

ENSURING ADOLESCENTS' PSYCHOLOGICAL CYBERSECURITY IN THE CONTEXT OF DIGITAL TECHNOLOGICAL DEVELOPMENT

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Abstract. This article analyzes the socio-psychological factors influencing the psychological cybersecurity of adolescents in the context of the rapid development of artificial intelligence and digital technologies. The study examines the psychological impact of cyberbullying, online psychological manipulation, destructive information flows, violations of personal data privacy, as well as fake and manipulative content generated through artificial intelligence technologies, which adolescents encounter in the digital environment. Furthermore, the role of adolescents' psychological resilience, critical thinking skills, digital competencies, information analysis abilities, and support provided by family and the social environment in ensuring psychological cybersecurity is explored. The article substantiates the importance of socio-psychological approaches aimed at developing safe and responsible digital behavior among adolescents, reducing the negative consequences of cyber threats, and strengthening cooperation among families, educational institutions, and psychology professionals.

Keywords: adolescents, artificial intelligence, digital technologies, psychological cybersecurity, cyber threats, cyberbullying, online manipulation, digital competence, critical thinking, socio-psychological factors.

RAQAMLI TEXNOLOGIYALAR RIVOJLANISHI SHAROITIDA O'SMIRLARNING PSIXOLOGIK KIBERXAVFSIZLIGINI TA'MINLASH

Annotatsiya. Mazkur maqolada sun'iy intellekt va raqamli texnologiyalarning jadal taraqqiyoti sharoitida o'smirlarning psixologik kiberxavfsizligini ta'minlashga ta'sir etuvchi ijtimoiy-psixologik omillar tahlil qilinadi. Tadqiqotda raqamli makonda o'smirlar duch kelayotgan kiberbulling, onlayn psixologik manipulyatsiya, destruktiv axborot oqimi, shaxsiy ma'lumotlar daxlsizligining buzilishi hamda sun'iy intellekt texnologiyalari yordamida yaratilayotgan soxta va manipulyativ kontentning shaxs ruhiyatiga ta'siri yoritiladi. Shuningdek, o'smirlarning psixologik barqarorligi, tanqidiy fikrlash qobiliyati, raqamli kompetensiyalari, axborotni tahlil qilish ko'nikmalari hamda oila va ijtimoiy muhit tomonidan ko'rsatiladigan qo'llab-quvvatlashning psixologik kiberxavfsizlikni shakllantirishdagi o'rni ochib beriladi. Maqolada o'smirlarda xavfsiz va mas'uliyatli raqamli xulq-atvorni rivojlantirish, kiberxavflarning salbiy oqibatlarini kamaytirish hamda oila, ta'lim muassasalari va psixolog mutaxassislar o'rtasidagi hamkorlikni kuchaytirishga qaratilgan ijtimoiy-psixologik yondashuvlarning ahamiyati asoslab beriladi.

Kalit so'zlar: o'smirlar, sun'iy intellekt, raqamli texnologiyalar, psixologik kiberxavfsizlik, kiberxavflar, kiberbulling, onlayn manipulyatsiya, raqamli kompetensiya, tanqidiy fikrlash, ijtimoiy-psixologik omillar.

ОБЕСПЕЧЕНИЕ ПСИХОЛОГИЧЕСКОЙ КИБЕРБЕЗОПАСНОСТИ ПОДРОСТКОВ В УСЛОВИЯХ РАЗВИТИЯ ЦИФРОВЫХ ТЕХНОЛОГИЙ

Аннотация. В данной статье анализируются социально-психологические факторы, влияющие на психологическую кибербезопасность подростков в условиях стремительного развития технологий искусственного интеллекта и цифровых технологий. В исследовании рассматривается психологическое воздействие кибербуллинга, онлайн-психологических манипуляций, деструктивных информационных потоков, нарушений конфиденциальности персональных данных, а также фальшивого и манипулятивного контента, создаваемого с использованием технологий искусственного интеллекта, с которыми подростки сталкиваются в цифровой среде. Кроме того, изучается роль психологической устойчивости подростков, навыков критического мышления, цифровых компетенций, способности анализировать информацию, а также поддержки со стороны семьи и социального окружения в обеспечении психологической кибербезопасности. В статье обосновывается значимость социально-психологических подходов, направленных на формирование у подростков безопасного и ответственного поведения в цифровой среде, снижение негативных последствий киберугроз и укрепление взаимодействия между семьёй, образовательными учреждениями и специалистами-психологами.

