

Information Technologies in the Formation of Environmental Consciousness in Future Professionals

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Summary

The global process of transition from industrial to information society, as well as socio-economic changes taking place in Ukraine, require significant changes in many areas of state activity. It is especially connected with the reforms in the sphere of education. Today, national programs provide for the development of education on the basis of new progressive concepts, the introduction of the educational process of new pedagogical technologies and scientific achievements, the creation of a new system of information education, entrance of Ukraine into the transcontinental computer information system. Information technologies are qualitatively changing the key resources of development: this is no longer a space with fixed production, but primarily mobile finance and intelligence. They have a direct impact on the formation of personal growth, professional content and self-organization, emotional and psychological maturity and consciousness, and so on.

One of the main factors in ensuring the stability and social education of the country's citizens is the culture of security, the formation and development of which is an urgent problem today. Comprehensive and systematic development of security culture will significantly increase the readiness of the population, the level of environmental, labor and patriotic education, reduce human losses, material damage from emergencies.

Ecological education can be carried out more successfully only gradually and in accordance with the socio-psychological periods of one's development: kindergarten - school - college - university. The creation of such a system of environmental education should be enshrined as the basis of state environmental policy as a constitutional norm with the usage of information technology. Graduates of universities, who are the future of our country, after mastering the skills of basic environmental education must have a high level of environmental culture, which is, in turn, part of general human culture, and investigate environmental issues from the standpoint of their profession. It is known that with the help of environmental education the collective intelligence of society is formed, which can predict human activities and processes occurring in nature, and in some way to help with the elimination of crises. It is through environmental education that another

system of human values is being formed, which places great emphasis on intangible wealth and solidarity, and great responsibility of humanity for the ecological state of the native country; provides a higher standard of living as a result of sustainable development, through the introduction of information technology in this system. To improve the quality of life, we need better knowledge, which must be implemented through information technology at the international level.

Key words:

information technologies, ecological worldview, ecological consciousness, ecological competence, ecological education, life safety culture of future specialists.

1. Introduction

Dynamic changes in the socio-economic life of Ukrainian society, entrance of Ukraine into the European community require significant improvement of environmental education of its citizens, active, projected changes in the usage of modern environmental priorities in educational institutions, in the formation of environmental competence of the person.

Due to scientific and technological progress in nuclear energy, modern modes of transport, information and telecommunication technologies, bio- and nanotechnologies, etc., mankind has achieved great success in socio-economic development. However, along with the positive impact of scientific and technological progress (directly, with the help of television, computer technology, media, etc.) on the formation of personality, the development of its cognitive sphere, mental cognitive processes, the formation of worldviews, as we found, they can at the same time cause destructive psychological, psychophysiological changes, to form in the human mind a number of dependencies, disorders in the psycho-emotional

sphere. It depends not only on the duration of communication with such means, but also on the content, emotions, the readiness of a person of a particular age to adequately respond to them. Depending on the age of the person, these changes may be different in nature and affect his or her psychosomatic health differently. The active usage of these tools by modern young people indicates a lack of environmental education, knowledge and skills to harmonize the interaction of society and nature, solving environmental problems and sustainable development of society, which causes great harm to human health and personal development and above all its emotional sphere. Modern environmental education is a constant complex process of formation of ecological worldview, ecological consciousness and culture of all segments of the population, social groups and society as a whole. This is the process of mastering the system of knowledge about the laws of functioning, life of all living things, ecological systems and the role of a person in preserving the natural environment; the process of environmental education and training, the development of professional knowledge, skills necessary for environmental activities.

The formation of environmental awareness of future professionals in higher education through the usage of information technology will significantly increase the level of spiritual, moral and patriotic education, strengthen social cohesion in the face of various global and local threats, reduce human losses and material damage in emergencies.

