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FORMATION OF INFORMATION SECURITY CULTURE AMONG SCHOOLCHILDREN IN A DIGITAL EDUCATIONAL ENVIRONMENT

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Abstract. This paper examines adolescents' dependence on social networks in the digital environment, which represents a serious problem in modern society, as well as their low level of critical information analysis skills. The tendency toward cyberbullying, hacker attacks, and the unauthorized disclosure of personal information has become increasingly widespread in the context of information security risks. Despite the rapid development of technologies that provide access to information in modern society, they do not prevent the younger generation from being exposed to various cyber threats on social networks and from the influence of harmful content. In the course of the research, a variety of methods were used to assess the information literacy of schoolchildren. Through theoretical analysis, the information culture of schoolchildren and their behavior in the social environment were examined from a psychological perspective. In addition, methods such as psychological diagnostics, pedagogical testing, observation, modeling, and mathematical data processing were applied. During the study, it was observed that the information literacy of schoolchildren changes dynamically under the influence of various factors.

The social environment and family values have a direct impact on this process. The results of the study conducted among schoolchildren showed that the majority of them are dependent on social networks, which leads to a decrease in their learning activity. In order to develop students' information literacy, methodological guidelines, educational programs, and training modules were proposed. Examples of social media content analysis were also provided. This research is a comprehensive theoretical study of schoolchildren's information literacy. It focuses on students' ability to act independently in the information space, master

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cybersecurity principles, and demonstrate literacy in the context of digital transformation. The findings and recommendations of the study can be applied in general education schools, supplementary education institutions, and colleges.

Keywords: digital environment, cyberbullying, information security, digital transformation, Information culture, social networks, cyber threats.

Introduction

In contemporary society, digital technologies are developing at an unprecedented pace. On the one hand, they contribute to meeting labor market demands for highly qualified professionals; on the other hand, they transform individuals' everyday skills and patterns of social interaction. These processes exert a significant influence on the psychological, emotional, and cognitive development of individuals. As a consequence of rapid technological advancement, social media platforms have evolved into vast digital spaces characterized by an unlimited flow of information and user-generated content.

Global evidence indicates that during the COVID-19 pandemic, many countries implemented large-scale policy measures that resulted in the transition of educational systems to remote and online learning formats. Under these circumstances, the role of social media in adolescents' lives increased substantially. In adapting to the new social reality, children and adolescents integrated social media into their daily routines, using it not only as a means of communication but also as a primary source of entertainment and leisure activities (Alshamrani et al., 2021).

International scholars have consistently emphasized the adverse effects of social media and the digital environment on mental health, expressing concern about their implications for adolescent development. In its 2018 report, the American Academy of Pediatrics (AAP) introduced the concept of "Facebook depression," referring to the emergence of depressive symptoms among adolescents and preadolescents as a consequence of prolonged and intensive social media use (American Academy of Pediatrics, 2018).

Similarly, a study conducted by the Royal Society for Public Health (RSPH) in the United Kingdom, involving approximately 1,500 participants aged 14–24 years, identified a strong association between social media use and mental health outcomes. The findings demonstrated that excessive engagement with social networking platforms contributes to increased levels of depression, anxiety, fear, and social comparison, which may subsequently lead to clinically significant psychological disorders among adolescents (Blease, 2020).

As a result of these developments, internet dependency among adolescents has become increasingly prevalent. Consequently, issues related to upbringing, education, and the development of information culture within the digital environment have gained particular relevance. Prolonged exposure to social media, cyberbullying, harmful online content, and various forms of psychological pressure represent serious challenges not only for educational institutions but also for families and society as a whole. Therefore, there is a growing need to foster students' information culture, enhance their digital literacy, and improve the effective integration of electronic educational resources into the learning process.

The relevance of this issue has been widely recognized in contemporary academic literature. Various aspects of the phenomenon have been investigated by both international and domestic researchers. Nevertheless, despite the substantial body of research devoted to information literacy and information culture in the fields of education and psychology, issues concerning information

security within educational environments remain insufficiently explored and require further scholarly attention.

The present study is distinguished by its comprehensive and interdisciplinary approach to the problem under investigation. Unlike many previous studies that have primarily focused on internet addiction, this research is aimed at examining the formation of an information security culture among school students. Particular attention is devoted not only to identifying the psychological consequences of adolescents' digital activity but also to determining the pedagogical conditions that facilitate the development of safe and responsible behavior in the digital information environment.

Furthermore, the study focuses specifically on eighth-grade students in a general secondary school, whereas a considerable proportion of existing research has concentrated on university students or broader age groups. The research provides a comprehensive analysis of adolescents' digital behavior, including internet addiction, patterns of social media use, and levels of information security awareness. It should also be noted that, in addition to standardized diagnostic instruments (IAT and CIAS), the study employs author-developed assessment tools, thereby enhancing the reliability and comprehensiveness of the findings. This methodological approach enables a deeper and more nuanced understanding of the process of developing information culture among schoolchildren in the context of the contemporary digital environment.

Research Objectives:

- to identify the level of information security of school students;
- to theoretically analyze the issue of information literacy in the digital environment;
- to develop methodological recommendations aimed at fostering information security among school students.

In the process of achieving these objectives, several important topics are covered. In particular:

1. The content of research devoted to social media, digital networks, and information security issues
2. The relationship between social dependency and psychological processes
3. The study of the issue of information transformation in modern literature
4. The research findings on the topic of information security among adolescents

These research questions will be addressed through an examination of the works of several scholars and an analysis of experimental studies. The research focuses on an in-depth analysis of the issues of "information culture," "information security," "social dependency," and "digital integration," drawing upon the works of scholars who have studied these topics.

Research subject: the pedagogical conditions for the formation of an information security culture among schoolchildren in a digital educational environment.

Research object: the process of forming information security culture among school students in the digital educational environment.

Literature Review

An analysis of contemporary international research indicates a substantial increase in scholarly attention to the issues of digital safety and cybersecurity among children and adolescents. International studies have extensively examined cyberbullying and its impact on the psychological well-being of young people (Lahti, 2024), the consequences of excessive digital technology use for children's cognitive, emotional, and social development (Muppalla et al., 2023), approaches to developing cybersecurity competencies among school-aged learners (Plintz & Ifenthaler, 2025), as well as the organizational and pedagogical dimensions of digital safety education within school systems (Liu, Long, & Martin, 2025). Collectively, the findings of these studies underscore the growing necessity of systematically preparing younger generations for safe, responsible, and informed engagement within increasingly complex digital environments.

In the systematic review by Liu, Long, and Martin, a comprehensive analysis of contemporary approaches to cybersecurity education in primary schools is presented. The study covers 81 empirical works published between 2017 and 2024, allowing the authors to summarize global trends in the development of digital safety competencies among children. From a methodological perspective, the study is based on a systematic literature review using data synthesis and thematic analysis. Overall, the study emphasizes the need for a comprehensive and interdisciplinary approach to developing digital safety competencies among schoolchildren (Liu, N., Long, S., & Martin, F., 2025).

Taken together with the works of Chai L., Xue J., and Han C., this study makes it possible to view the digital educational environment not only as a learning tool, but also as a space that requires the purposeful development of information security competencies among schoolchildren, as well as a critical attitude toward digital content (Chai, L., Xue, J., & Han, Z.,2020).

