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Revisiting the study of computer ethics in distant learning

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The modern world, as well as modern higher education can be hardly imagined without information technologies use. In the late 20-th and early 21-st century the computerization of society has covered all branches of industry, science, economy, culture and education. This process is still continuing and intensifying a lot in recent years. That is why highly skilled professionals must have sufficient computer skills and constantly improve the level of their knowledge.

To meet the demands of the modern labor market in preparing future professionals a reform of higher education system should be implemented. The main component of the modernization of education can be considered a new model of educational activity with the extensive use of information and communication methods. This raises the need for the application of such educational technologies that are focused on active methods of knowledge gaining and its practical use. One of such

educational technologies is a personal-oriented educational technology, developed and implemented in the educational process at the Faculty of International Education of National Technical University «Kharkiv Polytechnic Institute» (NTU «KhPI»). Personal-oriented education with elements of distance learning reflects the problematic areas of training, closely connected with the main principle of humanistic pedagogy. It is not only the amount of knowledge students possess, it is also important how well they will be able to apply this knowledge for solving specific life or professional problems.

One of the most effective forms of realization of personal-oriented education is the introduction of elements of distant learning. In a global society computerization of modern specialist must possess not only a high level of technical competence in computer technologies, but also in strict discipline in dealing with them as prerequisites for compliance with the scientific information ethics [1]. That is why the issues of intellectual property, information security and protection from plagiarism problems when using the Internet become very important in education, science, intellectual society as a whole.

Analysis of publications on computer ethics in terms of distant learning allows you to make a general conclusion that the problem is in the focus of attention of researchers and is the subject of serious scientific debate. In the works of such renowned scientists as E. Aggatstsi, I. Alekseeva, Yu. Baturin, A. Glinski, P. Drucker, V. Zabolotsky, V. Lisichkina, A. Picchu, N. Ryzhkov, V. Samokhvalova, V. Khozikova, L. Shelepina, R. Yusupov and others the need of a new ethical paradigm of information and technical reality creation and development of moral qualities of the experts activity are noted.

Computer ethics is defined as a set of moral principles and rules governing the relationship between people, established on the basis of their work in the computer environment. The problem of formation of

computer ethics and professional studying of computer behavior specifics, both individual users and social groups in modern conditions has particular importance. Age of information technology requires every member of a civilized society to know and comply with the basic rules and regulations of computer ethics, which is one of the elements of the new computer culture.

Actual problems of information behavior specialists studying determine that situations, generated in the context of information technologies often make morally significant such phenomena that were previously beyond moral codes and defined by the natural laws. Today the computer's capabilities to resolve certain conflicts, divining some natural phenomena increasingly fall into the orbit of moral judgment. Everything connected with computer activities, protection of intellectual property rights and the fight against plagiarism on the Internet, should be under strict control of human ethics [2].

Problems of computer ethics formation, both for individual users and social groups are considered by the international community as urgent. Related approaches and methods are carefully studied by researchers around the world; many countries have enacted laws and international agreements to prevent theft and information security. Scientists constantly pay great attention to what is necessary for appropriate standards of behavior forming in the information space, associated with social or professional status. At present it is required «not the possession of specific information itself, but the ability of information surf, new technologies acquiring, self-education, and being a moral computer user» [3, p. 7].

Basically, teaching students of computer ethics basics and their professional behavior standards forming is carried out by faculty professors in basic academic disciplines. An example of this approach, in particular, can serve the Chair of Information Technology and Automated Systems of Moscow Institute of Electronics and Mathematics

of National Research University «Higher School of Economics» (ITAS MIEM «HSE») which prepares system programmers. Almost from the first-year students consistently are taught how well-designed reports in accordance with state standards and requirements for the design of technical documentation, and in this way their holistic approach to the formulation of the problem, its analysis, implementation and documentary support is formed. Software design codes students' education according to «code style» produces necessary self-discipline and professional competence. In the training process primarily open source software systems consciously are used to foster students' negative attitude toward software piracy. In addition, within some distant learning courses independent work of students on projects in groups is provided, and students learn the basics of working with the joint development systems (e. g. Github) that trains future professionals to work in a team and provides them with communicational ethics.