2. Analysis of recent research and publications

Laczkovics C., Fonzo G., Bendixsen B., Shpigel E., Lee I., Skala K., Prunas A.; Gross J., Steiner H., & Huemer J. (2018) argue that protective mechanisms are activated by mediating maladaptive effects on students' mental health. Dagani J., Buizza C., Ferrari C., & Ghilardi A. (2020) proposed psychometric validation on the cultural adaptation of the Italian profile of students-aggressors in the ecological environment. Catherine Juneau, Nicolas Pellerin, Elliott Trives, Matthieu Ricard, Rébecca Shankland & Michael Dambrun (2020) substantiated the reliability of the equivalence questionnaire: the two-factor scale of equality (EQUA-S) of students in the educational environment. Acquadro Maran D., & Begotti T. (2020) revealed the anxiety of teachers in terms of emotional burnout, disconnection and their self-efficacy in the manifestation of violence in the workplace in difficult situations of increased discomfort and risk. Grub E., Wydra G., Kaefer M., & Koellner V. (2020) reveal changes in motor balance during inpatient psychosomatic rehabilitation for health problems in a pandemic situation. Trudel-Fitzgerald C., Millstein R. A., von Hippel C., Howe C. J., Tomasso L. P., Wagner G. R., & Vander Weele T. J. (2019) reveal the essence of psychological well-being in discussions on health care and

the formation of environmental competence. G. Filsenger, E. Alonso (2018) note the importance of lexicographic, terminological and documentary needs for the usage of mobile devices for the translation of foreign language sources in partnership and cooperation with other countries on the development of environmental culture.

The study of O. Semenikhin, A. Yurchenko, A. Sbruev, A. Kuzminsky, O. Kuchai, O. Bida (2020) is based on the analysis of the content of ten platforms that provide access to open resources, including: Coursera, Edx, Udemy, MIT Open Course Ware, Open Learn, Intuit, Prometheus, UoPeople, Open Learning Initiative, Open University of Maidan (OUM). They are focused on improving the professional training of specialists: organization of independent work, advanced training courses, dissemination of author's techniques in the process of developing their own training courses and promoting them on open platforms, etc. Kuzminskyi A., Bida O., Kuchai O., Yezhova O., & Kuchai T (2019) argue the need to create an automated corporate information system and a relevant Internet site that will provide remote search and delivery of electronic materials from the funds of the State Scientific and Pedagogical Library and libraries of educational institutions; exchange of resources with other libraries and organizations; development of information and telecommunication technologies in postgraduate education institutions; teaching teachers to use computer technology, etc. Kuchai O. (2014) outlines the conceptual principles of training future teachers through multimedia technologies, which contributes to the development of information culture of future teachers. Chagovets A., Chychuk A., Bida O., Kuchai O., Salnyk I. & Poliakova I. Consider the features of the process of diagnosing the level of motivation to professional communication as an important factor in shaping the creativity of future professionals.

Electronic information resources of C. Olalla-Soler (2018) were used to solve the problems of cultural translation. It is also important to study the peculiarities of the formation of ecological worldview and safety culture in future professionals and it is the central topic of the article.

The aim of the study was to identify students' initial level of environmental awareness as a complex, holistic, individual psychological, integrative education means of information technology, combining socio-cultural knowledge, personal attitude to the environment, in which they can successfully communicate with their representatives, feel confident and comfortable, which characterizes the theoretical and practical readiness for socio-cultural activities and the development of relevant qualities in future professionals.

Lack of environmental knowledge in all spheres of society is the cause of most violations of environmental legislation and is the reason of inadequate public response. The formation of environmental consciousness is a matter of

survival or degradation, and therefore a matter of national importance. And a huge role in this issue is given to environmental education. Priority should only be given to education that prepares learners to address the social, economic and environmental challenges facing society at various levels. This position will overcome the alienation of the education system from the environmental problems of the modern world. At the same time, knowledge and skills must be supported by actions - this will lead to the formation of personal experience skills. It is necessary to make better not only the educational process, but all spheres of human life and activity, which is the essence of environmental education as a humanitarian basis for raising environmental awareness, the formation of environmental worldview through information technology, which has become relevant today (Viznyuk, 2019).