Particular attention should be given to the study conducted by Rajab and Eydgahi, which has gained considerable recognition within the scholarly community. The authors proposed a theoretical model grounded in behavioral approaches to information security. This model enables assessment of factors such as perceived vulnerability, the effectiveness of protective measures, the costs associated with their implementation, and users' intentions to comply with information security requirements. The study has made a significant contribution to advancing the understanding of the factors that influence secure and responsible behavior in digital environments (Rajab & Eydgahi, 2019).

Guillén Gámez, Tomczyk, Ruiz-Palmero, and Connolly (2024) emphasize that digital security has become one of the key challenges in modern education. The authors highlight the importance of developing digital competence among both students and teachers, including the protection of personal data, safe use of digital devices, prevention of cyber threats, and responsible online behavior. They argue that many pre-service teachers possess insufficient knowledge and skills in cybersecurity, which underscores the need to improve teacher education programs. The authors also stress the importance of implementing effective digital security measures in educational institutions and fostering a culture of safe and responsible use of information and communication technologies.

Latorre Medina and Tnibar Harrus emphasize that digital security is an important component of pre-service teacher education. The authors highlight the need for more comprehensive training in cybersecurity, personal data protection, and the safe use of digital technologies to effectively address digital risks in educational environments. (Latorre Medina, M. J., & Tnibar Harrus, C., 2023).

K.K. Shalgynbayeva, in her research, analyzes the negative impact of social media, taking into account the developmental characteristics of children with disabilities, and substantiates effective preventive methods and technologies (Shalgynbayeva K., 2022).

According to L.R. Asmanova, social networks negatively affect the neurophysiological development of adolescents. Teenagers use social networks as a means of communication, which leads to feelings of loneliness and social withdrawal. Social media addiction is characterized by a decrease in the level of intelligence (Asmanova L., 2021). Based on studies conducted by the American Psychiatric Association, social media addiction is defined as a behavior that drives individuals to excessive and uncontrolled use of such platforms. American scholars such as Alfonso Pellegrino, Alessandro Stasi, and Veera Bhatiasevi conducted a study on 501 articles published in the Scopus database between 2018 and 2022. They proved the negative impact of social media on human mental health. In their scientific works, they emphasize that despite its growing ubiquity in people's lives and its tremendous advantages in enabling instant communication with others, social media's influence on subjective well-being has become a global concern. Through modern research, they revealed that social media negatively affects adolescents' school performance, social behavior, and interpersonal relationships. Over time, they noted that excessive use of social

networks can lead to addiction (Pellegrino A., Stasi A. and Bhatiasevi V., 2022)

It can be observed that many scholars have studied school students' dependence on internet platforms, as well as its psychological and pedagogical features. A.Kh. Kazetova, I.U. Khasanova, D.G. Khabieva, and G.Zh. Tokashova, in their works, identify the following indicators of susceptibility to social networks:

1. Problems arising from the lack of boundaries in virtual space;
2. Signs of the emergence of psychophysiological, neuropsychological, cognitive, and emotional pathologies;
3. A diminished sense of the distinction between real life and time due to excessive use of digital space;
4. The unlimited accessibility of digital content as a potential consequence of social media addiction;
5. The preference for the virtual world over real life, which reduces social responsibility;
6. Preconditions for the emergence of aggression, depression, psychological loneliness, loss of life motivation, and distrust toward others (Kazetova, A.Kh., Khasanova, I.U., 2022).

According to the PISA 2023 results, an average of 64% of 15-year-old students in OECD countries feel confident in the information environment and can easily find data. This indicates a high level of information literacy among students. They are able to reliably evaluate the quality of information online. Schoolchildren compare online content and master the principles of using it effectively. Pathological dependence on social networks is the process by which a person constantly spends time on online platforms, making the virtual space an inseparable part of their life. It is a psychological disorder that arises as a result of distancing from real-life social skills and neglecting daily responsibilities. Another reason for dependence on the virtual space is related to the design of digital products on the internet. The digital landscape offers modern interfaces and design elements to capture the consumer's attention. The following design components are used to increase consumers' dependence on internet products:

- Designs that affect adolescents' emotions;
- Modern interfaces;
- Psychological triggers;
- Scrolling feeds.

These processes inhibit a person's memory capacity and contribute to fatigue, weakness, unstable sleep, and the emergence of psychophysiological and emotional difficulties.

The issue of developing information security for school students in the digital environment has become the foundation of many scientific pedagogical theories and concepts. Many foreign and domestic scholars have devoted their research works to this topic. The principles and functions of using information technologies, the means of information communication, methodological theories, and transformational potential were analyzed in the studies of F. Sh. Orazbayeva, S. R. Rakhmetova, A. E. Zhumabayeva, Z. B. Beisenbayeva, A. S. Almetova, Zh. N. Suleimenova, and others. Among the scholars who examined the issue of developing professional skills of future specialists on the basis of information technologies in various directions are N. A. Asanov, A. Zh. Kaidarova, A. K. Kusayinov, K. G. Kudaibergenova, K. U. Kunakova, and N. Kataev. In their scientific works, the authors revealed the meaning and content of such concepts as "information culture," "information environment," and "digital space," conducted experimental research in this field, and carried out statistical analyses. Their works represent meaningful and high-quality manuscripts that complement one another.

The features of visual perception are realized with the help of information tools. In today's modern society, many people prefer visual perception of information through their sense of sight rather than perceiving information from the surrounding environment kinesthetically-that is, through feelings, emotions, and actions. Zh. T. Suleimenova wrote a dissertation on the topic "Formation of the Communicative Culture of Future Pedagogues-Psychologists in the Digital

Educational Environment." She proposed integrative directions for transforming the digital environment in the process of forming the communicative culture of future pedagogues-psychologists. By presenting a comprehensive methodology, the author analyzed the modern concepts and theories of the digital educational environment.

One can refer to the dissertation of D. N. Isabaeva entitled *"*Methodology for Using Information and Communication Technology Tools in the Formation of Cognitive Interest of Primary School Students*.* (D. N. Isabaeva, 2016)*"* The issue of developing the information culture of school students has been the subject of many studies. N. T. Sartaeva thoroughly investigated the trend of developing research motivation of primary school students through information technologies. B. A. Doszhanov, on the other hand, focused on improving the quality of the educational process through the use of multimedia technologies. He identified the pedagogical conditions for the application of multimedia technologies. Therefore, such defended dissertations and scientific research in this field further deepen the relevance of the topic.

Issues related to information culture, media education, and digital learning have been studied since earlier times. They are reflected in the views of many educators, psychologists, philosophers, and sociologists. The works of foreign scholars such as Vance Packard Goodman (comparative analysis of media content), Marshall McLuhan (media analysis and interpretation), and Ernest L. Boyer (theory of media literacy) were aimed at revealing the content and significance of media education, as well as its conceptual and methodological foundations (Alchimbayeva A. and Tashkeyeva Zh., 2025)

The era in which we live is closely connected with the digital environment. In the open encyclopedia, this society is also referred to as the electronic age. The traditional education system has completely shifted to information-based learning founded on digital transfer. The information revolution has encompassed all spheres. The scientific works and theories mentioned above have sought to prove this. In this regard, Kazakhstani researchers emphasize the need, in the modern information era, to teach school students to create a safe environment by protecting them from unlimited content and resources, as well as to train them in critical analysis of information. They highlight the importance of forming a new type of thinking. If we define the concept of a "digital educational environment," it refers to the use of information technologies, digital programs and platforms, and internet systems in the pedagogical process, as well as the organization of active interaction between teacher and student.