At the same time in most universities the problems of computer ethics are still paid little attention, and they are required to study in only a few of the higher educational institutions. Educational technologies for their implementation as well as some of theoretical problems in future specialists' computer ethics formation are insufficiently developed; questions of rational choice of content and training forms and their scientific and methodological support remain open. There is an insufficient justification of transition pedagogical ways from the traditional reproductive specialists training to individual creativity, aimed at the formation of moral and ethical standards, including the work in computer environment. There is a contradiction between the modern requirements for specialists training in informatics and teaching methods applied.

A computer ethics distant learning course involving makes it possible to solve this contradiction. Active forms of learning,

such as case study, brainstorm, role play, etc. stimulate cognitive activity of students and promote the formation of necessary competence in computer ethics.

The purpose of this study is analyzing the ways of developing and implementing the effective teaching methods of basics in computer ethics when applying distant learning as a psychological and pedagogical problem.

Practice shows that the case study method may serve as a basis for successful involving of computer ethics in distant learning. Pedagogical effect within the case study approach is stipulated by activity of the students and communicative nature of learning. This approach allows forming not only a knowledge bearer, but also a creative person, able to use this knowledge in any sphere.

In this case, knowledge, gained by the students acts as an active agent for further advancement in training. The most effective way of knowledge acquiring is reached not via its presenting by a teacher, but by personal research activity.

Case study method use realizes one of the most effective educational technologies. A case is always a creative challenge every time to be solved in new conditions as the situation of uncertainty precludes the way of ready-made solutions finding. Every decision under uncertainty is the result of creative activity, based on the knowledge use in a new way.

Case study meets the requirements of the problem-based learning which provides maximal cognitive activity of students and their direct participation in the learning process [4].

A new course of computer ethics, based on case study method is developed at NTU «KhPI». In particular, the cases consisting of 10–12 micro-real situations are proposed. The texts for cases provide such basic requirements as conciseness and description of the most pressing problems of information technologies [5].

A summary of the theoretical concepts of

computer ethics and methods of analysis of business ethical situations as a compulsory element of training precedes the network debate.

To benefit as much as possible from the cases within video conferencing, students are asked to adhere to the following requirements:

- clearly express their ideas and be prepared to defend their points;
- listen carefully to the suggestions of other students and evaluate them.

According to the computer ethics teaching plan students are interviewed prior to the distant computer classes. The results of the interview show that, unfortunately, few students recognize the importance of the problems connected with the widespread personal computers use, computer networks, etc.

For example, when asked about the negative consequences of the use of computer technology in modern society only 13.7% of students note the ethical problems (e. g. violation of ethical norms and rules of computer communication, breach of copyright while using software, etc.).

Many students do not think these kinds of problems significant. Some of them even want to do computer «piracy» for the sake of interest, and some like to do hacking: penetrate into inaccessible files containing personal and public information to select passwords, crack codes to use economic information.

Based on the information received, it is concluded that the feasibility of moral education of students in the context of their computer activity, which involves skills developing of main computer ethics points, creating a sense of computer realism and raising of valuable relation to computer activities.

Final knowledge quality control of two groups of students (one group studied by the traditional method without studying computer ethics; students of the second group had distant computer ethics classes) showed the following results. Students

of the second group (58% of positive responses) much more successfully coped with the proposed tests and creative tasks, compared to the first group (29% of positive responses). The students of the second group gave the answers, characterized by high diversity and richness of lexical content, logical semantic constructions and justification statements.

The distant computer ethics course increases cognitive activity and develops the ability for independent knowledge gaining, necessary for further professional activity in computer technologies.

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