Modernization of education, carried out from the standpoint of general progressive ideas and strategies for the development of the educational system, largely depends on the revision of goals, content, structure and process of studying the whole complex of disciplines, including those that provide training for highly qualified professionals. The solution of these problems is related to the need in recent decades to overcome a number of accumulated common shortcomings and contradictions in the education system itself (Hou, Chin, Slemp & Oades, 2021):

- declared in normative documents the purposes of formation of comprehensively developed creative highly professional personality, the expert with global thinking and real possibilities of modern subject system of training in an institution of higher education;

- objective need for fundamentalization, humanization, integration, greening of education and rehabilitation of its subjects and the lack of a holistic theoretical concept of training a specialist in environmental worldview and safety culture in higher education institutions of modern state educational standards;

- the need for production of specialists with new thinking (global, environmental, humanitarian) and existing graduates of universities with traditional thinking, reflecting clear pictures of the world, formed within individual subjects by information technology.

These contradictions can be resolved on the basis of (Juneau, Pellerin, Trives, Ricard, Shankland & Dambrun, 2020):

- scientific support of the holistic educational process of development and formation of personality through the creation of a scientifically objective concept and appropriate system of university training, formation and development of safety culture and environmental worldview by means of information technology;

- modernization of training curricula, interdisciplinary integration of individual subjects, designing the process of their study by means of information technology, as well as student development within the modern model of the

specialist, ensuring the integrity and dynamism of this process.

That is why reforming the vocational education system is one of the most effective means of managing the worldview and mentality of a person independently and the society in general. Modern humanistic pedagogy clarifies existing concepts for preparing the younger generation for its life in post-industrial civilization.

Tuason M. T., Güss C. D., Boyd L. (2021) argue that education is gradually switching to the training of human noosphere formation. The scientific and technical potential of the country now has ample opportunities to create advanced educational and information technologies as a basis for the formation of environmental awareness. Training of specialists in the field of education, forming an ecological worldview and safety culture, should be based on the active usage of the results of learning subjects to ensure personal and public safety in danger and in emergencies. Today the process of training should be based on methodologically sound consistent direction of the educational process towards the formation of safety culture and environmental worldview using various information about complex emergencies using adapted to the educational process of advanced domestic geographic information systems, multimedia educational and interactive game educational training contribute to the development of interest in learning and more effective acquisition of knowledge in the field of public protection and their usage during emergencies (Tuason, Güss & Boyd, 2021).

Thus, issues related to the study of motivational and content components of the professional readiness of a student of a university for safe living and the role of specific subjects in the formation of environmental awareness need to be further developed.

3. Research methods

According to the results of the research, the author's development «Program of development of ecological consciousness of students in universities by means of information technologies» was developed, substantiated and experimentally checked. Based on our theoretical and methodological analysis of the views of domestic and foreign scientists, as well as the results of psychological analysis of the professional activities of future professionals, the program was based on the conceptual provisions of problem-based learning as management of student activities (Mashbits', 2019), as well as the means of simulation modeling and case methods.

3.1. Theoretical foundations of the study

The theoretical and methodological basis of the study is the philosophical concept of the dialectical connection of the phenomena of objective and subjective reality; the relationship between theory and practice in the context of the unity of consciousness and activity in the process of personal formation, as well as the main provisions of the theory of knowledge and the principle of taking into account the specifics of the educational process in higher education. In developing the program, the system and personal-activity approaches were taken as a psychological and pedagogical basis for training future specialists by means of information technology.

While working on the program we took into account the conditions of unpredictability of current events, lack of time, inconsistency of anticipatory nature of social development needs and the urgent need to master the system of knowledge and skills of future professionals to gather information from different sources through information technology and the ability to establish links while making decisions.

The formation of environmental awareness took place through safety skills and means of simulation, in addition to achieving the educational goals mentioned before, has a significant psychological impact. This is primarily manifested in the intellectual development of students. This method in the learning process activates students' mental activity and independence, stimulates their creative talents and abilities in solving educational tasks, frees thought from frameworks, patterns, stereotypes, encourages the search for effective ways to solve problems. "All this contributes to the development of personality, teaches to manage their emotions, rationally plan and organize their activities." Imitation of activities, modeling in educational institutions of various production situations is accompanied by significant activation of students, which leads to the manifestation of abilities and hidden inclinations of students. The solution of educational tasks takes place at a high emotional level, which causes students' positive feelings, which, in turn, as noted by many scholars, help remove obstacles to personal development (Mat Ruzlin, Chen, Yunus, Samsudin, Selamat & Ismail, 2021).