According to the 2020 data from the National Center for Public Health under the Ministry of Health of the Republic of Kazakhstan, approximately 20% of adolescents aged 11–15 either witness or directly experience bullying each month (Ombudsman of the Republic of Kazakhstan, Ministry of Foreign Affairs of Norway and UNICEF, 2020).

The American Psychiatric Association defines social media addiction as a compulsion toward excessive and uncontrolled use of these platforms (Patchin J.W., 2020). Current domestic scholars are focusing heavily on issues such as digital modernization, cyberbullying transformation, information security, and internet addiction. Their work has been reviewed, including contributions by P. B. Seitkazy, Q. Q. Shalghynbayeva, M. P. Asylbekova, Q. T. Atemova, S. S. Zhubakova, N. P. Albytova, and G. K. Sholpankulova.

In his research, S. K. Zhantikeev classifies three levels of influence that contribute to adolescent dependence on internet platforms (Zhantikeev S. K., 2019)

The scientific novelty of this study lies in conceptualizing information security culture not merely as a set of knowledge and skills related to digital safety, but as an integrative personal construct comprising cognitive, motivational-value, and behavioral components. Unlike the majority of previous studies, which have primarily focused on specific digital risks and isolated aspects of online safety, the present research adopts a comprehensive approach to examining the factors that influence the formation of information security culture among schoolchildren within the educational environment. The findings contribute to a more precise understanding

of the pedagogical conditions that facilitate the development of information security culture and extend existing theoretical perspectives on the mechanisms that promote safe, responsible, and informed behavior among adolescents in the digital space.

Unlike previous studies, which have primarily focused on individual aspects of digital security, internet addiction, media literacy, or digital literacy among schoolchildren, the present study examines the issue in a holistic manner through the lens of information security culture formation within a digital educational environment. The research is not limited to analyzing students' knowledge of cyber threats; it also assesses their behavioral attitudes, level of awareness, safe use of digital technologies, and attitudes toward information protection. Furthermore, the study presents the results of an empirical investigation involving 8th-grade students, which made it possible to identify existing gaps in the formation of information security culture and to determine directions for improving educational practice.

Analysis of international scientific literature shows that most studies focus on the development of digital literacy and basic skills of safe online behavior. However, significantly less attention is paid to the systematic formation of an information security culture, which includes not only knowledge but also stable behavioral attitudes, critical thinking, and a conscious approach to digital content. Existing research also often addresses separate aspects of the issue-such as cyber threats, personal data protection, or media literacy-without adopting a comprehensive view of the educational environment as an integrated system. In addition, age-related features of developing information security skills among schoolchildren at different educational stages remain insufficiently studied, as does the role of teachers and educational programs in this process. Thus, a clear research gap is identified, related to the insufficient development of holistic models for forming information security culture in the school environment. This highlights the need for further research aimed at integrating educational, psychological, and technological approaches.

Methods

In the course of the research, theoretical, mathematical, and statistical methods were widely applied. An analysis of scientific and pedagogical literature, dissertation research, and regulatory legal acts was carried out, and dynamic indicators were determined through the processing of data obtained during the experiment. In addition, empirical methods such as observation, interviews, questionnaires, and pedagogical testing were employed. The results of the experiment were summarized using empirical, mathematical, and statistical approaches. In order to identify adolescents' dependence on social networks, internet platforms, and the virtual environment, diagnostic methodologies and questionnaires were conducted. The experiment involved 8th-grade students from School No. 84 in Astana.

A cooperation agreement was established between the Department of Pedagogy and the school. Using A. L. Yanak's methodology, the students' dependence on social networks and their online activity were identified. This methodology was implemented through questionnaire surveys. In addition, several questionnaire items were also administered to parents, and their responses were analyzed using mathematical methods. Chen's Internet Addiction Test revealed signs of emotional exhaustion, decreased activity, and lower academic performance among schoolchildren. The test was conducted in all classes. Test materials were distributed to the students, and their psychological states were comparatively analyzed (high, medium, low levels). It was found that many students demonstrated a high level of excessive internet use. As a result, students tended to use their time inefficiently. This indicates a lack of communication between parents and children. It was also revealed that the majority of parents focus mainly on providing material support for their children. Such a tendency creates conditions for the emergence of cyberbullying, bullying, and even suicidal behavior among students. During the study, theoretical, mathematical, and statistical methods were widely employed. Scientific and

pedagogical literature, dissertations, and regulatory legal acts were analyzed. Experimental data were processed to identify dynamic indicators.

Empirical methods such as observation, interviews, surveys, and pedagogical testing were used. Data from the experiment were compiled using empirical, mathematical, and statistical methods.

To determine adolescents' dependence on social networks, internet platforms, and virtual space, diagnostic tools and questionnaires were used. A survey was administered to students in grades 5 through 9, consisting of the following questions:

1. Indicate your grade level
2. How much time do you spend on the Internet?
3. How often do you use social media content?
4. Have you ever encountered cyberbullying?
5. What do you know about cyberbullying?
6. Do you share personal information online?
7. Are you aware of information security practices?
8. Do you follow information security rules?
9. Have you come across harmful content online? How did you react?
10. How do you understand the concept of digital culture?
11. Have you noticed someone sending harmful content online?
12. What would you do if someone was being insulted or mocked on social media?
13. What is important for maintaining information security?
14. Have you experienced psychological pressure from social media use?

Results and Discussion

Within the framework of the study, a comprehensive statistical analysis of the obtained data was conducted. The processing of empirical material was carried out using quantitative methods, including the calculation of absolute and relative indicators (percentages), mean values, as well as comparative analysis of results between the study groups (Grade 8 "A" and Grade 8 "B"). To identify relationships between the level of Internet activity and possible behavioral characteristics of students, correlation analysis was applied. This approach made it possible to determine the presence of statistically significant relationships between the studied variables.

The testing of research hypotheses was based on a comparison of empirical data with the theoretical assumptions of the study. The main hypothesis that a low level of internet addiction predominates among 8th-grade students was confirmed. The additional hypothesis regarding the presence of a risk group with moderate and high levels of internet addiction was also empirically supported.

The selection of respondents was based on the principle of voluntary participation. The study included students from 8th-grade classes of a general education school who corresponded to the adolescent age category. The sample was formed using a purposive (criterion-based) sampling method, taking into account predefined criteria: enrollment in Grade 8, belonging to the adolescent age group, as well as regular use of the Internet and digital technologies in daily and academic activities. In addition, students' consent to participate in the study was taken into account, ensuring compliance with ethical standards and increasing the reliability of the obtained data. Respondents who did not meet the inclusion criteria or did not complete the diagnostic procedures were excluded from the analysis.

Standardized instruments were used, including Kimberly Young's Internet Addiction Test (IAT) and the Chen Internet Addiction Scale (CIAS), both of which are widely applied in international research to assess the degree of engagement in online environments. In addition, an original 20-item questionnaire was developed to examine adolescents' behavioral patterns

in the digital environment, the frequency of Internet use, as well as emotional and behavioral responses associated with online activity.

