотности как ключевому инструменту повышения психологической безопасности подростков. Исследование подчеркивает жизненно важную роль, которую информационная грамотность играет в жизни молодежи, особенно в контексте преодоления вызовов цифровой эпохи. В работе авторы опираются на труды как отечественных, так и зарубежных исследователей в области информационно-психологической безопасности. Целью данного исследования является выявление ключевой роли информационной грамотности в развитии подростков и изучение того, как укрепление этого навыка способствует психологической безопасности в цифровую эпоху. В исследовании приняли участие 136 учащихся 10-х классов, разделенных на контрольную и экспериментальную группы. Анализ результатов, проведённый с использованием критерия Вилкоксона и корреляционного анализа Спирмена, показал статистически значимые улучшения в уровнях информационной грамотности и эмоционального благополучия у учащихся экспериментальной группы. Исследование подтвердило наличие взаимосвязи между уровнем сформированности информационной грамотности и показателями психологической безопасности подростков в цифровой среде. Полученные результаты свидетельствуют о том, что систематическое внедрение информационной грамотности в образовательный процесс может быть важным для развития у подростков способности противостоять цифровым угрозам.*

***Ключевые слова:*** *информационная грамотность, психологическая безопасность, методы обучения, цифровая среда, подростки, развитие, образование.*

**Introduction.** In today's digital landscape, adolescents face constant flow of information from various sources. This information may not always be useful, which makes it vital for young people to develop strong information literacy skills, such as the ability to effectively find and assess information. Beyond academic achievement, these skills play a critical role in fostering psychological security, a state that is increasingly vital for the mental health and well-being of today's youth.

In address to the people of Kazakhstan titled "New Kazakhstan: The Path of Renewal and Modernization," President Kassym-Jomart Tokayev emphasized the critical importance of developing human capital and improving the quality of education to prepare the younger generation for the demands of the contemporary world. He underscored the necessity of equipping youth with the competencies required for successful integration into the digital economy and for effectively countering misinformation [1]. In this context, the ability of adolescents to critically evaluate the information they encounter plays a pivotal role in shaping their emotional resilience. Research across multiple disciplines indicates that information literacy extends beyond the ability to locate information, it also encompasses critical thinking and digital literacy skills. This multidimensional construct is essential for empowering adolescents to make informed decisionsand engage responsibly with digital content. As adolescents develop the capacity to critically assess the information they encounter, they become better equipped to safeguard their psychological well-being against the potentially harmful effects of the digital environment [2, p. 15]. With the transition to an information society, the volumeand influence of digital content have increased significantly, exerting a growing psychological impact on individuals. This accelerated flow of information shapes not only behavior and cognition but also mental well-being. Consequently, psychological security in the information environment has emerged as a critical issue in contemporary society.

G.G. Verbina defines psychological security as a condition in which an individual's psyche is protected from information-related factors that may hinder or disrupt the development of a healthy social identity. This includes the formation of adequate relationships with the external world and oneself. She emphasizes that psychological security preserves a person's integrity as an active social subject and ensures adaptive functioning in a pressure-saturated informational environment [3, p. 197]. In today's digital reality, psychological security is increasingly recognized as a key aspect of personal well-being. The constant flow of unfiltered and often manipulative information influences how individuals thinkand interact with their environment. Adolescents, in particular, are vulnerable due to their still-developing cognitive and emotional regulation systems.

Zykov V.V. outlines several risks of the digital information society, including growing media influence on public consciousness; threats to personal and institutional privacy; the difficulty of distinguishing credible information from misinformation; the psychological strain associated with rapid technological change and adaptation [4, p. 56]. These factors may result in individuals becoming overly dependent on digital systems, facing limitations in access to objective information, or falling victim to manipulation. Scholars B. Shramova and A. Hamranova draw attention to the intensifying aggression of the modern communicative space. While even adults struggle to cope with this pressure, children and adolescents who lack protective psychological mechanisms are particularly vulnerable and at risk [5, p. 256].

