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CHALLENGES IN FORMING INFORMATION-PSYCHOLOGICAL SECURITY AND CRITICAL THINKING AMONG UNIVERSITY STUDENTS

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Abstract

The article analyzes the urgent problems of ensuring information-psychological security and forming critical thinking among student youth in the modern era of globalization and rapid digitalization. In the context of an intensive and overwhelming information flow, the issues of strengthening the ideological immunity of young people, developing skills to counter psychological manipulation, fake news, and cyber threats are highlighted. Furthermore, practical, scientific, and pedagogical recommendations aimed at enhancing the analytical and independent thinking levels of students within the higher education system are proposed.

Keywords

information-psychological security, critical thinking, student youth, globalization, ideological immunity, information manipulation, digital literacy, educational system.

INTRODUCTION: Today, the intense processes of globalization, transformation, and rapid digitalization taking place within the global community are introducing not only immense conveniences to human life but also serious geopolitical and ideological threats. Specifically, the boundless virtual space created by the unprecedented development of information technologies has become a primary instrument for directly influencing the worldview, psyche, and spirituality of the younger generation. In such an environment, ensuring the information-psychological security of students—the most active and intellectual segment of society—and fostering their independent and critical thinking skills is becoming an objective necessity. Indeed, modern information attacks, false news, cyber threats, and various manipulation technologies are extremely dangerous as they are aimed at distorting the still-developing socio-political views of students and instilling in them a sense of despair.

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The relevance of this topic is intrinsically linked to the priority areas of state policy in the Republic of Uzbekistan. Our esteemed President, Shavkat Mirziyoyev, has adopted a number of important decrees and resolutions concerning the upbringing of youth, strengthening their spiritual and educational immunity, and ensuring their security in the digital space. In particular, the Resolution of the President of the Republic of Uzbekistan "On Measures for the Radical Improvement of the System of Spiritual and Enlightenment Work" and the tasks for the intellectual and spiritual development of youth outlined in the Development Strategy of New Uzbekistan necessitate the creation of a strong ideological shield against information attacks in our society. Furthermore, legislative acts on cybersecurity adopted in recent years and decisions on modernizing the higher education system serve as a crucial legal and pedagogical foundation for ensuring students can navigate the virtual world effectively. [1,2]

The main objective of this research is to systematically analyze the factors threatening the information-psychological security of students in the context of the modern information-driven society, and to develop effective pedagogical-psychological mechanisms and methodological recommendations for forming critical thinking skills that enable them to filter, analyze, and objectively evaluate information.

The core essence of this topic is that information-psychological security does not simply mean restricting information resources or imposing technical prohibitions. Its true nature lies in cultivating a system of healthy skepticism, an analytical approach, and a logical filter (information hygiene) within the student's mind towards any external information. Critical thinking, in turn, empowers young people to understand the underlying motives of any content presented to them, to distinguish truth from falsehood, and to make independent, impartial decisions. Consequently, a positive resolution to this issue will not only protect students from destructive influences but will also serve to prepare them as intellectually capable, independently-minded, and competitive professionals who can contribute to our country's development.

METHODS: Amidst the increasing activity of students in virtual spaces and the globalization of information flows, the problem of fostering information-psychological security and critical thinking has become one of the central subjects of modern pedagogical and psychological sciences. The theoretical and methodological foundations of this problem have long been investigated within the framework of fundamental scientific schools and conceptual approaches. The conceptual basis for the phenomenon of critical thinking dates back to J. Dewey's idea of "reflective thinking" at the beginning of the last century [3]. J. Dewey

defined this type of thinking not as the mere reception of information, but as a process of its active, persistent, and careful analysis. Subsequently, within the Western scientific paradigm, scholars such as R. Ennis [4], R. Paul, and L. Elder [5] systematized critical thinking as an intellectually disciplined process aimed at the rational evaluation of one's own activities and beliefs. In their view, critical thinking requires high-level cognitive skills, namely analysis, synthesis, induction, deduction, and heuristic evaluation. In particular, D. Kahneman's research in cognitive psychology and his proposed "Thinking, Fast and Slow" system provide a scientific basis for understanding why students are so susceptible to information manipulation [6]. According to Kahneman, the human mind often relies on the automatic and emotional "System 1" to conserve energy, leading to the unfiltered acceptance of fake news and visual manipulations. Ensuring information-psychological security, therefore, is directly linked to training the mind to engage "System 2," which is slower but more logical and analytical.