Based on the results of the study, we identified three levels of students' inclination to internet use. The indicators of each level are presented in Table 1. (Table 1)

Table 1. Results of K. Young's Internet Addiction Survey

Level	Grade 8A	Percentage	Grade 8B	Percentage
Low	15 students	55.6%	17 students	77.3%
Moderate	7 students	25.9%	2 students	9.1%
High	5 students	18.5%	3 students	13.6%
Total	27	100%	**22**	100%

Note: The data were compiled based on a survey conducted by the author.

The analysis of the results presented in Table 1 shows that a significant proportion of students in both classes demonstrate a predominantly low level of internet addiction. In Grade 8 "A", this indicator accounted for 55.6% (15 students), while in Grade 8 "B" it reached 77.3% (17 students). These findings suggest that most adolescents use the internet within normal limits and do not exhibit clear signs of addictive behavior.

A moderate level of internet addiction was identified in 25.9% of students in Grade 8 "A" (7 students) and in 9.1% of students in Grade 8 "B" (2 students). These results indicate that some adolescents show signs of increased engagement with the digital environment, which may be considered a potential risk factor and requires preventive attention from teachers and parents.

A high level of internet addiction was observed in a smaller proportion of students: 18.5% (5 students) in Grade 8 "A" and 13.6% (3 students) in Grade 8 "B". These results indicate a small group of students with pronounced signs of problematic internet use who may require additional support and corrective intervention.

Overall, the results of the study demonstrate that the level of internet addiction among 8th-grade students is predominantly low; however, the presence of students with moderate and high levels indicates the need for continued monitoring and preventive measures.

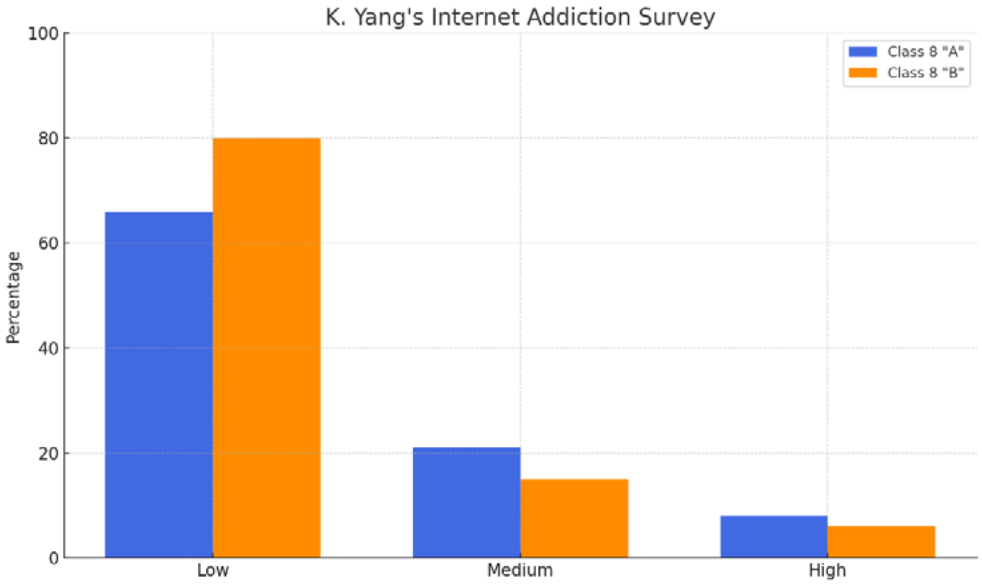


Figure 1. Diagnostic Results of Internet Addiction Levels

In his methodology, A.L. Yanak provides the following recommendations to help parents protect information security:

- Follow safety rules in digital environments, practice cyber-ethics, and avoid sharing personal data online;
- Conduct digital literacy initiatives such as webinars, online sessions, and interactive games;
- Foster a culture of working with media sources and databases to promote media literacy and informed content consumption.

According to the results of the study, a deeper analysis of students' quantitative levels can be conducted. Among schoolchildren, a number of significant issues can be observed, which are primarily closely related to the values of upbringing. In today's modern society, despite the advanced functioning of the internet, its negative impact on child development is becoming evident.

The issue of effective time management. The majority of schoolchildren use the internet inefficiently. This trend complicates interpersonal communication and, as a result, decreases students' motivation to study and acquire knowledge. The number of students who are unable to systematically organize their free time is increasing. Such a tendency hinders the acquisition of quality education. Moreover, conflicts between parents and children are on the rise. Recent state monitoring has revealed that adolescents are increasingly spending time in uncontrolled internet clubs. Students use the Internet not for self-development, but mainly for passing time, making acquaintances, and social interaction. Sometimes such random connections lead to undesirable situations. Aimless use of social networks lowers the intellectual level of schoolchildren and makes them more vulnerable to becoming victims of an unsafe environment.

Insufficient parental control. The results of the study revealed that parents do not teach their children the principles of safe use of social networks. Online activities are not monitored, and adolescents demonstrate excessive freedom in the digital space. Norms and requirements of online safety are not observed, which makes teenagers vulnerable to manipulative advertising and promotional content on the Internet.

Interclass differences.

1. The differences between classes can be explained by several factors:
2. the social potential of the class;
3. the level of digital technology proficiency;
4. the students' family social status;
5. the level of parents' literacy

Table 2. Chen's Internet Addiction Scale Test Results

Chen's Internet Addiction Scale	Low Level	Medium Level	High Level
Class 8 «A»			
COM (Compulsive Use)	4	1	2
WIT (Withdrawal Symptoms)	2	2	1
TOL (Tolerance)	2	1	2
IH (Interpersonal and Health Problems)	4	2	1
TM (Time Management Problems)	4	1	2
Class 8 «B»			
COM (Compulsive Use)	4	2	0

WIT (Withdrawal Symptoms)	1	1	0
TOL (Tolerance)	4	2	0
IH (Interpersonal and Health Problems)	4	2	0
TM (Time Management Problems)	4	0	1

Note: The table was developed based on Chen Shuhui's Chen Internet Addiction Scale (CIAS) methodology.

The results presented in Table 2 demonstrate differences in the manifestations of internet addiction components among students of classes 8 "A" and 8 "B" according to the Chen Internet Addiction Scale (CIAS).In class 8 "A", moderate and high indicators were observed across several scales. The highest values were identified in the categories of compulsive internet use (COM), tolerance (TOL), and time management problems (TM), where some students demonstrated high levels of problematic internet behavior. These findings indicate that a number of adolescents experience difficulties in controlling the duration and frequency of internet use, which may negatively affect their daily activities and academic performance. In class 8 "B", the majority of students demonstrated low levels across all CIAS dimensions. High-level indicators were either absent or identified only in isolated cases. This suggests that students in this class generally show more balanced and controlled internet use behavior compared to class 8 "A".

A survey was conducted to determine students' inclination toward social media. The results can be seen in the following table.

Table 3. Results of the survey on students' inclination toward social media

Level	**Class 8 „C»**	**Percentage**	**Class 8 «B»**	**Percentage**
Low	17 students	68%	18 students	78.3%
Moderate	3 students	12%	3 students	13.0%
High	2 students	8%	2 students	8.7%
Very High	3 students	12%	0 students	0
Total	25	100%	23	100%

Note: The table was compiled based on the results of the author-designed questionnaire aimed at identifying students' inclination toward social media use.