Today's adolescents spend a significant portion of their time onlineand platforms such as social media and messaging apps have become central to their personal development. The digital environment also exposes young users to a range of psychological risks such as cyberbullying or online aggression. Unlike adults, adolescents often lack the necessary experience or critical thinking skills to identify and respond

effectively to such threats. Consequently, repeated exposure to harmful digital interactions may contribute to heightened anxiety and long-term emotional strain.

F.I. Valieva underscores the importance of critical thinking in ensuring psychological resilience in the digital age. She argues that information literacy functions as a tool for psychological protection, helping adolescents to reduce emotional vulnerability. According to F.I. Valieva, fostering critical thinking and informed decision-making enables adolescents to recognize manipulative content and resist harmful influencesin digital environments [6, p. 80].

The theory of psychological security also emphasizes the creation of environments where individuals feel free and safe to express themselves. In educational settings, cultivating information literacy contributes to such environments, encouraging students to engage with information without fear of judgment. This, in turn, supports self-confidence and emotional regulation. P.A. Kislyakov and E.A. Shmeleva extend this concept by framing media literacy as the ability to accessand interpret digital content critically. They argue that developing such competencies is essential for navigating digital platforms and protecting one's psychological boundaries [7, p. 110].

However, studies have shown that many adolescents lack the skills necessary to critically evaluate online content, which can lead to maladaptive coping strategies. L. Tomczyk and L. Egernote that, in the absence of adequate guidance, adolescents may respond to digital stressors through withdrawal or risky behavior, increasing their vulnerability to psychological distress [8, p. 5].

Research by T. Jolls demonstrates that interdisciplinary approacheswhere information literacy is taught alongside core academic subjectslead to better critical thinking outcomes and stronger retention of key concepts [9, p. 4, 6]. Project-based learning has also proven effective: studies by N. Dvoryanchikova, I. Bovina, and S. Budykin show that engaging students in real-world inquiry and source evaluation tasks fosters not only information literacy but also collaborative and communicative skills [10, p. 32].

Moreover, focused workshops on digital literacy have been shown to increase students' confidence in navigating online content. O. Ananeva found that students who participated in such workshops reported an improved ability to distinguish between credible and false information and felt more psychologically secure in digital environments [11, p. 467].

Despite growing interest in digital education, the relationship between adolescents' information literacy and their psychological security in the digital environment remains insufficiently investigated. Therefore, this study tested the **hypothesis** that teaching information literacy enhances adolescents' psychological security by equipping them with the skills to critically evaluate digital content and recognize misinformation.

The research addressed the following **questions:**

1. What is the relationship between information literacy and psychological security among adolescents?

2. How frequently are adolescents exposed to misinformation, and how does this relate to their mental health and emotional well-being?

3. How effective are pedagogical interventions in fostering adolescents' digital resilience?

Based on these questions, the study **aimed** to highlight the critical role of information literacy in adolescent development and investigate how strengthening these skills contributes to psychological security in the digital age. To achieve this aim, the following **objectives** were set:

– To define the concepts of information literacy and psychological security and explore their relevance to adolescent development;

– To analyze the specific challenges adolescentsface in digital environments, including misinformation and cyberbullying;

– To evaluate the effectiveness of pedagogical strategies aimed at fostering information literacy.

The novelty of this study lies in its focus on the direct relationship between adolescents' information literacy and their psychological resilience in the digital environment.

**Materials and methods.** To address these objectives, the study employed a combination of theoretical and empirical methods. The theoretical component involved a review and synthesis of psychological, pedagogical, and didactic literature on the topics of information behavior and psychological safety in digital contexts. The empirical component included classroom observations, semi-structured student interviews, experimental instruction, and quantitative analysis of survey data.

To assess psychological security, the study utilized the diagnostic questionnaire developed by G.G. Verbina [12], designed to evaluate an individual's psychological resilience in the face of information pressure. The instrument includes 21 items grouped into three key scales:

1. Cognitive-perceptual safety – assesses the ability to process and critically assess information while maintaining mental stability.

