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### **THE CONCEPTUAL-TERMINOLOGICAL INSTRUMENT OF INFORMATION DIDACTICS**

*SUMMARY.* This article deals with one of the aspects of the development of didactics—information didactics. The conditions of current research in this sphere are revealed. Specification of its basic concepts is covered: the information, knowledge, information processes, information educational environment.

*KEY WORDS.* Information didactics, information, information processes, information educational environment.

**Introduction.** The system of education is quite changeable at the modern stage of its development. It actively reacts to all innovations taking place in science, technology, economy, politics and culture. At the same time the system of education is influenced by all these processes. The influence of politico-economic, scientific/technical and socio-cultural factors is especially observed, and is expressed in the form of significant tendencies, clearly revealed in the world at the beginning of the 21<sup>st</sup> century. They are the following:

— globalization, which is visible in the process of the global information society. This is characterized by the formation of an informational education space, making information available to citizens of any country, as well as the implementation of the basic principles of the Bologna agreement in Russia (introduction of the two-level system of education, conversion to credit-modular construction of the educational programs) [1];

— openness, which results in mass communication and the ability to get new knowledge and new modern technologies, new views on the education system, the new conditions of learning;

— humanization and humanitarization, when a free- and creatively-thinking person, able to take an active part in the current social processes, becomes the key figure and plays the main role in society [2];

— uncertainty, which requires the person to be ready for new life situations, problems, unexpected circumstances. An indefinite social situation is the basis for the socialization of a new generation. As N.V. Bordovskaya remarks, uncertainty in society requires the person to be professionally and personally self-determined, able to solve social and professional tasks. He should aspire to self-education and professional

skills improvement over the course of his life [3; 58-61]. While learning at the university, the conditions for self-education, self-organization, self-improvement, development of creative thinking need to be created for students to adapt to a constantly changing life situation. According to S.D. Smirnov, these tendencies are differently expressed, nevertheless they are revealed more or less in all developed countries and form a social aspect to knowledge access [4].

Modern educational establishments will have to solve the problem of adaptation to the new “information” life conditions. Their duties include coaching the young generation to a full-fledged, qualitative and successful life, to provide education with regard to the rapid changes in society, the growing flow of information, the rapid development of information and communication technologies and information processes. It is the result of this which is the evidence of educational efficiency at its different stages.

Contemporary educational establishments have to solve the problem of being adapted to the new “informational” conditions. They should train the young generation to be successful. They have to provide them with education which is able to meet the rush of changes in society, the increasing information flow, the expanding development of information and communicative technologies and processes. The result indicates educational efficiency at its different stages.

So, the contemporary condition of the higher education system within the informatization society is characterized by some obvious contradictions:

— Modern society needs specialists of high qualification ready for constant professional development; on the other hand, this cannot be resolved during studies at a higher education establishment.

— The system is focused on practical methods, forms and technologies including research activities; but the level of realization of this approach in the teaching process in high school is insufficient.

— The processes of informatization and technology are determined as the basis for higher education development in the information society; on the other hand, the processes mentioned have no justification for the value-semantic characteristics in the context of the evolution of modern educational reality as a paradigmatic cultural-historical model;

— It is necessary to ground the didactic basis of informatization; but there is no integrated research concerning information didactics as a new field of scientific knowledge.

It actualizes the problem of our research, which presents the value and meaning of comprehension of a person’s life and environment as a problematic field of information didactics in the conditions of informatization of the educational process in higher education establishments.

It is impossible to consider all the issues concerning the problem of our research in the article. Only two aspects will be touched upon here: the concept of “information didactics” will be determined and the conditions of its appearance will be viewed; also the conceptual-terminological system will be considered.

**The results and their discussion.** The modern education system is based on knowledge that has already been validated by science. It is connected with previous transformations, which were late in becoming a scientific base for education. The process of education backlog from science can be overcome, if both scientific-information and education activities are aimed at advanced science: “it is necessary not just to pull them up to the ideals, norms and the content of post-non-classical science, but more and more rapid movement is needed through this state into the world of the future—into the information society” [5; 7].