Overall, the obtained results indicate that the majority of students demonstrate a predominantly low level of social media addiction. This suggests that most respondents use digital platforms within normal limits and do not exhibit clear signs of problematic behavior. At the same time, the study identified students with moderate, high, and very high levels of addiction. The presence of these groups indicates heterogeneity in adolescents' digital behavior and the existence of a potential risk group. Thus, the findings do not indicate a widespread addiction among students but rather a differentiated structure of digital behavior, where low levels predominate while isolated cases of increased engagement in social media are also present.

The obtained data justify the need for preventive measures aimed at developing digital literacy, strengthening self-regulation skills, and promoting responsible social media use among students.

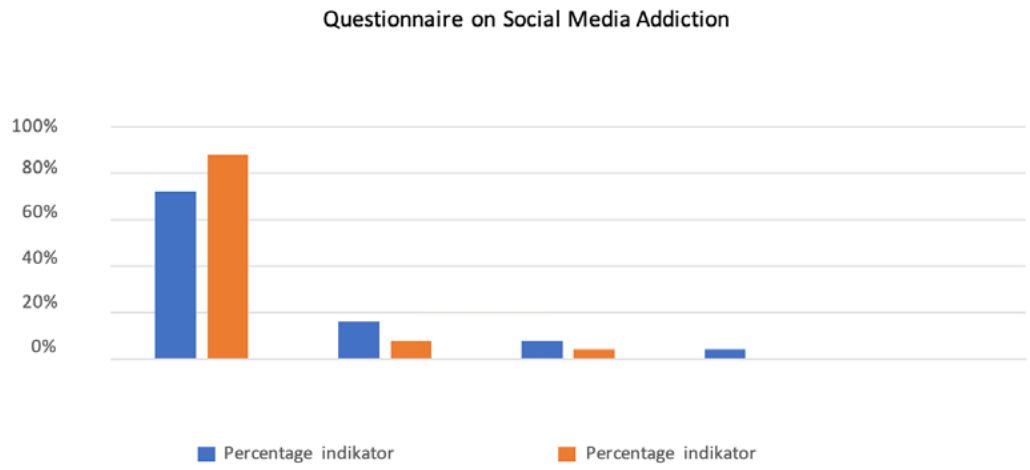


Figure 2. Questionnaire on Social Media Addiction

Table 4. Survey for Parents on Internet Usage and Information Security

Question	Response Options
How long does your child spend on internet platforms?	
1 hour	5,2%
1–4 hours	56,8%
3 hours	17%
More than 6 hours	72%
What is the purpose of your child's use of social media and media content?	
To complete homework	40%
For virtual communication	33%
For gaming	67%
To use social media like Instagram, TikTok	54%
To watch movies	42%
To attend online courses and improve knowledge	52%
To improve communication	21%
Has social media affected your child's psychological development?	
Yes, it improves information literacy	65%
Causes stress, depression, fatigue, passivity, isolation	70%
Promotes innovative thinking via educational platforms	50%
Causes aggression due to cyberbullying	45%
Reduces time management skills, lowers academic performance, psychological issues	58%

Alters connection with real life	25%
Influences thinking, behavior, and ethical norms	18%

Note: The table was compiled based on the results of a parental survey on internet usage and information security.

The exploratory phase continued with a survey, which included 10 questions. The survey results showed that the school students used digital technologies infrequently and lacked knowledge about information security. A low level of adherence to information culture in the digital space was observed.

Table 5. Level of information security compliance in the digital space

№	Questionnaire	Answer
1	What types of digital technologies are there?	
2	How do you understand the concept of information literacy?	
3	What are the principles of maintaining information security?	
4	Digital platforms	
5	There are several effective ways to limit time spent on the Internet:	
6	How effectively do you use information and communication tools?	
7	Are you familiar with the issues of bullying, cyberbullying, and cyberattacks?	
8	Are you able to critically analyze content on social media?	
9	Are you able to use digital security technology?	
10	The concept of media culture	

Table 6. Level of compliance with information security requirements in the digital space

Level	**Class 8 „C»**	**Percentage**	**Class 8 «B»**	**Percentage**
Low	15 students	60%	17 students	63.0%
Moderate	5 students	20 %	6 students	22.2%
High	3 students	12%	4 students	14.8%
Very High	2 students	8%	0 students	0
Total	25	100%	27	100%

Note: The table was compiled based on the author's developed methodology for assessing students' compliance with information security requirements in the digital environment.

Within the framework of the study, a survey and testing of students were conducted to assess their level of knowledge in the field of information security, as well as their understanding of its basic principles, requirements, and rules of safe behavior in the digital environment. The obtained results showed that students have an insufficient level of knowledge regarding information security. The data analysis revealed that students from both classes demonstrate a low level of awareness of the basic principles of information protection and do not fully recognize the importance of following safe practices in the digital environment. Thus, the results of the survey and testing confirm the presence of gaps in students' knowledge in the field of information security and indicate the need for additional educational and preventive measures.

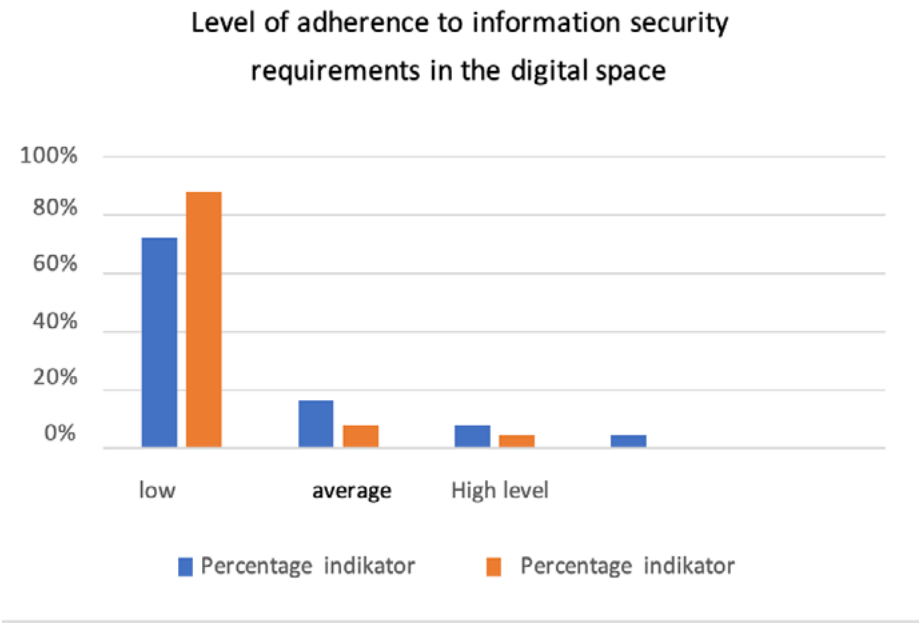


Figure 3. Level of adherence to information security

Taking into account that developing information culture in the digital environment is an important issue, a special course program was developed for school students. We present the content, goals, and objectives of the program. The program is designed for 8th-grade students.

Based on the results of research, we have developed a special elective course program for 8th grade students. The special course program entitled "Digital Culture and Information Security" is aimed at students' self-development and improvement in the digital space. In addition, it is designed to promote compliance with safety rules and requirements in the information environment.