2. Emotional and psychological well-being – evaluates emotional responses to information overload and digital stressors.

3. Self-regulation and personal control – measures the degree of confidenceand self-efficacy in managing digital information.

All items were rated on a 4-point Likert scale (1 = Strongly disagree, 4 = Strongly agree). Higher scores indicate greater psychological security in the information environment. The internal reliability of the scale in this study was confirmed with Cronbach's alpha = 0.76.

To evaluate the formation of information literacy skills, we employed the scale developed by M. Laeeq Khan and Ika Idris [13]. This instrument is designed to measure the degree to which individuals are capable of critically engaging with digital information in the context of modern media and technology. In addition to the original four components of the Khan & Idris instrument, several context-specific items were developed to reflect behaviors such as belief in information reliability and a tendency to share unverified content. These were included to address behavioral aspects of information literacy observed in Kazakh adolescents.

The questionnaire consists of 18 items divided into the following dimensions:

1. Accessing information – the ability to locate and retrieve relevant digital content;
2. Evaluating information – the ability to assess the credibility, reliability, and accuracy of information;
3. Using information effectively – the capacity to apply, synthesize, and communicate information appropriately;
4. Awareness of misinformation – sensitivity to manipulative content and disinformation online.

Participants responded on a 5-point Likert scale (1 = Strongly disagree, 5 = Strongly agree). Higher scores represent more advanced levels of information literacy. In the present study, the scale showed high internal consistency (Cronbach's alpha = 0.82).

The study was conducted at the Nazarbayev Intellectual School in Astana, involving 136 tenth-grade students (aged 15–16). Participants were divided into an experimental group (n = 67) and a control group (n = 69). The structured instructional program was integrated into the existing ICT curriculum, with modules delivered during regularly scheduled lessons over a spring semester. The program incorporated interactive discussions, media analysis, case-based exercises, and peer collaboration. Key topics included identifying misinformation, evaluating online sources, understanding digital footprints, ethical content sharing, strategies for self-regulation in digital environments. Elements of project-based learning were incorporated to promote inquiry and real-world application of digital competencies. This hybrid approach ensured that information literacy development was contextually embedded within the formal curriculum.

The Wilcoxon signed-rank tests were used to compare differences in psychological security and information literacy scores between the experimental and control groups. The Spearman rank correlation test was applied to determine the strength and direction of relationships between information literacy components and psychological security indicators. All statistical analyses were conducted using SPSS 26.0, and significance was set at $p < .001$.

**Results and discussion.** This section presents the results of the experimental study aimed at evaluating the effect of a structured instructional program on adolescents' information literacy and psychological security. The analysis focuses on changes observed in both the experimental and control groups before and after the intervention. Wilcoxon signed-rank tests were used to evaluate within-group changes and Spearman correlation was applied to examine relationships between variables.

The analysis of the data (Figure 1) shows a positive shift in the development of students' digital information behavior in the experimental group following the educational intervention.

For the indicator belief in the reliability of information, an increase was observed in the proportion of students at the low level (from 23% to 55%) after the experiment, indicating a decline in uncritical acceptance of online content. This is reflected in responses to the question "Do you trust information just because it was posted by a friend or acquaintance?" After the intervention, students more frequently selected responses that expressed doubt and a need to verify sources.

In terms of attitudes toward verifying information, the percentage of students at the high level rose significantly (from 7% to 25%) in the experimental group. This shows the formation of a more responsible and verification-oriented approach to consuming digital content. For example, in response to the question "Do you check the source of information before believing or sharing it?", a larger number of students reported engaging in regular fact-checking behavior after the training.

The component self-efficacy in recognizing misinformation also showed improvement, with the percentage of students at the high level increasing from 18% to 25%. This suggests that students became more confident in identifying manipulation and misleading content. In particular, more students responded positively to the question "Are you able to distinguish between factual information and subjective opinions in digital content?", indicating greater self-awareness in digital environments.