The advanced aspect in education needs a basis which presents minimum knowledge and may be the base in the human mind for further information to be imposed. A sufficient basis should provide the possibility of obtaining a human intellectual product or different methods and technologies of its predicting, forecasting and production.

The ability of a person to move easily from theoretical reality comprehension to the salvation of applied tasks, using the fundamental laws of nature and society, becomes the result of professional education. Thus, trained thinking is characterized by a high level of ability to integrate usage of intuition, logical thinking and formally processed quantitative assessments. That helps to successfully solve complex problems [6]. Prognostic scientific developments are made a part of the educational content, especially the higher education content, in the advanced education system at the stage of introduction of new educational standards and master’s programmes. The directions connected with the new information technologies’ development and their practical usage become relevant in modern conditions. Humanity is becoming more aware of the fact that the future of society depends not only on the possibility of modern man to adapt from the raw-material economy to the information one, but also on his ability to change the relation to his own interests, needs and values.

Thus, the advanced modern education model presents a phenomenon, which is implemented through the development of the axiological potential of the personality, and traditional education interacts with the information one [7]. The realization of an integral educational process is of great importance, where the fundamental component and the functional literacy of a person (communication and information literacy, knowledge of languages, theory of information, etc.) present an invariant component. The emphasis moves from knowledge, as such, to the formation of abilities for taking an active part in life and the professional field. Knowledge as the end-in-itself transforms into a means of human development. To achieve the maximum learning result, people must mobilize and use their abilities. So in the system of Russian higher education, a competence approach is widespread.

The main condition of professional competence formation is the ability for effective and fruitful work in a dynamically developing information flow. The professional training level of future specialists, their competitiveness and success in professional activity directly depend on their degree of competence formation in the field of information processes, as well as awareness of information and communication technologies.

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In this respect, information didactics represents one of the main structural components of integral universal scientific support for the educational process, and the development of the concept in the information society is an important scientific task. According to a review of the scientific-pedagogical literature, the definition of “information didactics” hasn’t been considered in pedagogical science concerning integral theoretical research, conceptually determining the basic concepts of this scientific field.

Information didactics is an advanced component of modern pedagogical science. It characterizes the general regularities of the education process, observed in all forms of teaching, in the conditions of the informatization of society. Information didactics also investigates the properties of the learning process, which take place in the teaching of any discipline: the conditions of implementation, the factors of their appearance, their effectiveness. As a modern branch of pedagogical science, information didactics reflects the main issues of organization of the education of a person who lives in the information society; it reveals the essence of the teaching process, the content of education, the innovative methods, the tools, the technologies, the forms of the training organization, based on the usage of information and communication technologies.

Information didactics is not radically new, denying all earlier accumulated knowledge. It represents a new level of pedagogical science development but relies on the regulations and conceptual apparatus formulated by traditional didactics. Traditional didactic knowledge is gradually changed and supplemented in the conditions of the information society forming. For example, the specific objects of information didactics study are information processes, information (scientific, practical), the informational education space, the informational education environment. It is important for our research to characterize these concepts briefly from the point of view of pedagogy.

The knowledge accumulated by humanity is preserved in various forms, including the form of information. Information is one of the central scientific concepts. As a generally scientific category, information has a philosophical and a methodological meaning and denotes “not only knowledge, sent by people in the course of their communication, but first of all one of the main properties of the objective world, which is connected with the existence of special processes, referred to information processes, in this world” [8]. Information is a value which divides the human community: the people who possess the largest information resources, the most rapid means of processing and transferring the information, the most effective means of its conversion, become the most influential people. The modern learning process should take into account the fact that a large amount of information is received by students themselves on the World Wide Web, therefore education should assist the development of critical thinking (the students’ capability in activities of separation of true scientific knowledge from pseudoscientific).