Table 7. Identification of Adolescents' Tendency Toward Internet Platforms

Social Influence		**Impact on Psychological Processes**		**Time Management**		**Cyber Ethics Norms**	
1	Ienjoy being isolated from society.	6	The influential content on the internet affects my psychological thinking and behavior.	11	I cannot manage my time on social media.	16	Icritically evaluate incoming information.
2	I strive to find communication and friends.	7	I want people to pay attention to the photos I post on social media.	12	The time I spend on social media negatively affects my lessons and work.	17	I can get useful information for my life from the virtual space.
3	Social media helps me open up to the outside world.	8	My classmates and friends cyberbully me through social media.	13	My academic performance is declining due to my activity on social media.	18	I try to respond to every new message, which makes me anxious.
4	Spending long hours online makes me feel distant from people around me.	9	People feel free on social networks.	14	The virtual world is an amazing infinity to me.	19	I want to spend time on social media, but I can't manage it.
5	Social networks do not negatively affect my real-life communication.	10	I enjoy using entertainment platforms on social media.	15	I can complete my daily tasks online. That's why social media helps my work.	20	I can manage my time online.

In the current era of globalization, various tests and diagnostic methods are being widely used in modern pedagogy and psychology to prevent and identify internet addiction among adolescents. Among them are the Internet Addiction Test (IAT) developed by Kimberly Young and the Chen Internet Addiction Scale (CIAS), both of which are internationally recognized. In line with this, a 20-question survey was developed specifically for adolescents.

Accordingly, the results of the survey are presented in the table below. If we analyze the survey data, it becomes evident that parents hold two distinct perspectives. The first group views social media as a means of communication and connection. In contrast, the second group associates it with negative consequences such as wasting time, becoming a passive observer in virtual spaces, vulnerability to cyberbullying, risks of psychological disorders, and declining academic performance.

The purpose of the special course program: To form students' information culture and to develop critical thinking skills through comparing resources and content in the digital environment.

Objectives:

1. To provide definitions of the concepts *"*information security," "information culture," and "digital environment*";*
2. To teach students to follow safety rules and requirements on the Internet;
3. To foster students' interest through the use of digital platforms;
4. To develop a culture of using social networks and the Internet;
5. To teach students effective time management.

Expected outcomes Students should be able to:

- Master modern methods of using electronic content and resources in the information environment;
- Develop cultural literacy through self-development in the digital space;
- Acquire mechanisms to prevent bullying, cyberbullying, and cyberattacks on the Internet;
- Follow the principles of information culture.

Digital Competence

- Logical thinking
- Information literacy
- Self-development

Table 8. Structure of Modules:

Modules		**Topic of the lesson**		**Content**		**Methods and techniques**	
1	Developing information culture in modern society	6	The history of the formation of information culture	11	History of information culture	16	Training, coaching
2	Introduction to the subject of Digital Security	7	Digital security and personal data protection literacy	12	Observance Of digital security measures	17	Role play, case study
3	Social networks and internet platforms	8	The issue of information security in the era of globalization .	13	Creating a safe environment	18	Practical lesson, individual and group lessons .
4	Electronic content	9	People feel free on social networks.	14	Harmful content affecting adolescents	19	Group analysis
5	Digital tools and platforms	10	Information hygiene	15	Protection from harmful media products .	20	Interactive exercises

Module 1. Digital Culture Transformation

- Digital literacy
- Modern trends and paradigms in the development of information culture
- Norms and principles of digital ethics

Module 2. Information Security Technologies

- Research on social security issues
- Principles and methods of personal data protection
- Prevention of cyberbullying, cyberattacks, and harmful content

Module 3. Modern Digital Platforms

- Modern educational platforms (Google Classroom, Moodle, etc.)
- Electronic resources and digital data on the Internet
- Monitoring and prevention of online addiction, diagnostics, and modern methodologies

Module 4. Practical Skills

- Creating a secure environment (passwords, antivirus systems, 2FA)
- Global systems for maintaining and developing information hygiene
- International practic

Table 9. Levels of Social Media Addiction in Adolescents

Psychological Level	Neurophysiological Level	Social Level
Psychological disorders caused by received information; Stress and anxiety observed when restricted from the Internet; Spending too much time in virtual space; Mood disorders, emotional instability, behavioral norm deviations (pathologies); Psycho-emotional instability	Decreased brain work efficiency; Changes in neural connectivity in the brain; Rapid information flow weakens memory and perception abilities; Prolonged use of internet portals by adolescents leads to physiological pathologies	Social withdrawal; Communication breakdown; High risk of cyberbullying and being bullied; Developing the habit of living in a virtual world; Changes in social behavior; Difficulty distinguishing between virtual space and real life

Note: The table was compiled based on literature sources describing the psychological, neurophysiological, and social levels of social media addiction in adolescents

Table 8 presents a tripartite taxonomic structure for conceptualizing social media addiction among adolescents, describing its manifestations across three interrelated yet analytically distinct dimensions: psychological, neurophysiological, and social. This multi-level classification reflects a systemic approach to understanding digital addiction in adolescents, moving beyond reductionist, single-factor explanations and acknowledging the complex and interdependent nature of this phenomenon. The structural logic of the table is consistent with contemporary biopsychosocial models of addiction, which posit that addictive behavior cannot be adequately explained through any single analytical lens, but must instead be understood as the outcome of interactions between biological, psychological, and social processes (Pellegrino, Stasi & Bhatiasevi, 2022).

The psychological level encompasses a range of affective, cognitive, and behavioral impairments directly associated with problematic social media use. The listed indicators-including mood disorders, emotional instability, stress and anxiety when internet access is restricted, as well as deviations from normative behavior-correspond to established diagnostic criteria of behavioral addiction, particularly those outlined in the context of Internet Gaming Disorder and Internet Use Disorder (Patchin & Hinduja, 2020).

Conclusion

Living in a digital society has become a modern-day necessity. The modernization of information and the technologies used to protect it from environmental threats are essential conditions for developing information culture. Information threats include the manipulation of personal data, the replacement of truthful information with false content, cyberbullying, hacking

activities, harmful psychological content, and addictive online games. Therefore, addressing issues of information culture is a logical response to contemporary demands. Today, school students are becoming inseparable consumers of internet content, with their interest and activity steadily increasing. Building a culture of information security involves adherence to digital norms and cyberethics, responsible handling of data, protection of personal information, and the development of media literacy. In shaping digital culture, the role of both parents and schools is crucial.

Ensuring information security requires a comprehensive approach. The scientific literature suggests measures such as protecting personal data, using passwords effectively, implementing two-factor authentication, employing antivirus software, avoiding harmful content, and maintaining information hygiene. Moreover, information security is not limited to technical tools but should also include social and psychological aspects. For example, monitoring adolescents' internet use, preventing cyberbullying, and involving parents and educators are essential components of strengthening information security.

Currently, information security is also being studied from a pedagogical perspective. Educational programs aimed at improving students' digital literacy help them protect their data and safeguard against online risks. Thus, research on information security is not only a technological issue but also a complex phenomenon with psychological, social, and pedagogical significance

Contribution of the authors

In writing this article, the authors' contributions are equally distributed and divided among themselves according to the following criteria:

Baimenova B.S. - was in charge of formulating the concept of the study

Zhubakova S.S. - created a structured plan for data collection, determination of analytical methods, and subsequent data processing

Azhgaliyev M. - organized the experiment in accordance with the purpose of the study.

Amanzholova Zh.O. - She studied the results of the experiment and analyzed them using modern methodologies.

Sabdenova A.S. - organized and structured the research materials, paying attention to their formatting.