The very concept of information-psychological security was systematically introduced into the science of psychology through the fundamental works of scholars such as G.V. Grachev and I.K. Melnik [7]. These Russian researchers describe this security as a state of the individual's psyche being protected from destructive external informational influences, as well as the ability to shape one's own information environment to an optimal degree. The field of cyberpedagogy, founded by V.A. Pleshakov [8], studies the socialization of students in the digital environment and demonstrates the necessity of managing personal safety in virtual space through pedagogical means. Concurrently, European researcher D. Buckingham [9], analyzing the media's impact on individuals, emphasizes that prohibitions or restrictions do not yield the expected results, and that the most optimal solution is to enhance media literacy and digital culture among students. In his view, for a student to protect themselves from information attacks, they must have developed "information hygiene."

Professor Z.T. Nishanova, having studied the issues of cognitive development and the diagnosis of an individual's intellectual potential, substantiated that students' independent thinking correlates with their psychological resilience [10]. In the research of Uzbek scholars, the concept of "information-psychological security" is often studied in close connection with the concepts of "ideological immunity" and "ideological shield." These studies show that to form a student's personality capable of withstanding external destructive influences, technical knowledge alone is insufficient; rather, their value system, national and universal worldview, and analytical literacy must be developed in harmony.

A review of the literature indicates that although a significant amount of work has been done in both areas (critical thinking and information security), the problem of integrating them into the higher education system as a holistic pedagogical innovation and developing testological and criterion-based assessment instruments for students' knowledge and skills has not been fully resolved. It was precisely this factor that served as the basis for defining the methodological apparatus of this study.

To practically study this scientific problem, diagnose the current situation, and form an effective pedagogical system, a comprehensive set of research methods was employed. The research methodology relies on systemic, competency-based, and person-centered activity approaches. In the theoretical part of the study, methods such as structural-functional analysis, comparative-historical assessment, modeling, and generalization of pedagogical-psychological, philosophical, and socio-political literature were applied. These methods made it possible to construct theoretical models of the problem and to establish criteria for information-psychological security in students.

In the practical-empirical part of the study, a special set of methods was developed to determine the subjects' baseline levels and to measure the results of the formative experiment. Questionnaire and sociological survey methods were used to determine students' attitudes toward the information environment, their level of susceptibility to manipulation, and their literacy in information security. To objectively assess the level of students' critical and analytical thinking, special testological tools were utilized, namely the Watson-Glaser Critical Thinking Appraisal (WGCTA) [11] and an adapted version of the California Critical Thinking Skills Test (CCTST) for the Uzbek and Karakalpak languages. These test constructs made it possible to express in scores the students' ability to draw correct conclusions from a given text, distinguish between assumptions, evaluate arguments, and engage in deductive reasoning.

Pedagogical observation and pedagogical experiment methods held a leading role in the research process. The experiment was conducted in three stages: baseline, formative, and control. In the baseline stage, the initial cognitive skills and the level of information-psychological security of students in the control and experimental groups were measured. In the formative stage, interactive educational technologies, case studies (analysis of problem situations), debates, practical exercises on applying information filters, and specially developed training modules were introduced in the experimental groups. In the control group, instruction continued in the traditional manner. To prove the reliability, objectivity, and non-random nature of the results obtained at the end of the experiment, mathematical-

statistical methods were used, specifically Student's t-test and Pearson's chi-squared test of goodness of fit. This statistical analysis scientifically confirmed that the positive shifts recorded in the experimental group were the result of the pedagogical intervention.