Viznyuk I. M. argues that today it is important to informatize education in Ukraine as one of the most important mechanisms that affects the main directions of modernization of the educational system. Modern information technologies open new perspectives for improving the efficiency of the educational process. The paradigm of education itself is changing. A significant role is given to methods of active cognition, self-education, distance educational programs. The main advantage of distance education is its extraterritoriality (there is no conditionality for a particular area). In addition, it offers updated knowledge, the latest theories that provide global

information resources. The information and educational environment of distance learning is a system set, organized from the means of data transmission, information resources, protocols of interaction, hardware and software and organizational and methodological support, which focuses on meeting the educational needs of users. Distance learning is a form of continuing education designed to realize the human right to education and information (Viznyuk, 2019).

Distance education allows to implement the following principles: accessibility of education (overcoming physical limitations, expanding the audience of students); individual orientation of learning, creating comfortable conditions for students and teachers, taking into account individual psychological characteristics (perception, memory, thinking), individual pace of learning; development of information culture, skills of work with modern means of informatization and telecommunication; socialization of education, taking into account the personal and communicative characteristics of students. The perspective and improvement of the distance learning system in Ukraine is the introduction of computer and audio-visual equipment. The main elements of the distance learning course are: the system of teaching materials and the system of educational services, which are divided by form and content (Konoshevskyi, 2011).

Remote communication of participants in the educational process is carried out through the means of communication management system (LMS), e-mail, messengers (Viber, Telegram, etc.), video conferencing (MS Teams, Zoom, GoogleMeet, Skype, etc.), forums, chats, etc. Discussion of students assessment takes place only with the usage of distance learning technologies. Grades of the whole group are sent to students by means of communication (E-mail, Viber, SMS, etc.).

The system of educational and methodical materials of the distance course by means of information and communication technologies includes the following structural elements: structured electronic interactive educational materials, which are placed in a virtual learning environment for the organization of learning via the Internet; printed materials (textbook, reference summary or workbook, guidelines for students, guidelines for teachers, the need for which is determined by the specifics of the course); additional teaching aids and media (CDs, videotapes, audiocassettes), which contain references and encyclopedic links, the purpose of which is to deepen the cognitive capabilities of the distance course and the need to develop which is determined by its specifics (Viznyuk, 2019).

During our research we developed a course on distance learning on the basics of working with Macromedia Flash based on the open source distance learning platform ILIAS. The open international ILIAS system is designed to automate and implement elements of distance learning in

the learning process, which allows you to create training courses effectively and materials, offers standardized tools and templates for learning and workflows, including integrated navigation and administration. ILIAS offers an integrated environment for creating training modules, glossaries and e-books, there is a possibility to import to ILIAS training modules HTML and SCORM / AICC. You can add any type of file to the content of the pages, but only add, it means that there are no tools for developing interactive multimedia courses. The ILIAS platform has a fairly strong knowledge control system, consisting of two components: Test & Assessment for objective or subjective assessment with grades or self-assessment and Survey tool for examination assessment. Both components are provided with powerful tools for statistical evaluation and export of test results. In creating this course for distance learning based on the ILIAS platform, we added theoretical material in the form of lectures or attached educational presentations, mental maps, interactive posters, etc.

Case studies (teaching students with cases) were also used in the research process. Case - a description of the situation, namely: the history of creation, organizational formation of the institution (organization, firm), its development and performance. The case method was developed in the 1920s at Harvard University (USA). Today, there are two classic case study schools - Harvard and Manchester (respectively: American and Western European). Their fundamental difference is that American cases are large (20-25 pages of text plus 8-10 pages of illustrations). In Western Europe, cases are used in educational processes, which are 1.5-2 times shorter in volume. In addition, Harvard cases offer students the search for the only right solution. In Manchester cases, the search for solutions is multifaceted. There should not be a single right decision. Listeners justify their position and, based on theory and practice, defend it. The main purpose of the case study is to acquire skills to work in a particular situation, to mobilize all the acquired knowledge to develop practical recommendations for solving a problem contained in the situational problem. On the way to this goal, students master the skills of logical understanding of the problem, develop managerial thinking, train intuition, improve the ability to discuss and defend their views (Meng & D'Arcy, 2016).