Ключевые слова: подростки, искусственный интеллект, цифровые технологии, психологическая кибербезопасность, киберугрозы, кибербуллинг, онлайн-манипуляции, цифровая компетентность, критическое мышление, социально-психологические факторы.

Introduction. In the twenty-first century, the rapid development of information and communication technologies has had a significant impact on almost every aspect of human life. The Internet, social media, mobile applications, and artificial intelligence-based technologies have become an integral part of everyday life. The relationship between younger generations and the digital environment has become increasingly close. Today, adolescents use the Internet not only to obtain information but also for education, communication, entertainment, self-expression, and the development of social relationships.

While digital technologies provide adolescents with many new opportunities, they also create new risks that may affect their psychological well-being and safety. The virtual environment can expose young people to cyberbullying, insults, threats, the disclosure of personal information, manipulative influence, misinformation, and online fraud. Such experiences may have particularly serious psychological consequences during adolescence. At this stage of development, individuals are actively forming their sense of identity, become more sensitive to the opinions of their peers, and have a stronger need to find their place within society.

Unlike negative interactions in traditional offline settings, cyber threats are not limited by time or place. Regardless of whether an adolescent is at home, at school, or elsewhere, they may receive offensive messages, threats, or other harmful content through digital devices. In addition, the rapid spread of online content to a wide audience can intensify its psychological impact on the victim. For this reason, digital safety cannot be understood solely in terms of technical protection measures.

The rapid development of artificial intelligence has also created a need for new approaches to this issue. Although AI technologies are making human activities easier in areas such as education, healthcare, and communication, they can also be misused. Artificial intelligence can be used to create fake images, videos, and voices, spread false information about individuals, or produce manipulative content. These developments place greater demands on adolescents' ability to evaluate information critically and protect themselves psychologically in the digital environment.

Adolescence is a complex stage of development characterized by significant biological, psychological, and social changes. During this period, emotional stability may not yet be fully developed, sensitivity to external evaluation may increase, and the need for acceptance by peers may become particularly strong. As a result, negative comments, offensive messages, or discriminatory attitudes on social media may negatively affect an adolescent's self-esteem and emotional well-being. Psychological cybersecurity refers to an individual's ability to remain protected from psychological threats in the digital environment, recognize potentially dangerous situations, and respond to them appropriately. This concept has a broader meaning than technical security alone. Although protecting passwords and personal information is important, psychological cybersecurity also includes the ability to respond appropriately to cyberbullying, identify manipulative information, recognize dangerous online relationships, and seek help from adults when necessary.

From this perspective, ensuring the psychological cybersecurity of adolescents has become an important socio-psychological issue in the context of the rapid development of artificial intelligence and digital technologies. The purpose of this article is to analyze the main socio-psychological factors influencing adolescents' psychological cybersecurity in the context of artificial intelligence and digital technologies and to examine possible approaches to ensuring their safety in the digital environment. The digital environment has become one of the most important social spaces in the lives of modern adolescents. In the past, the main environments for adolescent socialization were largely limited to the family, school, and peer groups. Today, however, the Internet has become another important factor that directly influences their personal and social development. Through social media and online platforms, adolescents can express themselves, observe the lives of others, exchange ideas, and become part of different social groups. These opportunities can contribute positively to personal development. At the same time, inappropriate or uncontrolled use of the digital environment may also lead to various psychological difficulties. Cyberbullying is one of the major threats to adolescents' psychological safety in cyberspace. Cyberbullying refers to repeated acts of insulting, humiliating, threatening, or psychologically pressuring an individual through the Internet and electronic communication technologies. One of its main dangers is that harmful content can spread rapidly and reach a large audience within a short period of time.

Adolescents who experience cyberbullying may develop feelings of fear, anxiety, loneliness, low self-confidence, and social withdrawal. In some cases, victims may try to hide the problem from their parents or teachers. This can allow the situation to continue and increase the level of psychological pressure experienced by the adolescent. For this reason, ensuring psychological cybersecurity requires attention not only to adolescents' technological knowledge but also to their emotional state, communication skills, and psychological resilience.

