

# Technology for the Development of Personal Information Security among Students

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## **Annotation:**

The article identifies the negative aspects of the use of information technologies in the educational process, and substantiates the need to ensure the information security of students in an electronic educational environment.

**Keywords:** information technology, digital technology, information security, cybersecurity, cybercrime.

**Introduction.** Digital literacy is the basis for the productive and safe use of digital technologies to solve practical problems in the context of general digitalization and digital transformation of education. Lack of digital literacy creates a threat to physical and psychological health, social well-being of the individual, limits a person’s ability to exercise civil rights, receive government services, online communication and collaboration, and exposes them to the dangers of cyber fraud and information security violations. Computer science as an academic discipline has broad didactic potential in the development of digital literacy. However, the content of computer science requires its modernization in terms of the digital component.

With the development of modern technologies, conditions have emerged for the emergence of a new type of crime committed in cyberspace (cybercrime). Most of these crimes are economic and can cause real harm to property relations and the normal order of business or other economic activity. In the science of criminal law and criminology, there are active discussions about the concept, nature, types of cybercrimes and measures to counter them.

This new type of crime must be countered with effective measures, including criminal law measures. However, the current domestic criminal legislation does not always manage to respond to the challenges of modern crime. Therefore, new, truly dangerous acts committed in cyberspace

often remain outside the scope of criminal law, and in relation to already criminalized acts, significant problems arise in their legal assessment and bringing the perpetrators to justice. This circumstance determines the relevance of the chosen topic.

**Research problem.** How to develop information security skills in social networks among students.

**Purpose of the study.** To analyze the process of developing information security skills in social networks among students of a professional educational organization when teaching professional disciplines and to develop an educational and methodological complex to increase the efficiency of this process.

**The object of the study** is the process of professional training of students.

**The subject of the study** is the development of information security skills in social networks among students when teaching professional disciplines.

To achieve the research goal, it is necessary to solve a number of interrelated problems:

- analyze threats and ways to protect personal information on social networks;
- explore the essence of information security skills in social networks;
- develop an electronic educational and methodological complex as a means of developing readiness for information security in social networks;
- develop methodological recommendations on information security in social networks for students;
- Check the level of skills and analyze the results.

### **Main part.**

Information security is a set of methods and means of protecting personal information from attacks by hackers on various technical devices, for example, a computer, telephone, tablet and other electronic computing systems [2].

The development of information technology and social networks is growing and developing every year; modern people cannot imagine their life without a telephone or personal computer. The era of global informatization is gradually coming [1]. The Internet is a global network that provides communications for sending email messages, transferring files, connecting to other computers, and accessing information that exists in a variety of forms. Adults and children have a wide range of opportunities on the Internet to express their individuality, learn and educate themselves, which is why young people in particular are one of the fastest growing groups of Internet users. Despite the positive aspects, issues of information security for young people arise. An important task both for Uzbekistan and for all developed countries of the world is to protect young people from Internet threats, but the Internet cannot be controlled, so many unresolved various problems arise [3].

It is worth noting that information security is part of the concept of cybersecurity. Cybersecurity has a narrower focus and studies the protection of important data, while information security studies everything about the security of information and data in general. The word "information" comes from the Latin word "informatio", which means explanation, statements, awareness. The word information itself has recently begun to turn into a scientific term. Before that, information was perceived as something that is present in language, writing, or transmitted during communication [6].

Cybercrime is a criminal activity whose main objective is the unlawful use of a computer, computer network or network device for the purpose of obtaining material gain [2].

## Analysis and results.

The process of developing any skill consists of several stages.

- structuring (learner mastery of the structure and all operations of action);
- automation (bringing the skill to the required speed, ease, quality of execution);
- reliability (“hardening” of a skill by complicating conditions and difficulties).

Exercises (cases) help in developing the skills of future specialists, develop creative thinking, logic and sequence of actions when dealing with threats on social networks; when passing cases, students learn from the experience of situations and try on the role of a victim or attacker, thereby honing information security skills in social networks.