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References

Alshamrani, S., Abusnaina, A., Abuhama, M., Nyang, D. and Mohaisen, D. (2021) 'Hate, obscenity, and insult: Measuring the exposure of children to inappropriate comments on YouTube', *Proceedings of the Web Conference 2021*, pp. 508–515. https://doi.org/10.1145/3442442.3452314

American Academy of Pediatrics. (2018). *Supporting the health care transition from adolescence to adulthood in the medical home.* Pediatrics, 142(5), 128–130. https://doi.org/10.1542/peds.2018-2587

Blease, C. R. (2020). Too many "friends," too few "likes"? Evolutionary psychology and Facebook depression. Review of General Psychology, 19(1), 1-13. https://doi.org/10.1037/gpr0000030

Lahti, H., Kulmala, M., Liira, N., Mietola, V. and Paakkari, L. (2024) 'Problematic situations related to social media use and competencies for their prevention: Results of a Delphi study', *Scientific Reports*, 14, article 5275. https://doi.org/10.1038/s41598-024-55578-5

Muppalla, S., Vuppalapati, S., Reddy Pulliahgaru, A. and Srinivasulu, H. (2023) 'Impact of excessive screen time on child development: An updated review and strategies for management', Cureus, 15(6), article e40608. https://doi.org/10.7759/cureus.40608

Plintz, N.B., Ifenthaler, D. (2025) 'Empowering children online: a holistic skills framework for cybersecurity', *Educational Technology Research and Development*, 74, pp. 793–812. https://doi.org/10.1007/s11423-025-10565-z https://doi.org/10.1007/s11423-025-10565-

Liu, N., Long, S. and Martin, F. (2025) 'Systematic review of elementary cybersecurity education: curriculum, pedagogy, and barriers', Journal of Cybersecurity Education, Research and Practice, 2025(1), Article 21. Available at: https://doi.org/10.62915/2472-2707.1265 (Accessed: 16 June 2025).

Chai, L., Xue, J., & Han, Z. (2020). School bullying victimization and self-rated health and life satisfaction: The moderating effect of educational expectations by gender. Children and Youth Services Review, 116, 105252. https://doi.org/10.1016/j.childyouth.2020.105252

Guillén Gámez, F. D., Tomczyk, Ł., Ruiz Palmero, J., & Connolly, C. (2024). Digital security in educational contexts: Digital competence and challenges for good practice. *Computers in the Schools.* Advance online publication. https://doi.org/10.1080/07380569.2024.2390319

Latorre Medina, M. J., & Tnibar Harrus, C. (2023). Digital security in educational training programs: A study based on future teachers' perceptions. *Information Technologies and Learning Tools, 95*(3), 102–111. https://doi.org/10.33407/itlt.v95i3.5204

Patchin, J. W., & Hinduja, S. (2020). Digital self-harm among adolescents. *Journal of Adolescent Health, 61*(6), 761-766.

https://doi.org/10.1016/j.jadohealth.2017.06.012

Pellegrino, A., Stasi, A., & Bhatiasevi, V. (2022). Research trends in social media addiction and problematic use: A bibliometric analysis. *Frontiers in Psychiatry, 13,* 1017506. https://doi.org/10.3389/fpsyt.2022.1017506

Yaseen, K. A. (2022). Digital education: The cybersecurity challenges in the online classroom. *Asian Journal of Computer Science and Technology, 11*(2), 33-38. https://ajcst.co/index.php/ajcst/article/view/3450

Zhansulu, S., Batima, T., Temirov, K., Shalgynbayeva, K., Shamurat, O., &Mukhamedzhanov, A. (2022). Support for children with special educational needs as a socio-pedagogical issue. *Cypriot Journal of Educational Sciences, 17*(7), 2262–2273. https://doi.org/10.18844/cjes.v17i7.7692

Асманова Л.Р. (2021). «Влияние социальных сетей на сознание подростков». *Международный журнал экспериментального образования*, 6(1), с. 74. Available at: https://expeducation.ru/article/view?id=4958 (accessed: 28 November 2025).

Қазетова А.Х., Хасанова И.У., Хәбиева Д.Г., Тоқашова Г.Ж. (2022). «Жасөспірімдердің интернет-ойындарға тәуелділігінің психологиялық аспектілері». Абай атындағы ҚазҰПУ-дың Хабаршысы. Психология сериясы, 72(3). DOI: 10.51889/2161.2022.84.35.017 https://bulletin-psychology.kaznpu.kz/index.php/ped/article/view/975

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Цифрлық білім беру ортасында оқушылардың ақпараттық қауіпсіздік мәдениетін қалыптастыру

Аңдатпа. Бұл мақалада жасөспірімдердің цифрлық ортаға тәуелділігі – қазіргі қоғамның күрделі мәселелерінің бірі – әлеуметтік желілерге тәуелділігі және ақпаратты сыни тұрғыдан талдау дағдыларының төмен деңгейі сипатталған. Ақпараттық қауіпсіздікке

байланысты кибербуллингке, хакерлік шабуылдарға және жеке деректердің шынайы өмірден тыс таралуына бейімділік барған сайын кеңінен таралуда. Ақпаратқа қолжетімділікті қамтамасыз ететін технологиялардың жылдам дамуына қарамастан, қазіргі қоғам жастарды әлеуметтік желілердегі түрлі киберқауіптер мен жағымсыз контенттің ықпалынан қорғап қала алмай отыр. Зерттеу барысында мектеп оқушыларының ақпараттық сауаттылығын анықтау үшін әртүрлі әдістер қолданылды. Теориялық талдау арқылы оқушылардың ақпараттық мәдениеті мен олардың әлеуметтік ортадағы мінез-құлқы психологиялық тұрғыдан зерттелді. Сонымен қатар, психологиялық диагностика, педагогикалық тестілеу, бақылау, модельдеу және материалдарды математикалық өңдеу сияқты әдістер кеңінен пайдаланылды. Зерттеу барысында мектеп оқушыларының ақпараттық сауаттылығы әртүрлі факторлардың ықпалымен динамикалық түрде өзгеретіні анықталды. Бұл процеске әлеуметтік орта мен отбасы құндылықтары тікелей әсер етеді. Мектеп оқушылары арасында жүргізілген зерттеу нәтижелері олардың көпшілігінің әлеуметтік желілерге тәуелді екенін көрсетті. Соның салдарынан олардың оқу белсенділігі төмендеді. Мектеп оқушыларының ақпараттық сауаттылығын дамыту үшін әдістемелік нұсқаулықтар мен бағдарламалар, сондай-ақ оқыту тақырыптары ұсынылды. Әлеуметтік желілердегі контентті талдаудың мысалдары да берілді. Бұл зерттеу мектеп оқушыларының ақпараттық сауаттылығын кешенді теориялық тұрғыдан талдауға бағытталған бірегей жұмыс болып табылады. Ол оқушылардың ақпараттық кеңістікте өз бетінше әрекет ету, киберқауіпсіздік қағидаларын меңгеру және цифрлық трансформация жағдайында сауаттылық таныту қабілеттерін зерттеуге назар аударады. Зерттеу нәтижелері мен ұсыныстар жалпы білім беретін мектептерде, қосымша білім беру мекемелерінде және колледждерде қолданылуы мүмкін.

Түйін сөздер: цифрлық орта, кибербуллинг, ақпараттық қауіпсіздік, цифрлық трансформация, ақпараттық мәдениет, әлеуметтік желілер, киберқауіптер.