Westerhof G. J., Bohlmeijer E. T. (2016) note that in the process of forming environmental awareness of future professionals of great importance are practical classes using case studies with the usage of information technology. This is a form of study where the teacher organizes a detailed consideration of students of certain theoretical topics and develops skills and abilities for their practical application by individual performance of relevant tasks by the student. This method of teaching allows students to use information technology in practice, deepen their knowledge, learn to solve specific problems, discuss specific situations, express their opinions, defend their views. The authors are

constantly conducting practical work with the usage of cases during online learning, equipped with the necessary technical means of learning. The organization of the lesson covers several areas: theoretical understanding of the lesson, instruction, performance of work, discussion of educational material with students and assessment of knowledge. After updating the topic, the teacher checks the level of preparation of students for the lesson and determines how well they know theoretical material (Westerhof & Bohlmeijer, 2016).

The program of development of ecological consciousness is a complex of purposeful influence of the teacher on the cognitive, consumer and operational spheres based on the leading type of professional activity and taking into account individual and psychological features of future specialists.

3.2. Methods of conducting a pedagogical experiment

The research was carried out on the basis of Vasyl Stus Donetsk National University and Vinnytsia Academy of Continuing Education (Vinnytsia). The experimental study involved 388 people, including 201 students, 97 teachers, 90 managers on the basis of practice, including 78 stakeholders who provide employment for future professionals, taking into account their professional experience: at the beginning of training, learning and practice. The sample of subjects was a category of people from 17 to 64. The experiment was conducted by the decision of the Municipal Institution of Higher Education "Vinnytsia Academy of Continuing Education" at the Department of Psychology (protocol № 12 from 29.09.2020). The ethical rights of all participants are respected. The study was conducted in the natural conditions of the educational process of higher education institutions, providing general conditions for participation in the experiment: the same time and duration of training, the same measuring materials to diagnose the level of environmental awareness according to environmental competence.

4. Results

The effectiveness of the proposed program was tested in two stages. Thus, at the beginning of the 2020-2021 academic year, a diagnostic study of the level of formation of environmental awareness in future professionals according to certain criteria (Table 1) and levels (Table 2). We have identified complementary criteria for the systematic development of professional thinking of future professionals: cognitive (in order to develop the ability to think logically and make decisions), need-motivational (for

self-development, accumulation, systematization of professional knowledge, self-actualization and realization of their capabilities), and operational for the purpose of professional professionalization and professional growth). The results of the study of the levels of formation of ecological consciousness are presented in table 2.

In order to ensure the representativeness of the study, the choice of control and experimental groups was carried out randomly. Thus, the control groups included study groups with odd numbers, and the experimental groups with even numbers. Since the faculties of psychology have certain peculiarities regarding the qualification requirements of students, it was decided to form control and experimental groups. The experimental group (EG) was formed of 201 people. The rest of the study participants (187 people) were assigned to the control group (CG), which already has the skills of environmental competence and formed an eco-worldview in agreement with their professional experience and education. To increase the reliability of our study, the homogeneity of control and experimental groups was tested using the statistical criterion χ^2 Pearson. The distribution according to the levels and criteria in the control and experimental groups is given in Table 1. The empirical value of the criterion was calculated using a calculation program based on Microsoft EXCEL software. The obtained empirical value of the criterion was compared with the critical $\chi^2_{кр} = 7,8815$ ($\rho \leq 0,05$) and $\chi^2_{кр} = 11,345$ ($\rho \leq 0,01$). So, the following statistical hypotheses were built:

The main H0 - the distribution of respondents according to this criterion in the groups of EG and CG does not differ; Competing H1 - the distribution of respondents according to this criterion in the groups of EG and KG differs significantly. When comparing the obtained empirical value with the critical one, the choice is made in favor of H0, if the empirical value is less than the critical one. If the empirical value of the criterion is greater than the critical one - hypothesis H1 is valid, and the greater the empirical value - the greater the reliability of change, and the probability of error decreases. It should be noted that all the restrictions of this criterion were met by us.