Regarding the behavior of sharing without verification, a decrease was observed in the number of students at the high-risk level (from 55% to 41%) in the experimental group. This was supported by responses to the question "Do you forward videos, memes, or news without checking whether they are true?" with fewer students admitting to such behavior after the intervention.

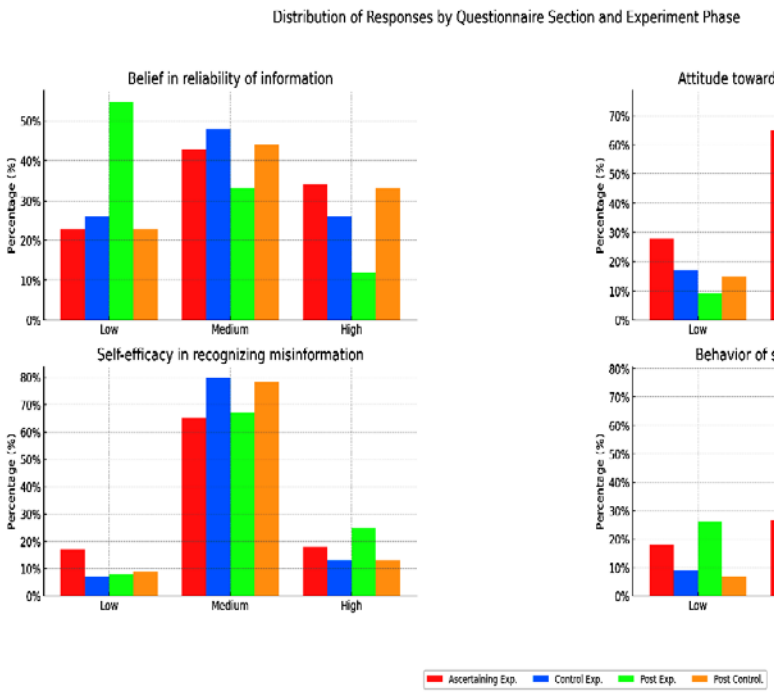


*Figure 1* – Distribution of students by level of digital information behavior across experimental stages

In addition to gains in information literacy, the experimental group demonstrated significant improvements across all dimensions of psychological security, as shown in the distribution chart (Figure 2). The three measured components showed a notable shift toward higher developmental levels following the intervention.

The cognitive-perceptual safety scale, which evaluates students' ability to remain critical and emotionally stable when faced with digital information, reflected positive change. For example, in response to questions such as "When reading alarming or emotional news online, can you stay calm and think rationally?", the number of students in the experimental group categorized at a high level increased from 30% to 50%, while low-level responses decreased from 22% to 10%.

Similarly, the emotional and psychological well-being component revealed encouraging trends. When asked questions like "Do you feel anxious after spending time on social media or reading comments?", more students reported stable emotional states. The proportion of high-level responses rose from 23% to 41%, and low-level responses dropped from 25% to 12%.

The self-regulation and personal control scale, which included questions such as "If you encounter manipulative content or pressure online, can you make your own decision calmly?", also demonstrated progress. The percentage of students showing high self-regulatory capacity increased from 22% to 41%, and low-level responses declined from 27% to 14%. The control group showed negligible change across all three indicators, highlighting the limited impact of conventional teaching approaches that do not address the psychological dimensions of digital engagement.

