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INFORMATIZATION OF EDUCATION FROM THE VIEWPOINT OF SOCIAL PHILOSOPHY: METHODOLOGICAL ASPECTS

M. N. Shmatkov (Novosibirsk, Russia)

***Abstract.** The paper is devoted to the discussion of some methodological aspects of studying informatization of education from the point of view of social philosophy. An approach to such investigation and realization of education informatization in practice is suggested. A crucial difference between the informatization in the field of education and informatization of the society is indicated; this difference reveals itself in the subjective kind of the former. The informatization of education in the most straightforward way affects the field of values, resulting in the necessity to develop the system of borders within education informatization and an appropriate node line of measures, which could reflect qualitative transitions in the dynamics of the given phenomenon of social reality.*

***Key words:** Informatization of education, values, social philosophy, methodology, value of information, knowledge, borders, educational systems.*

Mikhail N. Shmatkov – Candidate of Physical and Mathematical Sciences, Docent of the General Computer Science Chair, Siberian State Transport University.
E-mail: mihnik2001@mail.ru

Шматков Михаил Николаевич – кандидат физико-математических наук, доцент кафедры общей информатики Сибирского государственного университета путей сообщения.

ИНФОРМАТИЗАЦИЯ ОБРАЗОВАНИЯ С ТОЧКИ ЗРЕНИЯ СОЦИАЛЬНОЙ ФИЛОСОФИИ: МЕТОДОЛОГИЧЕСКИЕ АСПЕКТЫ

М. Н. Шматков (Новосибирск, Россия)

Аннотация. Настоящая статья посвящена обсуждению некоторых методологических аспектов исследований в области информатизации образования с точки зрения социальной философии. Предложен подход к такому исследованию и реализации информатизации образования на практике. Выявлено и обосновано существенное различие между информатизацией в сфере образования и информатизацией общества в целом; данное различие проявляется в субъективном характере информатизации образования, которая существенно влияет на область ценностей. Данные обстоятельства актуализируют необходимость разработки системы границ информатизации образования и соответствующей узловой линии мер с целью выявления и анализа качественных переходов в развитии данного явления социальной реальности.

Ключевые слова: Информатизация образования, ценности, социальная философия, методология, ценность информации, знания, границы, образовательные системы.

For the current stage of development of the society, such phenomena are typical as a sudden increase of information saturation of all the fields of social life and the life of the individual person as well, rapid development of technologies, mass introduction of information and communication technologies in all the fields of social life. This process is usually called *informatization of the society*, and the present stage of social development, *information society*. The ontological status of information society is characterized by a wide set of essentially new qualities, not inherent before to societies of other types. In particular, in the conditions of the society of new type we observe radical change of the society psychology, the traditional values are transformed, their priorities change as well, some values become obsolete, others are actualized, the new values appear and are recognized by the public and individual consciousness. The indicated processes naturally render an essential influence on the field of *education*, which at the present stage of social development turns into one of the most extensive and important spheres of human activity, essentially connected with all other areas of public life [1]. Note that the peculiarity of the *information in sphere of education* is that it should finally be transformed into *knowledge*; so it should necessarily have certain *quality* and *value*. Obviously, two given characteristics are closely interconnected, and the crucial importance has the latter.

The informatization of education as a phenomenon of social reality is not

actually limited to the system of education. It is closely interconnected with many other phenomena and processes taking place in the society, influences them essentially and results in radical transformations of their key characteristics, including the sphere of values. In particular, the informatization of education affects the ontological, epistemological, psychological, physiological, axiological, praxiological, social, ethical, aesthetic and other aspects in the sphere of education and the society as a whole.

The analysis of the modern situation in the sphere of the society and education informatization allows raising, with all acuteness, the question about whether the society is ready to deal with such information outburst which caused transition of the human civilization to the modern essentially new stage of development. The keynote point of the problem is based on mutual relations of the human being and the technique, because the society and education informatization happens to be the present stage of development of these relations. The main danger of spontaneous, unattended development of these mutual relations is seen by many representatives of philosophical community in the fact that the technique, in terms of its goal of serving the human being, gradually entralls the human, makes the human its appendage, emasculates humaneness from the human, *forces the human to serve the technique* and the technological progress, deprives the human of his/her main advantage, the difference from all other living beings, that is, *freedom of choice*. Undoubtedly, the society informatization and the resulted education informatization reflect an essentially new stage of development of mutual relation of the human and the technique. At the same time, the indicated threats do not disappear in the new conditions; moreover, they become aggravated, getting essentially new and refined forms. In particular, the modern computer technique turns from the passive instrument of human work into the active participant of every possible kinds of activity of the modern human. It has powerful visual, communicative, adaptive opportunities as well. As a result, quite often not only for the children but also for the adults these new “technical friends” form the main sphere of communication, superseding the traditional human relations, essentially deforming spiritual and moral qualities, mentality, communicative, household and professional skills, substituting *traditional values of human society* by *virtual* (not having ontological status!) *values of technical civilization*.