Table 1: Criteria for environmental competence of future professionals

| Criteria of ecological competence | The experimental group (201 people) | | | | The control group (187 people) | | | |
|-----------------------------------|-------------------------------------|-------|----------------------|-------|--------------------------------|-------|----------------------|-------|
| | Before the experiment | | After the experiment | | Before the experiment | | After the experiment | |
| | Number | % | Number | % | Number | % | Number | % |
| Cognitive | 42 | 20,89 | 63 | 31,34 | 61 | 32,62 | 64 | 34,22 |
| Need-motivational | 71 | 35,32 | 67 | 33,33 | 65 | 34,76 | 66 | 35,29 |
| Operating | 88 | 43,78 | 71 | 35,32 | 75 | 40,11 | 71 | 37,96 |
| χ^2_{emp} | 0,2370 | | 0,4655 | | 0,4247 | | 0,5906 | |

The results of the study show that for all criteria the levels of formation of ecological consciousness, the empirical value of Pearson's criterion did not exceed the critical values. Thus, in all cases, the basic statistical hypothesis is

accepted that there are no differences between the respondents of all groups according to the specified criteria (cognitive, need-motivational and operational). Experimental work was carried out during 2020 - 2021 as part of the formative experiment and at the final stage was re-verified by information technology the formation of the levels of relevant criteria of professional thinking of future professionals, the results of which are presented in Table 2. Statistical processing was performed using Excel software. The obtained empirical values of the criterion turned out to be greater than the critical ones, which indicates significant differences between the respondents of control and experimental on the levels of formation of the criteria of environmental competence.

The results of the study at the final stage showed that future professionals have made positive changes in the formation of the appropriate level of environmental awareness (Table 2), which indicates the achievement of the goals and objectives of the formative experiment.

Table 2: The level of environmental awareness in future professionals

| Development level | The experimental group (201 people) | | | | The control group (187 people) | | | |
|-------------------|-------------------------------------|-------|----------------------|-------|--------------------------------|-------|----------------------|-------|
| | Before the experiment | | After the experiment | | Before the experiment | | After the experiment | |
| | Number | % | Number | % | Number | % | Number | % |
| High | 48 | 23,88 | 78 | 38,81 | 45 | 24,06 | 62 | 31,55 |
| Satisfactory | 101 | 50,25 | 109 | 54,23 | 100 | 53,48 | 107 | 57,22 |
| Low | 52 | 25,87 | 14 | 6,96 | 42 | 22,46 | 21 | 11,23 |

Thus, the consideration of modern global environmental problems only through the prism of physical "external limits of growth" (depletion of natural resources, environmental pollution, population growth on the planet, arms race and especially the use of nuclear weapons) can not solve the problem, they are closely connected with the political, social and moral problems facing humanity. It is obvious that the ecological crisis is a consequence of the wrong value orientation, which guides people in their practical activities to transform the natural environment. At the heart of the new approach to environmental protection should be a new worldview (cognitive, needs-motivational, operational competencies), focusing on understanding that man is only one of the biological species of the biosphere as well as plants, animals, etc., that he must live in harmony with nature, study and be guided in their lives by the laws of the biosphere with the use of available information technology.

This approach to environmental issues, aimed at awakening the ecological consciousness of people, is very important in terms of understanding the relationship between society and nature, as well as understanding the sources of contradictions that arise between man and the environment. Ensuring the environmental security of Ukraine as a condition for achieving a sufficient standard of living for its population, also involves changing existing priorities to environmental in all aspects of public policy,

economics and law. This can be achieved only by implementing environmental ideology, changing the value system of society as a whole. That is why everyone must understand the essence of environmental problems and be responsible for what they have done. The formation of a responsible attitude of citizens to the environment is associated with a long-term breaking of consumer stereotypes of behavior, which should be directly corrected in the ecological environment of higher education.

5. Discussion

The development of international cooperation and global partnership in order to preserve, protect and restore the integrity of the Earth's ecosystems is relevant in such conditions as: rehabilitation of damaged ecosystems and ecologically unstable regions, efforts to adopt effective environmental laws, to sustainable development; ensuring free access to environmental information, developing indicators of progress on the path to sustainable development through information technology, creating the necessary databases, global and national communications and using other tools to solve global problems of post-industrial information society; formation of a new legal framework and new principles of governance (including supranational and global) in the field of labor protection, nature and environmental management, prevention and elimination of emergencies, which should lead to sustainable greening of economic and social activities; greening of human consciousness and worldview, radical reorientation of the system of education, morality, culture, art, science and technology to new civilized values and goals, etc.