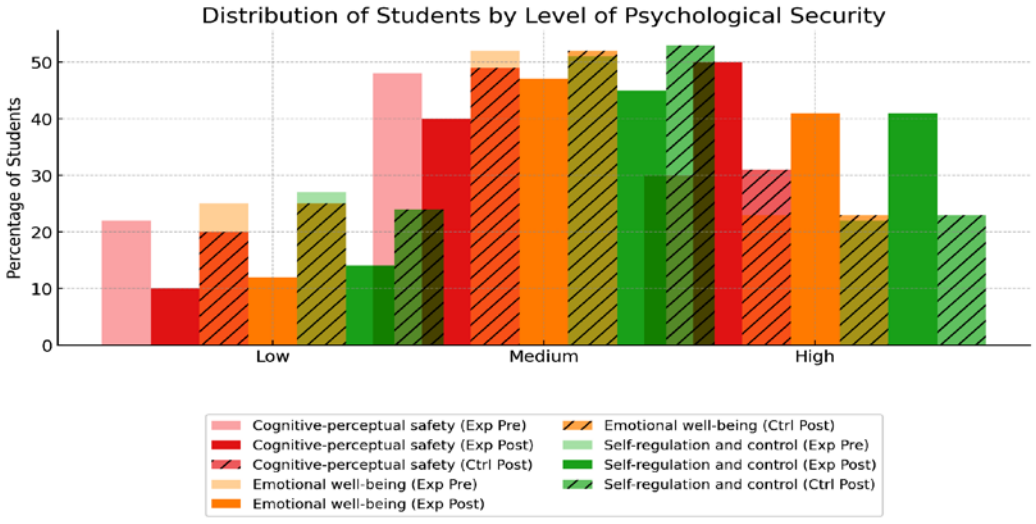


*Figure 2* – Distribution of students by level of psychological security

As shown in Table 1, the results obtained using the Wilcoxon signed-rank test revealed statistically significant changes across all three measured scales in the experimental group following the educational intervention. There was a significant increase in the mean score for the cognitive-perceptual safety scale (from 3.18 to 3.42), indicating improved adolescent abilities to recognize potential digital threats and to interpret online information more confidently.A positive shift was observed in the emotional and psychological well-being scale (from 3.07 to 3.36), which may reflect an increased level of resilience to information-related stress, along with a stronger sense of confidence in the digital environment. These findings support the assumption of a relationship between the level of information literacy and adolescents' emotional and psychological well-being.A significant improvement was also recorded in the self-regulation and personal control scale (from 3.12 to 3.45).No statistically significant changes were found in the control group,and the mean scores across all three scales remained unchanged.

*Table 1* – Wilcoxon test results: pre- and post-test changes in psychological security and self-regulation indicators in the experimental and control groups

| Scale | Group | Pre-test M (SD) | Post-test M (SD) | Z value | p-value |
|---|---|---|---|---|---|
| Cognitive-perceptual safety | Experimental | 3.18 (0.43) | 3.42 (0.38) | -4.15 | .000*** |
| | Control | 3.15 (0.41) | 3.17 (0.41) | -0.92 | .357 |
| Emotional and psychological well-being | Experimental | 3.07 (0.47) | 3.36 (0.44) | -3.92 | .000*** |
| | Control | 3.10 (0.49) | 3.10 (0.50) | -0.36 | .721 |
| Self-regulation and personal control | Experimental | 3.12 (0.46) | 3.45 (0.35) | -4.36 | .000*** |
| | Control | 3.17 (0.45) | 3.18 (0.46) | -0.41 | .680 |

***p<.001.

Table 2 presents changes in information literacy scores. The analysis of pre- and post-test data revealed statistically significant improvements across all components of information literacy in the experimental group. Specifically, the experimental group demonstrated a significant increase in accessing information (Z = -3.84; *p*< .001), evaluating information (Z = -4.48; *p*< .001), using information effectively (Z = -4.12; *p*< .001), and awareness of misinformation (Z = -4.53; *p*< .001). In contrast, the control group did not show statistically significant differences across any of the components (*p*> .05).