New Cyber Risks in the Context of Artificial Intelligence. The development of artificial intelligence technologies has created many new opportunities for society. These include personalized learning, rapid information processing, and support for creative activities. However, as these technologies continue to develop, the risk of their misuse for harmful purposes has also increased. Today, artificial intelligence can be used to create realistic fake images and videos. Such materials may be used to damage a person's reputation, ridicule them, or humiliate them among their peers. This issue is particularly important for adolescents, who may be more psychologically sensitive to negative evaluation and social pressure. In addition, AI-based algorithms analyze users' interests and online behavior in order to recommend personalized content. Although these systems can help users access relevant and useful information, constant exposure to

similar types of content may limit an adolescent's perspective and create a narrow information environment. Another important issue in the age of artificial intelligence is the ability to distinguish reliable information from false or manipulated content. Adolescents should not automatically trust everything they encounter online. They need to develop the habit of checking sources, evaluating information carefully, and strengthening their critical thinking skills.

Therefore, in the modern digital environment, cybersecurity is not limited to the technical protection of computers or mobile devices. It is also closely connected with an individual's ability to work responsibly with information, maintain psychological stability, and think critically when interacting with digital content. The Main Socio-Psychological Factors of Psychological Cybersecurity. Adolescents' safety in the digital environment depends on several interconnected factors. One of the most important of these is digital literacy.

Digital literacy is not limited to the ability to use the Internet from a technical perspective. It also includes protecting personal information, distinguishing between reliable and unreliable sources, avoiding suspicious links, and recognizing potentially dangerous situations online. Adolescents with a higher level of digital literacy are generally better able to identify potential online threats at an early stage.

The second important factor is critical thinking. The modern digital environment is characterized by a large and continuous flow of information, not all of which is reliable. Therefore, adolescents need to be able to evaluate the source, purpose, and credibility of information before accepting it as true.

The third factor is psychological resilience. Individuals with greater emotional stability are generally more capable of responding to negative situations in a calm and rational manner. However, this does not mean that psychologically resilient adolescents cannot be affected by cyber threats. Rather, psychological resilience can help them avoid panic, assess a difficult situation more accurately, and seek appropriate support when necessary.

The fourth important factor is self-control. Regulating the amount of time spent online, avoiding the disclosure of personal information in emotionally charged situations, and not responding immediately to provocative messages are important characteristics of safe digital behavior.

The fifth factor is social support. When adolescents are able to openly discuss their problems with parents, teachers, or other trusted individuals, the negative consequences of cyber threats can be reduced. In contrast, adolescents who feel isolated or find it difficult to ask for help may be more vulnerable to the negative effects of cyberattacks and other harmful online experiences.

The Role of the Family in Adolescents' Cybersecurity. The family is an important social institution in shaping an adolescent's digital behavior. Parents' attitudes toward the Internet and the way they communicate with their children can significantly influence how adolescents behave in the digital environment.

However, supervision alone is not sufficient. Excessively strict control may sometimes encourage adolescents to hide their online activities from their parents. For this reason, building open and trusting communication between parents and children is particularly important.

Parents should provide adolescents with clear and understandable information about online risks, teach them how to protect their personal information, and demonstrate that they are ready to provide support when problems arise. When an adolescent experiences cyberbullying or another dangerous online situation, it is important not to blame them immediately but first to understand what has happened and provide appropriate assistance.

The psychological atmosphere within the family also influences an adolescent's behavior online. Adolescents who feel understood, accepted, and supported by their families are generally more likely to seek help when they encounter difficult or potentially dangerous situations in the digital environment.

Educational institutions also play an important role in ensuring adolescents' psychological cybersecurity. In schools and other educational settings, cybersecurity should not be explained solely within the framework of computer science or technical knowledge.

School psychologists should also actively participate in this process. Through psychological prevention and awareness activities, it is possible to strengthen adolescents' emotional stability, develop constructive approaches to conflict resolution, and promote appropriate responses to cyberbullying.

It is also important to develop a healthy culture of digital communication among peers. Preventing cyberbullying should not be limited to protecting victims. It is equally necessary to prevent aggressive behavior online and encourage adolescents to develop a greater sense of responsibility for the emotional well-being of others.

Preventive efforts aimed at ensuring adolescents' psychological cybersecurity should begin at an early stage. Particular attention should be given to several important areas.

First, adolescents need to develop a sense of digital responsibility. They should understand that every online message, photograph, video, or comment may influence another person's psychological and emotional state.

Second, it is important to develop emotional intelligence and communication skills. Adolescents who understand and manage their emotions and are able to communicate with others in a healthy way are generally more capable of responding rationally to provocative situations.

Third, developing a culture of seeking help is essential. Some adolescents may try to solve their problems independently and may feel embarrassed or reluctant to ask adults for support. Therefore, they should understand that asking for help is not a sign of weakness but a reasonable and responsible way of dealing with a difficult situation.