O.F. Levichev interprets this notion in the terms of pedagogy, as “the messages which reduce the uncertainty for the recipient of the information, i.e. for the learner. The more uncertainty is reduced in the consciousness of the subject, the more the

minimum information to be obtained is reduced, in order to eliminate the uncertainty of projected activity on solving problem situations in the lesson” [9].

In the process of teaching it is important to show the value of information for the learner in different aspects, not only in the distant future in the field of professional activity. The teacher should also determine the significance of definite information in the development of human civilization and in the formation of personality as well. In this case, the value of the information concerning a person’s training is in the following:

- the scientific outlook of a person is formed in the process of studying the fundamentals of scientific knowledge,
- the theoretical base of the future profession is formed,
- a person is preparing for the implementation of the social functions,
- the creative skills of a person are formed and developed,
- educational needs are satisfied.

Information is determined as a category or a general idea about something, which improves the level of our knowledge. On the basis of existing knowledge, the student masters the information. In the process of getting knowledge, the student’s information is renovated in his mind. But I would like to draw attention to the fact that it is impossible to obtain exhaustive information about the researched concept or object with the help of knowledge. To know does not mean to be able to. According to O.F. Levichev, “skills can be developed only in the course of an activity. The understanding of the object at the information level happens in the process of skill formation” [9].

Knowledge is the result of the main information processes: formation and transformation of information in the process of pedagogical creativity, analysis and synthesis of information, search, accumulation, storage, processing, transfer and presentation of information in the form required for usage. L.N. Hutorskaya distinguishes three main categories of information processes: production, transfer and acquisition of information [10]. Each category consists of simple information processes: selection, receiving, storage, processing, usage, transfer, reproduction, transformation, presentation of information etc. In specific pedagogical situations, those or other simple information processes exist separately or in conjunction. Pedagogical situations vary greatly, that’s why different sets of information processes are used while organizing teaching and training.

For example, the process of obtaining new knowledge implies different information processes for the teacher and the student. For a teacher, it’s selection, storage and processing of information from educational standards, curricula, textbooks, educational and methodological literature and other sources. Acquiring knowledge by a student is connected with psychological and cognitive processes first of all; and in some degree with research processes. They are the following: perception, awareness, comprehension, remembering, analysis, synthesis, systematization, generalization, the conversion of the received information into knowledge, and its further application in the professional field. Some logical skills (to compare, to confront, to select the

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main thing, to prove, etc.) are required for this, as well as the ability to work with the information sources (scientific, reference literature, primary sources).

The technologies of perception and awareness of information are changing. At present, it is connected with the influence of the socio-cultural situation. For example, Internet teaching technologies have been introduced into the consciousness of learners, where the information is given in relatively compressed portions, with the function of a quick change. Young people perceive brief or full information successfully when it is given step by step, which supposes the partial comprehension of the information received from the various sources. No doubt, in such situations the ability of logical expression of thoughts suffers to a certain extent. In this case, the teacher should use special methods and techniques in the teaching process to promote the development of logical thinking, correct and accurate statements of conclusions. The main function of a teacher in such situations is to assist in transforming such information into the system of regulated knowledge.

One more specific concept of information didactics should be touched upon. It is the informational education environment, which presents the combination of different kinds of information, the means of its storage and production, the methods and technologies of work, providing a person with the information for the purpose of education [11]. In the informational education environment, the teaching process is aimed at the development of working skills with the information, the appropriate application, expedient usage to supply the self-development of the learner. The informational education environment is the result of the interaction between the informational education space and the subjects of educational process. The informational education environment presents a combination of technical, informational and educational-methodical support, inseparably connected with the person as the teaching subject [12]. The informational education environment presents the space where the teaching process takes place, and the joint activity of the student and the teacher is constructed.