*Table 2* – Wilcoxon test results: pre- and post-test changes in information literacy indicators in the experimental and control groups

| Scale | Group | Pre-test M (SD) | Post-test M (SD) | Z | p-value |
|---|---|---|---|---|---|
| Accessing Information | Experimental | 3.89 (0.52) | 4.21 (0.50) | -3.84 | .000*** |
| | Control | 3.89 (0.54) | 3.91 (0.53) | -0.33 | .740 |
| Evaluating Information | Experimental | 3.85 (0.55) | 4.30 (0.47) | -4.48 | .000*** |
| | Control | 3.86 (0.55) | 3.88 (0.56) | -0.52 | .600 |
| Using Information Effectively | Experimental | 3.94 (0.49) | 4.25 (0.45) | -4.12 | .000*** |
| | Control | 3.96 (0.51) | 3.97 (0.51) | -0.22 | .820 |
| Awareness of Misinformation | Experimental | 3.86 (0.57) | 4.36 (0.43) | -4.53 | .000*** |
| | Control | 3.83 (0.58) | 3.85 (0.58) | -0.45 | .653 |

***p<.001.

The results of the Spearman correlation analysis (Table 3) revealed statistically significant positive associations between components of information literacy and psychological security. The strongest correlations were found between evaluating information and all three psychological dimensions: cognitive-perceptual safety (*r* = 0.44; *p*< .01), emotional well-being (*r* = 0.38; *p*< .01), and self-regulation (*r* = 0.41; *p*< .01). These findings underscore the importance of the ability to critically evaluate digital content as a key factor in fostering confidence in the digital environment.

Significant correlations were observed between awareness of misinformation and all psychological indicators, particularly with self-regulation ($r$ = 0.43; $p$< .01). This shows that greater awareness and more critical attitudes toward misinformation are associated with higher self-regulation.

Moderate associations were found between accessing information and both cognitive-perceptual and emotional safety ($p$< .05). Overall, these findings confirm the interrelation between the development of information literacy and adolescents' psychological security.

*Table 3* – Spearman correlation between information literacy components and psychological security indicators (Post-test)

| | Cognitive-perceptual | Emotional well-being | Self-regulation |
|---|---|---|---|
| Accessing Information | 0.29* | 0.22* | 0.25* |
| Evaluating Information | 0.44** | 0.38** | 0.41** |
| Using Information Effectively | 0.36** | 0.31** | 0.39** |
| Awareness of Misinformation | 0.40** | 0.35** | 0.43** |

*p<.05,**p<.01.

At this stage, correlation analysis was used as a preliminary tool to identify relationships. In the future, the analysis will be expanded using regression models and structural equation modeling.

Analyzing the significance levels of changes in the components of information literacy and psychological security among participants in the experimental group, we observe that the most statistically significant differences were found in the following indicators: p < 0.001 – critical evaluation of information, awareness of misinformation, digital self-regulation, confidence in safe online behavior, readiness for responsible information sharing. The next most significant improvements (p < 0.05) were observed in the ability to distinguish facts from opinions, digital awareness in content interaction, emotional resilience in response to online stressors, and increased levels of self-control and digital restraint. We assume that these changes were a result of the pedagogically structured interactions and project-based tasks, within which adolescents learned to evaluate digital content and engaged in discussions with peers.

At the same time, only minimal changes were recorded in the control group. Participants showed moderate improvement in awareness of digital threats but did not demonstrate stable changes in self-regulation strategies. This emphasizes the effectiveness of systematic instruction in information security within an educational environment leading to the development of adolescents' informational and psychological resilience. Particular attention should be given to the component of digital empathy. After completing lessons on critical thinking and digital etiquette, students more frequently recognized the consequences of sharing unchecked information.

These results support the hypothesis that improving information literacy contributes significantly to adolescents' psychological security, enabling them to navigate digital risks more confidently. The findings obtained in this study provide clear answers to all three research questions. First, the correlations between information literacy components and indicators of psychological security may confirm a relationship between these constructs. Second, the data suggest that frequent exposure to misinformation is associated with heightened emotional discomfort. Third, the instructional program significantly improved students' resilience and critical awareness in the informational environment, supporting the hypothesis that improving information literacy can reduce psychological vulnerability in digital environments.