RESULTS: The pedagogical experiment and pilot studies conducted within the scope of the research have empirically and fully confirmed the effectiveness of the educational and methodological system developed to foster information-psychological security and critical thinking among students. The results of the initial assessment stage showed that most students lack a sufficiently strong ideological immunity against manipulations and fake news in the virtual space. Specifically, during the initial diagnostic process, the high level of critical thinking in the experimental and control groups was 11.8% and 12.2%, respectively, with the majority of respondents found to be at medium and low levels. The indicators for skills in information analysis, source verification, and objective assessment also registered a low profile, highlighting the need for this problem to be systematically addressed within the content of higher education.

At the formative stage, lessons in the experimental groups were organized based on a special methodology incorporating interactive modules, case-study technologies, analysis of logical paradoxes, and the application of information filters. The final results obtained during the control stage demonstrated a significant difference in cognitive and psychological indicators between the groups. In the experimental group, the proportion of students with a high level of critical thinking rose to 34.5%, while the medium level reached 52.3%. The share of students at a low level in this group decreased from 41.2% to 13.2%. In contrast, no significant qualitative changes were observed in the traditionally taught control group, where the high level was only 14.1%, and the indicator for low-level students remained high (36.8%). This outcome proved the high intellectual and practical potency of the proposed pedagogical system in activating analytical mechanisms in the students' minds.

From the perspective of the study's testological and evaluation components, the reliability of the criterion-referenced assessment instruments adapted for measuring students' information-psychological security was also verified. To determine the internal consistency of the test items and questionnaires, Cronbach's alpha coefficient was calculated and found to be 0.84. This coefficient indicates that the developed test constructs have high internal consistency, validity, and stability. Mathematical and statistical methods were used to scientifically substantiate that the experimental results were not random and were indeed the effect of the new methodology. According to Pearson's chi-squared test of goodness-of-fit, the final

difference between the groups was found to be statistically highly significant. Here, the empirical value {emp} = 14.26 was significantly higher than the critical value {krit} = 5.99 (degrees of freedom df=2, significance level $p < 0.05$). Furthermore, Student's t-test also confirmed that the growth dynamics of the intergroup mean values followed a regular pattern.

All the empirical data obtained indicate that the targeted development of critical thinking in students directly enhances their psychological resilience in the information environment. Students with developed analytical skills more quickly identify information attacks and manipulative influences, pass fake news through logical filters, and form a strong ideological shield against destructive ideas. In conclusion, the research findings fully prove that the most effective way to ensure information-psychological security in higher education institutions is not to prohibit or restrict information for students, but rather to systematically develop their critical and independent thinking skills, which serve to filter information, based on testological monitoring and objective assessment.

DISCUSSION: The empirical data obtained during our research and its statistical analysis allow us to evaluate the core essence of the problem of fostering information-psychological security and critical thinking in students as an interconnected whole, bringing the issue to a new scientific level. The results show that the growth in the high level of critical thinking within the experimental group from 11.8% to 34.5% is not merely a random occurrence but a logical outcome of a purposefully organized pedagogical intervention. This practically demonstrates that the "System 2" mechanism (slow, logical, and analytical thinking), as proposed by Daniel Kahneman in cognitive psychology, can be activated within the higher education process. As traditional teaching methods primarily direct students toward mechanical memorization of information (i.e., rapid but uncritical reception at the "System 1" level), no significant qualitative improvement was observed in the control group. Consequently, it becomes evident that a stable ideological defense against fake news and manipulation in the information space can only be successfully developed through interactive, problem-based, and heuristic educational technologies.