Fourth, adolescents need sufficient knowledge about artificial intelligence and emerging digital technologies. They should understand that materials created with the help of artificial intelligence do not always reflect reality and should

therefore be approached critically.

No.	Key area	Main focus	Expected outcome
1	Digital responsibility	Adolescents should understand that every online message, photograph, video, or comment may influence another person's psychological and emotional state.	Responsible online behavior and greater awareness of the consequences of digital actions.
2	Emotional intelligence and communication skills	Adolescents should learn to understand and manage their emotions and develop healthy communication skills.	A more rational response to provocative situations and healthier communication with others.
3	Culture of seeking help	Adolescents should understand that asking parents, teachers, or other trusted adults for help is not a sign of weakness but a responsible way of dealing with difficult situations.	Increased willingness to seek support and earlier prevention of potential psychological risks.
4	Knowledge of artificial intelligence and emerging digital technologies	Adolescents need to understand that AI-generated materials do not always reflect reality and should be evaluated critically.	Improved critical thinking and a reduced risk of being influenced by false or manipulated information.

In conclusion, ensuring psychological cybersecurity requires a balanced combination of technical protection, psychological preparedness, and social support. The rapid development of artificial intelligence and digital technologies has introduced new opportunities into the lives of adolescents while also creating new challenges related to their psychological safety. Cyberbullying, online manipulation, harmful information, the misuse of personal data, and AI-generated fake content are among the major factors that may threaten adolescents' safety in the digital environment. Adolescents' psychological cybersecurity cannot be ensured through technical protection measures alone. Digital literacy, critical thinking, psychological resilience, self-control, and social support also play an important role in this process. The development of these factors can help adolescents recognize potential risks in the digital environment and respond to them appropriately.

The findings suggest that ensuring adolescents' psychological cybersecurity requires a comprehensive approach. Effective protection depends on cooperation between families, educational institutions, psychologists, and other social institutions. Trusting communication and support from parents, the development of digital literacy in educational institutions, and stronger psychological prevention programs are among the key directions for protecting adolescents from modern cyber threats. As artificial intelligence technologies continue to develop, new forms of digital risks may also emerge. Therefore, the continuous study of adolescents' psychological cybersecurity, the development of preventive programs adapted to emerging threats, and the promotion of a culture of safe behavior in the digital environment will remain important scientific and practical priorities.

References

- [1] Livingstone S., Smith P. K. Annual research review: Harms experienced by child users of online and mobile technologies // Journal of Child Psychology and Psychiatry. – 2014. – Vol. 55, № 6. – P. 635–654.
- [2] Patchin J. W., Hinduja S. Bullying Today: Bullying in a Digital Age. – Thousand Oaks, CA: Corwin, 2015.
- [3] Kowalski R. M., Limber S. P., Agatston P. W. Cyberbullying: Bullying in the Digital Age. – Malden, MA: Wiley-Blackwell, 2012.
- [4] Odgers C. L., Jensen M. R. Annual research review: Adolescent mental health in the digital age // Journal of Child Psychology and Psychiatry. – 2020. – Vol. 61, № 3. – P. 336–348.
- [5] UNESCO. Guidance for Generative AI in Education and Research. – Paris: UNESCO, 2023.
- [6] UNICEF. The State of the World's Children 2021: On My Mind. – New York: United Nations Children's Fund, 2021.
- [7] OECD. Children and Young People's Mental Health in the Digital Age. – Paris: OECD Publishing, 2021.
- [8] Husanov A. M. O'smir o'quvchilarda kiberxujumlarni keltirib chiqaruvchi psixologik omillar // Eurasian Journal of Social Sciences, Philosophy and Culture. – 2023. – Vol. 3, № 2. – B. 11–16.
- [9] Polvanova D. T. Analysis of the Factors Contributing to the Prevalence of Cyberbullying Threats // Journal of Social Sciences and Humanities Research Fundamentals. – 2025. – Vol. 5, Issue 6. – P. 30–37.
- [10] Madrahimov A. Umumiy o'rta ta'lim maktablarida bulling holatlarini sotsiologik tahlili // O'zMU xabarlar (ACTA NUUZ). – 2025. – B. 117–119.
- [11] Karimov E. Kiberbulling hodisasining turlari va namoyon bo'lishi // O'zMU xabarlar (ACTA NUUZ). – 2023. – B. 110–113.