Contemporary research in pedagogy and educational psychology supports the effectiveness of active, student-centered methodologiessuch as case-based learning, guided inquiry, project-based tasksin developing the cognitive and metacognitive skills necessary for evaluating digital content. The instructional program implemented in the experimental group was designed around these principles. It placed students in active roles where they were encouraged to exploreand apply knowledge in realistic digital scenarios.

From a cognitive standpoint, students in the experimental group demonstrated notable improvements in analyzing online information and evaluating source credibility. During classroom observations conducted throughout the intervention, it became clear that students were more engaged and thoughtful in tasks involving the identification of misinformationand self-regulation strategies. Notably, project-based activities allowed learners to work collaboratively on real-world digital challenges, which promoted deeper understanding and personal relevance. This approach also increased students' motivation and willingness to verify content before sharing it.

At the same time, it is important to recognize that not all students responded equally. While a large portion of the group actively engaged with the material and showed meaningful progress, some struggled to apply what they had learned outside the classroom context. This variability may be attributed to differences in cognitive developmentand motivation.

Going forward, it would be beneficial to adapt the instructional approach to better account for these individual differences, perhaps by offeringdifferentiated assignments or additional support for students who

require it. Although the program made use of multiple teaching strategies, identifying which specific method contributed most to the observed outcomes remains a challenge. Future research should consider comparative or experimental designs to examine the effectiveness of each instructional component more precisely.

**Conclusion.** The search for effective factors and pedagogical conditions that contribute to the development of adolescents' psychological security in the digital environment has led us to recognize the necessity of systematically integrating information literacy instruction into the general educational process. This study demonstrated that the development of critical digital competencies, when supported by a well-structured pedagogically approach, significantly enhances cognitive and evaluative skills.

The implemented instructional program, which incorporated a variety of teaching strategies such as discussions, media analysis, case-based exercises, peer collaboration, project-based learning, focused on active engagement with digital content and critical evaluation of online information in digital spaces. The multifaceted nature of the program enabled students to engage with new knowledge in practical ways, applying what they learned to situations that mirrored their real-life digital experiences. This hands-on engagement appeared to strengthen their sense of psychological safety when navigating online environments.

The data collected throughout the study indicated measurable growth in several core aspects of psychological security, particularly in students' ability to assess information critically. These gains were especially evident among participants in the experimental group. Compared to their peers in the control group, students who took part in the intervention demonstratedgreater confidence in managing digital risks.

In conclusion, the findings suggest that a well-structured information literacy curriculum can play a significant role in enhancing adolescents' digital resilience. This study opens up directions for further exploration into how specific educational and environmental factors contribute to strengthening psychological security in the context of the digital environment.

**REFERENCES:**

1. **Memleket basshysy Kasym-Zhomart Tokaevtyn 2022 zhylgy 16 nauryzdagy Kazakstan halkyna zholdauy** [President Kassym-Jomart Tokayev's address to the people of Kazakhstan dated March 16, 2022]. Available at: https://adilet.zan.kz/kaz/docs/K22002022_1 (accessed 20 May 2025). (In Kazakh)

2. **Budykin S.V. Informacionnaya bezopasnost' detej i podrostkov v sovremennom mire: psihologicheskie aspekty' problem** [Information security of children and adolescents in the modern world: psychological aspects of the problem]. *Psihologiya i pravo,* 2017, vol. 7 (1), pp. 13-24. (In Russian)

3. **Verbina G.G. Psihologicheskaya bezopasnost' lichnosti** [Psychological security of the individual]. *Bulletin of the Chuvash University*, 2013, vol. 4, pp. 196-202. (In Russian)

4. **Zykov V.V. Osnovy' informacionnoj kul'tury': Uchebnoe posobie dlya vuzov** [Fundamentals of information culture: a textbook for universities]. Tyumen, Izd-vo Tyumenskogo gosudarstvennogo universiteta, 2000, 196 p. (In Russian)

5. **Sramova Blandina, Hamranova Anezka. Psychological and social risks of digitalization in adolescents.** *Education and New Developments*, 2022, vol. 1, pp. 256-258.