The human factor is manifested in relation to both material culture (for example, the development and operation of equipment) and spiritual culture (awareness of the behavior of workers in matters of personal safety, safety of others and the culture of safe production). Thus, there is a relationship between the causes of industrial destruction and injury: the lack of a culture of individual behavior, a culture of interpersonal relationships, technological culture, culture of production and safety culture.

Thus, the conceptual basis of such a system of relations is based solely on the priority of personal interests and ignoring the public, disregard for the principles of unity of rights and responsibilities, the rejection of moral and ethical norms. However, it must be understood that the current stage of socio-economic development must be accompanied by observance of ethics and morality of the humanistic values inherent in Man, who has the title of "intelligent being." The fall of these values inevitably causes irreparable damage to humanity, leads to numerous catastrophes, threatens human health and life. This situation can be corrected only by changing the culture of public

consciousness. And its formation in the citizen occurs at all stages of education, including the final - in higher education. The culture of security contributes not only to the spiritual development of the individual, but also is a way to unite people with a humane attitude to each other, as well as a conscious, responsible attitude to security in all areas of human activity.

According to this concept, we can identify the basic principles of sustainable development of ecological worldview in humans with the use of information technology (Gurevich, 2015):

- everyone has the right to health and to a fruitful life in harmony with nature, living in an environmentally friendly and favorable environment;
 - socio-economic development should be aimed at improving the quality of human life in terms of the usage of information technology in medicine, in the professional environment, in situations of personal growth (improving health, increasing life expectancy, education, guarantees of freedom, rights, etc.);
 - development with the use of information technology should be carried out in such a way as to meet the needs not only of the present but also of future generations;
 - environmental protection should be the basis of any national policy; and this should be accepted as an integral part of the development process, so economic development, the social sphere and environmental security must be integrated into a single whole;
 - improving the quality of life should be ensured without exceeding the level of economic capacity of ecosystems, which can lead to their destruction;
 - safety, primarily environmental, should be a criterion for progress;
 - rational usage of nature should be based on minimizing the usage of non-renewable natural resources and expanding the usage of secondary resources, safe disposal, waste disposal, development of new safe technologies, techniques, tools and more.
- Thanks to environmental education, upbringing and education, people will be in the process of greening the public consciousness through the usage of innovative technologies.

Therefore, the environmentalization of education should be precautionary. The content of environmental education can acquire a national character due to the wide involvement of the achievements of ethnopedagogy, folk traditions. In order to respect the native nature, we will be able to get rid of the terrible environmental consequences and contribute to the preservation and restoration of the biosphere as a whole.

6. Conclusions

Thus, the task of teachers is a constant introduction into the educational process of various teaching methods with the help of information technology, which comprehensively intensifies the activities of students, reconciling learning with life and practice; constantly improve forms of education aimed at mastering specific types of professional activities. For high-quality training, students must know and possess sound theoretical knowledge, practical skills that would allow in practice not only to improve working conditions and productivity, but also to prevent the possibility of occupational diseases, occupational injuries, accidents, etc.

The statistical processing of the data of the pedagogical experiment confirmed the high probability of the results of the study. For the first time it is practically proved that conducting practical classes with the usage of information technologies, simulation tools with the usage of improved content of practical works gives a significant improvement in the formation of ecological worldview and safety skills. Since in the control groups we used traditional forms of education, and in the experimental ones - mostly simulation methods by means of information technology, after the experiment the level of occupational safety skills was higher by 20% on average.

Systematic study of psychological foundations of ecological worldview by means of information technology of future specialists allowed to reach a new level of theoretical understanding of the mental activity of respondents on the basis of problem-based learning and to develop a «Program of environmental awareness of students». Thus, the results of an experimental study of the development of environmental awareness of future professionals have shown the effectiveness of the developed author's program. Unfortunately, the volume of the article does not allow the author to submit all the results of the study. Ways of further scientific achievements are the development of practical recommendations for teachers of educational institutions regarding the use of the program of development of ecological worldview by means of information technology in higher education seekers on the basis of problem-based learning.

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