The educational information environment promotes the effective usage of new technologies, the development of independent cognitive activity, expedient organization of different teaching forms: individual, group and collective. The modern variability of educational content is formed and its structure is developed within the informational education environment. The students master information resources, following their own cognitive needs and interests, relying on the basic component of education (knowledge, methods of activity, the experience of creative activity and experience of the emotional-valuable relation to the world) [11].

Each institution forms its informational education environment. Training information is its main component and the result of some information processes: formation and transformation of information in the process of pedagogical creativity, analysis and synthesis of information, search, accumulation, storage, processing, transmission and presentation of information in the form required for usage. The content of student knowledge is renewed, clarified, summarized and replaced. So, information processes impact social ones, and the content is presented by the cultural

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processes. It determines the appearance of new information processes and new information.

Education acquires a new quality thanks to the integration of information and communication technologies into the educational process: availability of the information space. It includes the information infrastructure and information resources created for the purpose of education (textbooks, manuals, tutorials, virtual simulators, reference materials); informational environment (a part of the information space with information objects, means of communication, methods of obtention, processing, creation and using of information).

Interactivity is the basic property of the informational education environment. It is the opportunity of operative interaction between the person and the components of the environment for learning and development. Thus, a new active element of the educational process appears, providing an immense impact on the interaction between teachers and students. The effectively built informational education environment changes the functions of the teacher and the student and implies the personality and activity approach, which creates the necessary conditions for personal self-realization of students in professional activity, to develop their creative individuality in the process of professional socialization.

**Conclusion.** In conclusion, we should say that there is no integral theory and practice of information didactics yet, it is in the process of formation and is being constructed as an integrated metascience, but its elements of subject content are at present at the introductory stage in the learning process at educational institutions. They actively influence the professional competence formation of a person. Applying the basic information didactics thesis for the teaching system's organization to the higher educational establishments, we come to conclusion that its most important function is providing for organization, management and arrangement of all teaching process components, connected with the informatization of education. The high-quality modern training of specialists of any profile is the result.

#### REFERENCES

1. The transition of Russian higher education institutions to the level system of the personnel training in accordance with the Federal state educational standards: the normative-methodological aspects / V.A. Bogoslovsky, E.V. Karavayeva, E.N. Kovtun, etc. Moscow, 2010.
2. Gershunsky B.S. Mentality and education in the system of values and priorities in the XXI century. Moscow, 1996.
3. Bordovskaya N.V. Quality of higher education // Academic reading. Vol. 3: Theory and practice of higher education modernization. St. Petersburg: RGPU by Herzen, 2002. P. 58-61.
4. Smirnov S.D. Pedagogy and psychology of higher education: from activity to a personality. Moscow, 2003.
5. Gaponuk P.N. The theoretical-methodological preconditions for the development of advanced education // the Modernization of education: strategy, methodology and technology of the modern education development. Vol. 9: Advanced education: methodology and technology. Rostov upon Don: IPO PI SFedU, 2011. P. 3-14.

6. Novikov P.N., Zuev V.M. Advanced professional education: scientific-practical manual. Moscow, 2000. 266 p.
7. Slastenin V.A., Matrosov V. L. The content design of higher pedagogical education // Izvestiya of the Russian Academy of education. 1999. № 1. P. 22-28.
8. Yanytskiy M.S. Value orientation of a personality as a dynamic system. Kemerovo: Kuzbassvuzizdat, 2000.
9. Levichev O.F. The law of the information conservation in didactics // Internet-journal "Eidos". 2009 // URL: <http://www.eidos.ru/journal/2009/0831-4.htm>.
10. Hutorskaya L.N. Information pedagogy // Internet-journal "Eidos". 2002 // URL: <http://www.eidos.ru/journal/2002/0825.htm>.
11. Ivanova E.O. The teaching theory in the information society. Moscow: Education, 2011. 190 p.
12. Ilchenko O.A. Organizational-pedagogical conditions of the network courses development and application in the educational process (the example of the higher education specialists training): The abstract ... of a dissertation of a candidate of pedagogy science. Moscow, 2002. 20 p.