6. **Valieva F.I. Reziliantnost': podhody', modeli, koncepcii** [Resilience: approaches, models, concepts]. *Vestnik Sankt-Peterburgskogo universiteta, 2014*, vol. 12(1), pp. 78-86.(In Russian)

7. **Kislyakov P.A., Shmeleva E.A. Media education in training students to provide information and psychological security.** *Media literacy education,* 2018, vol. 1, pp. 107-115.

8. **Łukasz Tomczyk, Ludvik Eger. Online safety as a new component of digital literacy for young people.** *Integration of Education*, 2020, vol. 24(2), pp. 172-184.

9. **Jolls Tessa. Media and Information Literacy Education: Fundamentals for Global Teaching and Learning.** *Journal of Media and Information Literacy for the Sustainable Development Goals,* 2015, vol.3, pp. 1-11.

10. **Dvoryanchikov N., Budykun S.V., Bovina I., Pimonov V. Informacionnaya bezopasnost' detej I podrostkov: yuridicheskie i psihologicheskie aspekty' problemy'** [Information security of children and adolescents: legal and psychological aspects of the problem]. *Yuridicheskaya psihologiya,* 2016, vol. 1, pp. 31-35. (In Russian)

11. **Ananeva O.A. Problemy' informacionnoj bezopasnosti podrostkov: istoriya I sovremennost'** [Problems of information security of adolescents: history and modernity]. *Molodoj ucheny'j,* 2024, vol. 3 (502), pp. 465-469. (In Russian)

12. **Verbina G.G. Psihologicheskaya bezopasnost' lichnosti** [Psychological security of the individual]. *Bulletin of the Chuvash University*, 2013, vol. 4, pp. 196-202. (In Russian)

13. **Laeeq Khan M, Idrislka. Recognize Misinformation and Verify Before Sharing: A Reasoned Action and Information Literacy Perspective.** *Behaviour and Information Technology*, 2019, vol. 38 (1), pp. 2-49.

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IRSTI 14.07.09
UDC 371.134
https://doi.org/10.52269/KGTD2532151

## METHODS OF FORMATION OF SELF-REGULATION SKILLS IN YOUNGER SCHOOLCHILDREN THROUGH DIFFERENTIATED LEARNING

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*The article is devoted to the study of methods for developing self-regulation skills in primary school students through differentiated learning. The relevance of this study arises from the need to develop children's ability to consciously regulate their learning activities, which is a key factor in achieving academic success, fostering independence, and adapting to the demands of the modern educational environment. Self-regulation contributes to effective time planning, overcoming learning difficulties and increasing motivation, which is especially important in primary school age. The paper presents theoretical and practical aspects of implementing a differentiated approach, with an emphasis on taking into account the individual characteristics of primary school students. Factors such as the level of cognitive activity, the pace of learning, educational motivation and emotional readiness to complete tasks are considered. Particular attention is paid to the introduction of pedagogical methods aimed at developing the skills of goal setting, self-control, reflection and self-assessment. The study was conducted using an integrated methodological approach, including observation, testing, questionnaires and experimental programs. It was found that the use of differentiated tasks, project activities and interactive methods significantly increases the learning motivation, involvement of schoolchildren and their academic performance. The experimental results demonstrate that the adaptation of the educational process to the individual characteristics of students allows not only to improve current educational results, but also to develop metacognitive abilities in children necessary for independent solution of complex problems. The practical significance of the study lies in the development of methodological recommendations for primary school teachers on the integration of differentiated learning methods aimed at the effective development of self-regulation skills. These recommendations will help create favorable conditions for increasing the motivation, involvement and independence of younger students, which contributes to their successful adaptation to further education.*

***Key words:*** *self-regulation, differentiated learning, pedagogical strategies, individual approach, educational motivation, project activity, educational process, methodological recommendations.*