A contradiction has sharply manifested itself now: on one hand, the processes of the society informatization are the objective phenomenon of social dynamics and, hence, all spheres of social life, including the system of education, should adequately reflect in their development the influence of the given processes; on the other hand, the society today appears actually not ready to realization of informatization processes, therefore several components of informatization processes of the society and the education bear in themselves essential negative components capable to resulting in the unpredictable consequences, up to

complete destruction of the given social systems.

The social and philosophical analysis of the processes of informatization of higher education allows concluding that the given phenomenon of social reality is rather non-uniform in its structure and is characterized by complex connections with other phenomena. A special complexity of researching the given phenomenon in the theory and practice is caused by that the informatization of education is a new factor of social dynamics not only for the Russian society, where the history of development of the processes, connected to this phenomenon, is measured by one or two decades, but also for the Western society, in spite of the fact that there these processes began to develop much earlier. As a result, the informatization of higher education is characterized by a high level of spontaneity, scantiness, unsystematic character, break of the theory with practice; and till now the basic method in the given sphere is the “trial-and-error” method. It is necessary to ascertain that now neither in theory nor in practice there are any systemic attempts to realize the internal essence of the given phenomenon, its role and place in the system of education and in the society, to make any prognoses of the various scenarios of its development and their possible consequences. It is necessary to ascertain that the system of education now manifests generally passive position in relation to the process of informatization of education, completely inheriting the tendencies of informatization of the society and not trying to refract these tendencies through the specificity of educational sphere, to render on them any positive return influence. It seems that in such vital for the society sphere as the sphere of education, it is impossible to call such approach admissible. One of the reasons of such passivity is that the informatization of higher education is usually understood in terms of displaying in the sphere of education of more general processes of informatization of the society. Not denying a close connection of the given phenomena of social reality, it is necessary to emphasize the following difference between them which is a matter of principle. The informatization of the society is considered by many researchers as an objective fact, as an imperative of the modern stage of development of the society; that is, as a phenomenon having objective character in general. It is possible to agree with this thesis in many respects. However, the automatic extending of the given thesis on informatization of education is wrong. Certainly, the informatization of education has the attributes of an objective phenomenon as it is realization of the tendencies of informatization of the society in the sphere of education. However, the sphere of education is by no means a passive social institute given in the development to itself only. This sphere is a subject to active influence (and quite often even to direct regulation) from a complex set of subjects: the state, society as a whole, separate social groups and professional associations, academic community etc. Hence, the informatization of education is a subjective phenomenon as it presupposes an active position of the subjects of education and other interested subjects during realization of the concrete ways of development

of the given phenomenon.

By virtue of the circumstances mentioned above we can conclude that at the present stage of development of Russian society the *problem of active regular effective management of the process of informatization of education* has become topical, including in the sphere of higher education. However, such effective management can be realized only under condition of the presence of methodological approaches to its realization. Such approaches should be based on certain *models of informatization of education* as a complex phenomenon, which would allow generating all-embracing vision of the given phenomenon, to reveal the separate essential parties of the phenomenon, to show its structure, mechanism of its functioning, to carry out forecasting the possible consequences of the accepted administrative decisions in real time.

The informatization of education assumes not only the active introduction in the educational process of the facilities of training on the basis of information and communication technologies (in the literature this component is often called *computerization of education*). A no less important aspect of informatization of education is *essentially new* (in comparison with the previous stages of development of society and education) *level of saturation of the educational process by information*, its breadth, speed of producing and updating. Let us note that the second component has a priority importance in the management of education informatization, as at the end it determines concrete ways of introduction of facilities of information and communication technologies in educational process, and, hence, concrete directions of research in the given area on the part of applied sciences (pedagogics, psychology, ergonomics etc.).

As the initial point of *modeling the information processes in the educational system* (as those there can be considered both the system of education as a whole and some of its more or less closed parts within the boundary of region, city, certain professional orientation, separate educational institution) is the circumstance that *information can be more or less valuable depending on its purpose in the educational process*. The *value of information* is shown as a result of reception and is directly connected with reception, and reception, in turn, determines statement of the purposes and criterion of the degree of their achievement.

The analysis of special literature on the theory of information and adjacent problems allows speaking about the existence of several approaches to the definition of the *value of information*. The overwhelming majority of the experts connect the value of information with the considering the purpose that is achieved due to the information received by the subject: in the greater measure the information helps achieving the purpose the more valuable it is considered. All set of approaches to quantitative definition of the value of information can be divided into two directions: *deterministic* and *stochastic*. The *first approach* assumes that the object in view is achievable for certain, and the “costs” (efforts) connected with the achievement of

the purpose, are completely determined by a set of initial parameters of the task. With the presence of several ways of achievement of the purpose it is possible to define the value on the basis of minimization of expenses of material resources or time due to using the information. The *second approach* assumes that even at the completely defined entry conditions the achievement of the purpose cannot be guaranteed for certain, as the achievement of the purpose is influenced by random factors, which exact account is impossible. In this case, the value of information is defined on the basis of comparison of probabilities of achievement of the purpose: p is the probability before reception of the information, P is the probability after reception of the information. The concrete methods of *quantitative estimation of the value of information* differ with the ways of such comparison [2, 3, 4]. In practice, including the sphere of education, the value of information is unequivocally defined only for a known source-acceptor pair.