Exercises (cases) are selected accordingly: first – “for correctness”, then – “for correctness and speed”, finally – “for reliability, while maintaining correctness and speed” [7].

Based on the analysis of theoretical works on this issue, we identified indicators and also selected methods for studying the development of information security skills in social networks and presented them in Table 1.

**Table 1. Indicators and research methods**

<b>Indicators</b>	<b>Study methods</b>
Mastery by the student of the structure and all operations of action	Solution of case tasks for correctness
Bringing the skill to the required speed, ease, and quality of execution	Solving case tasks for accuracy and speed
Honing a skill by increasing the complexity of conditions and difficulties	Solving case tasks for reliability while maintaining accuracy and speed

**Table 2. Rating generation table**

<b>Grade</b>	<b>Evaluation methods</b>
Great	The structure of the case is fully reflected, maintaining speed and correctness
Fine	The structure of the case is correctly reflected while maintaining speed
Satisfactorily	The structure of the case is reflected
Unsatisfactory	The case structure is not reflected, the task is not completed

The study was carried out in 3 stages:

- *ascertaining stage*. The goal is to identify the level of information security skills of students, analyze the results obtained, divide the groups into experimental and control;
- *formative stage*. The goal is to develop an electronic educational and methodological complex, a survey, a lecture, practical work, a system of cases on developing information security skills in social networks and implement it in the experimental group. The control group is engaged according to the teacher’s usual planning;
- *control stage*. The goal is to identify the achieved level of information security skills in social networks after implementing a cycle of classes in the experimental and control groups. Analyze the results obtained. Develop recommendations for students on the use of social networks.

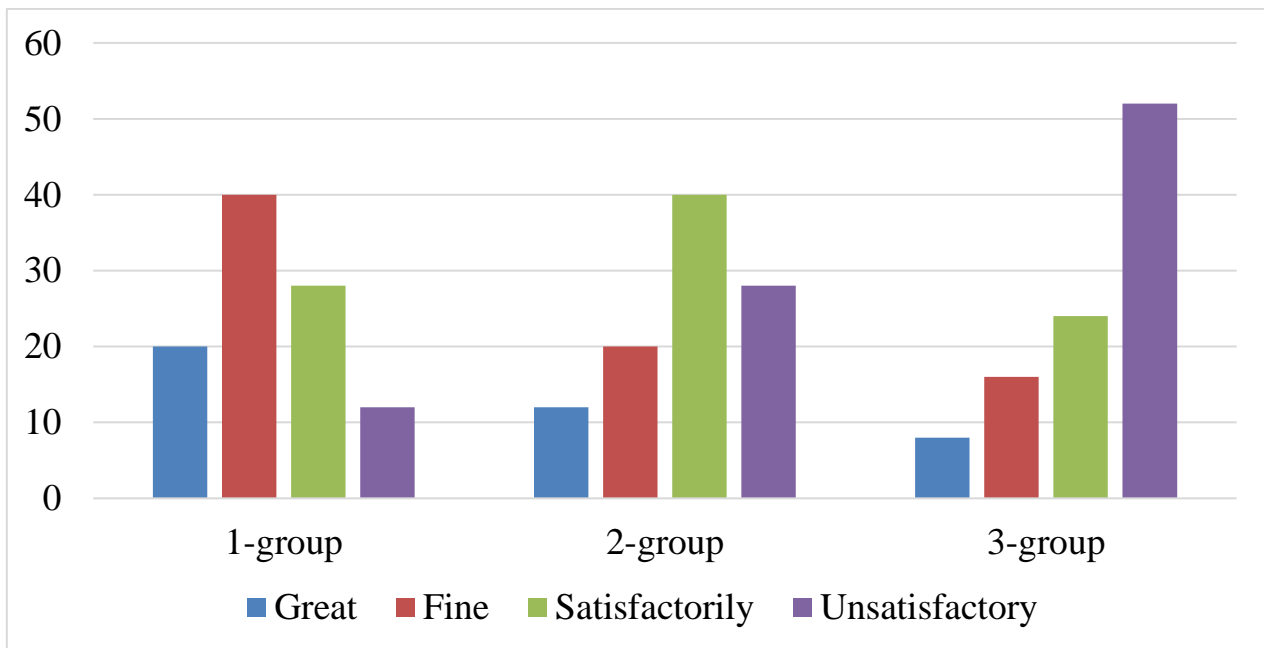
The analysis of the results of the study on case assignments is presented in Table 3.