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Формирование культуры информационной безопасности школьников в цифровой образовательной среде

Аннотация. Данная работа описывает зависимость подростков в цифровой среде - серьёзную проблему современного общества - от социальных сетей, а также их низкий уровень критического анализа информации. Склонность к кибербуллингу, хакерским атакам и раскрытию личной информации в виртуальном пространстве, приводящему к обострению вопросов информационной безопасности, становится всё более распространённой. Несмотря на ускоренное развитие технологий, обеспечивающих доступ к информации в современном обществе, это не может защитить молодое поколение от различных киберугроз в социальных сетях и влияния негативного контента. В ходе исследования использовались разнообразные методы для определения информационной грамотности школьников. С помощью теоретического анализа информация о культуре школьников и их поведении в социальной среде подвергалась психологическому анализу. Кроме того, широко применялись методы психологической диагностики, педагогического тестирования, наблюдения, моделирования и математической обработки материалов. В ходе исследования было установлено, что информационная грамотность школьников

динамически изменяется под воздействием различных факторов. Социальная среда и семейные ценности оказывают прямое влияние на этот процесс. Результаты исследования среди школьников показали, что большинство из них зависимы от социальных сетей. В результате снизилась их учебная активность. В целях развития информационной грамотности школьников были разработаны методические рекомендации, программы и учебные темы. В дополнение к ним приведены примеры анализа контента в социальных сетях. Исследование является уникальной работой, направленной на комплексный теоретический анализ информационной грамотности школьников. Оно фокусируется на способности школьников самостоятельно действовать в информационном пространстве, овладевать принципами кибербезопасности и демонстрировать грамотность в контексте цифровой трансформации. Результаты исследования и рекомендации могут быть применены в общеобразовательных школах, учреждениях дополнительного образования и колледжах.

Ключевые слова: цифровая среда, кибербуллинг, информационная безопасность, цифровая трансформация, информационная культура, социальные сети, киберугрозы.

References

Alshamrani, S., Abusnaina, A., Abuhama, M., Nyang, D., & Mohaisen, D. (2021). Hate, obscenity, and insult: Measuring the exposure of children to inappropriate comments on YouTube. In *Proceedings of the Web Conference 2021* (pp. 508–515). https://doi.org/10.1145/3442442.3452314

American Academy of Pediatrics. (2018). *Supporting the health care transition from adolescence to adulthood in the medical home.* Pediatrics, 142(5), 128–130. https://doi.org/10.1542/peds.2018-2587

Asmanova, L. R. (2021). Vliianie sotsial'nykh setei na soznanie podrostkov [Influence of social networks on adolescents' consciousness].

Mezhdunarodnyi zhurnal eksperimental'nogo obrazovaniia, 6(1),74. https://expeducation.ru/article/view?id=4958 (accessed November 28, 2025) (in Russian).

Blease, C. R. (2020). Too many "friends," too few "likes"? Evolutionary psychology and Facebook depression. *Review of General Psychology, 19*(1), 1–13. https://doi.org/10.1037/gpr0000030

Lahti, H., Kulmala, M., Liira, N., Mietola, V. and Paakkari, L. (2024) 'Problematic situations related to social media use and competencies for their prevention: Results of a Delphi study', *Scientific Reports*, 14, article 5275. https://doi.org/10.1038/s41598-024-55578-5

Muppalla, S., Vuppalapati, S., Reddy Pulliahgaru, A. and Srinivasulu, H. (2023) 'Impact of excessive screen time on child development: An updated review and strategies for management', Cureus, 15(6), article e40608. https://doi.org/10.7759/cureus.40608

Plintz, N.B. and Ifenthaler, D. (2025) 'Empowering children online: a holistic skills framework for cybersecurity', *Educational Technology Research and Development*, 74, pp. 793–812. https://doi.org/10.1007/s11423-025-10565-z https://doi.org/10.1007/s11423-025-10565-

Liu, N., Long, S. and Martin, F. (2025) 'Systematic review of elementary cybersecurity education: curriculum, pedagogy, and barriers',

Journal of Cybersecurity Education, Research and Practice, 2025(1), Article 21. Available at: https://doi.org/10.62915/2472-2707.1265 (Accessed: 16 June 2025).

Chai, L., Xue, J., & Han, Z. (2020). School bullying victimization and self-rated health and life satisfaction: The moderating effect of educational expectations by gender. Children and Youth Services Review, 116, 105252. https://doi.org/10.1016/j.childyouth.2020.105252

Rajab, M., & Eydgahi, A. Evaluating the explanatory power of theoretical frameworks on intention to comply with information security policies in higher education, 2019, 115 p. https://www.sciencedirect.com/science/article/abs/pii/S0167404818311325?via%3Dihub

Guillén Gámez, F. D., Tomczyk, Ł., Ruiz Palmero, J., & Connolly, C. (2024). Digital security in educational contexts: Digital competence and challenges for good practice. *Computers in the Schools.* Advance online publication. https://doi.org/10.1080/07380569.2024.2390319

Kazetova, A. Kh., Khasanova, I. U., Khabieva, D. G., & Tokashova, G. Zh. (2022). Psikhologicheskie aspekty zavisimosti podrostkov ot internet igr [Psychological aspects of adolescents' dependence on internet games]. *Bulletin of Abai Kazakh National Pedagogical University. Series of Psychology.* https://bulletin-psychology.kaznpu.kz/index.php/ped/article/view/975/609 (in Russian)

Latorre Medina, M. J., & Tnibar Harrus, C. (2023). Digital security in educational training programs: A study based on future teachers' perceptions. *Information Technologies and Learning Tools, 95*(3), 102–111. https://doi.org/10.33407/itlt.v95i3.5204

Patchin, J. W., & Hinduja, S. (2020). Digital self-harm among adolescents. *Journal of Adolescent Health, 61*(6), 761-766. https://doi.org/10.1016/j.jadohealth.2017.06.012

Pellegrino, A., Stasi, A., & Bhatiasevi, V. (2022). Research trends in social media addiction and problematic use: A bibliometric analysis. *Frontiers in Psychiatry, 13,* 1017506. https://doi.org/10.3389/fpsyt.2022.1017506

Qazaqstannyñ jasandy intellektke qatıstı strategiyalyqqadamı:tsifrlyq bolashaqqa jol [Kazakhstan's strategic step toward artificial intelligence: a path to the digital future]. *KISI Analitika.* https://kisi.kz/kazakstannyn-zhasandy-intellektke-katysty-strategiyalyk-kadamy-chifrlyk-bolashakka-zhol (in Kazakh)

Yaseen, K. A. (2022). Digital education: The cybersecurity challenges in the online classroom. *Asian Journal of Computer Science and Technology, 11*(2), 33-38. https://ajcst.co/index.php/ajcst/article/view/3450

Zhansulu, S., Batima, T., Temirov, K., Shalgynbayeva, K., Shamurat, O., &Mukhamedzhanov, A. (2022). Support for children with special educational needs as a socio-pedagogical issue. *Cypriot Journal of Educational Sciences, 17*(7), 2262–2273. https://doi.org/10.18844/cjes.v17i7.7692

Alassaf, M., & Alkhalifah, A. Exploring the Influence of Direct and Indirect Factors on Information Security Policy Compliance: A Systematic Literature Review, 2021, 228 p. DOI: https://doi.org/10.1109/ACCESS.2021.3132574 https://ieeexplore.ieee.org/document/9634004

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