The estimation of the *value of information in education* can be illustrated with the following observation. Obviously, the value of information received by the acceptor depends on its amount. However, this is especially apparent in the sphere of education that, though this dependence is positive (with growth of amount of the information its value grows also) but it is by no means linear. Considering an example of using the textbook by the student for training to solve the tasks of a certain type, it is possible to notice that the study of two-three paragraphs at the best enables to solve only small number of tasks. By thus, for small volumes of information the gain of the value of information is small in comparison with the gain of the amount of information; however, with the growth of the amount of information the size of the gain of its value becomes ever more and more at the same quantities of the gain of the amount of information. At the same time, if the student has studied almost whole textbook (possible behind exception of two-three paragraphs), the study of each subsequent portion of educational material will not give essential increase of the number of tasks which he is able to solve. Thus, for the large volumes of information the gain of value of the information is small in comparison with the gain of amount of information as well. Putting forward a rather natural assumption of the existence of some maximal quantity of the value of information, above which this value cannot rise without dependence from the growth of amount of information (that, in particular, follows from the general approaches to estimation of the value of information), we come to a conclusion that the given dependence of the value of information on its amount in the educational system has a bending point, at which there is, in the certain sense, a *saturation of educational system by the information*: the further growth of amount of the information does not result in such gain of its value that was observed up to this point.

An additional characteristic of the *value of information* in the educational system can be obtained by consideration of its *efficiency*, which, in a sense, reflects the ratio of the value of information to its amount [3, 5]. In the literature there are different

approaches to estimation of the efficiency of information. The most acceptable for the analysis of information processes in the educational systems is the approach to the definition of efficiency of information which allows taking into account a dynamic character of such processes. The efficiency of information shows the gain of the value of information with the increase of its amount by one unit. Obviously, the given approach allows taking into account that at various current (available) amounts of information the size of such gain cannot be (and will not be!) identical. The analysis of the properties of efficiency of information allows to conclude that the efficiency of information has a maximum at a certain amount of information. At smaller amounts of information its efficiency increases with the growth of its amount, at larger amounts of information its efficiency decreases (down to zero). It is remarkable that the points, at which the character of dependences of the value of information (*point of saturation*) and its efficiency (*point of the maximum of efficiency*) on the amount of information changes, coincide.

The carried out analysis of the value of information in the educational systems allows making the following conclusion that is important from the point of view of informatization of education. The increase of the amount of information in the educational system is expedient (from the point of view of the value and efficiency of information) only up to a certain threshold quantity. With exceeding the current (available) amount of information above the threshold quantity, the growth of the value of information is slowing down, and the efficiency of each subsequent portion of information falls. In the case of the further growth of amount of information, its value is stabilized, and the efficiency falls down to zero. The given circumstance emphasizes the actuality of the problem of selection and restriction of the amount of information used in the educational process, despite of its avalanche growth in the society. Thus, the problem of *optimization of the process of informatization of education* within the boundaries of this or that educational system becomes quite topical. Within the framework of the search for the solutions of this problem, an approach based on consideration of the *criterion function* of informatization of education is rather natural. Indeed, considering the components of the process of informatization of education, it is possible to notice that the concrete measures as in the direction of computerization consisting in introduction into the educational process of facilities of training on the basis of information and communication technologies, and in the direction of increasing the information component of the educational process are based on the notion of the *value* of such measures and appropriate means from the point of view of optimal achievement of the *purposes* of training in the system of education. Such notions allow to establish a *correspondence* between current (available) quantities of parameters of the educational system, influencing the process of its informatization, and the concrete level of value of this or that way of informatization of educational system.

Thus, the value of the educational system informatization is a function of an appropriate set of variables, corresponding to the parameters of the educational

system, which influences the informatization process. The area of variation of the educational system parameters is determined by some natural restrictions of the objective and subjective kind. An important group of such restrictions is connected to that powerful influence which the informatization processes of the society and education exert to various aspects of life and activity of the society, system of education, individual person, including the sphere of values [6]. It is necessary to note an intrinsic kind of such influence of the society and education informatization. In particular, this can be indicated from the observation of the virtualization tendencies of the society, social, professional, household and personal relations initiated by the development in the society and in the system of education. Under such circumstances the problem of studying and revealing the *measure and borders* of education informatization becomes topical. Taking in account that the education informatization is a complex many-sided non-uniform phenomenon, leading to transformations of various parts of life of the individual and society, we can state that it is methodologically correct to study the measure and borders of education informatization in certain sections of this phenomenon, revealing its separate aspects. In the present circumstances there are significant the following borders of informatization of education: ontological, epistemological, psychological, axiological, praxiological, social, ethical, and aesthetic. The development of a node line of measures on each of the specified aspects creates the preconditions for research of the education informatization as a phenomenon of social reality in the coordinate system of basic significant parameters of the system of education. The set of borders of the education informatization on each of the specified aspects forms a profile of information borders, which can form a basis for the system engineering of the restrictions for a target model of the education informatization.

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