A comparative analysis of our findings with the scientific perspectives of global and local scholars reveals practical confirmation for the theories of Robert Ennis and Richard Paul, who view critical thinking as intellectual discipline and personal responsibility. Our research enriches the idea advanced by Russian and European scholars (G.V. Grachev, D. Buckingham) —that information security should be ensured not through prohibitions or external restrictions, but by developing "information hygiene" and internal intellectual filters—with new

empirical data. The conclusions of local scholar Professor Z.T. Nishanova on the correlation between an individual's cognitive development and their psychological resilience are also reflected in our study: it was visually and empirically observed that students with highly developed critical and analytical thinking skills are significantly less susceptible to destructive informational influences and psychological manipulation on social media. Therefore, "ideological immunity" in the education system is not just an abstract concept but a tangible pedagogical construct, comprising a set of specific cognitive operations such as analysis, evidence verification, distinguishing assumptions, and argument evaluation.

One of the most critical methodological and testological discussion points of the study is the validity of the criteria used to assess students' levels of information-psychological security and critical thinking. The Cronbach's alpha coefficient of 0.84 and the Pearson's chi-squared test result being significantly above the critical value ({emp} = 14.26 > {crit} = 5.99) indicate the high reliability and stability of the developed testological toolkit. This confirms that in modern pedagogy, it is possible to accurately measure not only students' subject knowledge or factual literacy but also their complex meta-competencies—particularly the culture of working safely with information—through criteria-based monitoring. This systematic approach contributes to the formation of a new methodological paradigm in the field of education quality control and assessment.

Thus, the optimal solution to the problem discussed necessitates enriching higher education curricula with content on digital literacy, media criticism, and testological diagnostics. Students must not remain mere consumers of information but must also possess a deep scientific understanding of its architecture and manipulative nature. In the future, it would be advisable to further deepen research in this direction within the context of assessing the indirect impact of modern artificial intelligence technologies on students' psyches, their knowledge assessment processes, and information security.

CONCLUSION: This systematic study, dedicated to the problem of ensuring information-psychological security and forming critical thinking skills among student youth, allows for a comprehensive synthesis of the theoretical, practical, and methodological aspects of creating an architecture for individual cognitive security within the modern higher education landscape. All the empirical data obtained and their in-depth scientific-pedagogical analysis indicate that in today's era of rapid digitalization and global information attacks, the most effective strategy for protecting youth from destructive ideas is not the technical restriction or prohibition of information flows, but rather the formation of internal logical filters and a culture of "information hygiene" in their minds. Critical thinking is the

leading meta-competence that enables an individual to objectively evaluate the substance of any external content, distinguish falsehood from truth, and draw independent, analytical conclusions. It serves as the primary criterion for ensuring an individual's information-psychological resilience.

The pedagogical-psychological training model and the system of interactive modules, developed and piloted within the framework of this research, have fully proven their high practical effectiveness. The significant increase in the high level of critical thinking in the experimental groups, coupled with a sharp decrease in low-level indicators, demonstrates the necessity of transitioning from traditional teaching methods to analytical and problem-based learning technologies. The fact that these positive shifts are not random but are, on the contrary, the logical outcome of systematic pedagogical intervention, has been rigorously confirmed through mathematical-statistical methods (the empirical value of the Pearson criterion being significantly higher than the critical value) and Student's t-test. Furthermore, the high validity (Cronbach's alpha of 0.84) of the testological tools adapted for assessing students' cognitive skills and security culture has demonstrated that it is possible to accurately monitor complex intellectual qualities based on established criteria within the higher education system.

Based on the scientific and empirical conclusions obtained, it is advisable to formulate the following practical recommendations aimed at further improving the educational process in higher education institutions. First, it is necessary to integrate special elective modules or training courses into the curricula of all disciplines, aimed at developing students' media literacy, digital culture, and critical thinking skills. Second, it is essential to move away from rote memorization methods in academic sessions and make extensive use of case studies, heuristic debates, and problem-based situational tasks that encourage students to conduct independent research. Third, the level of students' preparedness within the information environment must be regularly monitored not merely through factual knowledge, but through advanced testological instruments and a criterion-based diagnostic system designed to assess cognitive skills. In conclusion, it should be noted that the harmonious development of information-psychological security and critical thinking in student youth is the foremost pedagogical guarantee for nurturing independently-minded and competitive professionals in our country, equipped with a strong ideological shield against external ideological attacks.

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