**Table 3. Group results (ascertaining stage of the study)**

Indicators	Ratings			
	Great	Fine	Satisfactorily	Unsatisfactory
	%	%	%	%
Mastery by the student of the structure and all operations of action	20	40	28	12
Bringing the skill to the required speed, ease, and quality of execution	12	20	40	28
Honing a skill by increasing the complexity of conditions and difficulties	8	16	24	52

By summing up the scores for all criteria, we obtained data on the formation of information security skills in social networks. The following results were obtained: the number of excellent grades for the first indicator of information security skills was 20% of students; 40% of students received good grades, 28% received satisfactory grades, and by summing up the scores for all criteria, we obtained data on the formation of information security skills in social networks. The following results were obtained: the number of excellent grades in the first indicator of information security skills for 20% of students; 40% of students received it well, 28% received it satisfactorily, and 12% of students received it unsatisfactorily. For the second and third indicators, as we can see in Table 2, the scores are noticeably reduced, since these indicators require a higher level of information security skills in social networks.

**The graphical results of the study on case tasks are presented in Figure 1.**



**Figure 1. Results of developing information security skills in social networks in groups at the stage of ascertaining research.**

The graphical drawing gives an idea of the predominantly developed indicators of information security in social networks. A small part of the group knows how to work in social networks; at the ascertaining stage, 14% of students received excellent grades, 26% good, 30% satisfactory, and 30% unsatisfactory. They know how to use social networks, most have about 3 active social pages, but, unfortunately, most of the students are not aware of the threats on social networks.

Theoretical studies draw a parallel between the formation of information security skills in social networks and information security competencies.

Indeed, we can highlight the generalities:

developing the ability to critically comprehend any information, and then constructively transform and analyze it;

- formation of stable moral traits of the student's personality;
- formation of skills of selectivity to external influences.
- it is necessary to develop the ability to compare one's own intentions and actions with the norms and rules existing in society.

To achieve the goal of developing information security skills in social networks in information security classes, we have chosen the following forms of work:

- formation of information security in classes during the study of program material;
- formation in specially conducted lessons devoted to the problem of formation of information security.

The following means of formation have been identified:

- educational texts;
- Internet sources;
- formation through developed methodological recommendations
- formation of skills with specially designed lectures and cases.

The results of the ascertaining stage of the experiment indicate that information security skills in social networks are not sufficiently developed, and therefore it is necessary to use additional pedagogical tools, namely an electronic educational and methodological complex.

### **Conclusion:**

The indicators and research methods used allowed us to determine the level of development of information security skills in social networks.

The results of the formative stage of the experiment showed that the formation of information security skills in social networks occurs more effectively in the experimental group, where an electronic educational and methodological complex was implemented, which includes, along with lecture and practical material, a system of case tasks. Students are aware of how to protect themselves on social networks and what to do in the event of an information threat.

The problem of information security and cybersecurity in social networks really exists, violating the state of protection of the vital interests of the individual, society, and state in the information sphere from external and internal threats, hence the need for active development of information security issues.

For the effective and complete development of a student, it is not necessary to create an appropriate information environment; it is necessary to teach how to live in an information environment, see the dangers emanating from information, and be able to anticipate and respond to an information threat.

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