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SOCIAL AND INFORMATIONAL PREREQUISITES FOR THE TRANSFORMATION OF EDUCATION

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Abstract. The study aims to identify the prerequisites that affect educational transformation and shaping the personality in view of informatization. In addition, the study aims to justify the creation and content of lifelong digital skills training system.

The author focuses on the sets of factors providing specificity and direction of educational transformation.

Technological factors cause by rapid convergence of basic communication channels, information technologies and services. Increasing number of information services provided by smart systems, rapidly developing opportunities for machine learning and robotics lead to the active substitution of human intellectual capacities by technologies.

Informational factors result from the increasing volume of structured and unstructured data exceeding the opportunities of information technologies to efficient data collection, storage, transfer and process. Increased, uncontrolled and chaotic flow of information raises concern of informational overload, when the amount of incoming useful data surpasses the objective human possibilities of perception.

Communicative factors directly relate to the mobile informational exchange actors and the popularity and accessibility of Web-based technologies. Both interpersonal and collective interactions proceed far more quickly online, than in real social groups. In turn, the Internet community instantly reacts on problems emerging in society by appearing of values, norms, samples of culture etc. Nevertheless, online communication frequently results in changes of personal values, attitude, worldview, ways of thinking and appearance of new forms of deviation.

Cognitive factors influence by the fact that knowledge in modern social media is clear with the expectation that both of them are epistemologically equal. The growth of haphazard distribution and use of information resources leads to informational exchange polysemy; discrepancy between formal relevant information and actual needs and requirements; multi-dubbing and creation of superfluous information resources. Devaluation of the authority of knowledge sources and expert estimates results in increasing infoglut.

Socio-pedagogical factors due to the need for lifelong education that ensures not just prompt update of educational attainment, but also free choice of development path and the formation of a comfortable lifelong level of social mobility. Education is the process, which is taking place not only in the study room, but also inside of real processes. It becomes more efficient because of detailed consideration and concrete problems solving.
The publication sets out the case for training and education of a person with developed cognitive, communicative and technological skills through the modernization of State educational standards, curriculum development and changing skill requirements for graduates of training institutions at all levels, in the following areas:
– development of media literacy skills;
– development of analytical and critical thinking skills;
– improving the level of information culture;
– promoting a responsible attitude to information security.
The formation of these skills should be lifelong, systemic, continuous updating as new challenges are identified. Education should implement according to changes in cognitive processes occurring among the new generation of students under the impact of digital technologies.
Keywords: Education, informatization, digital skills

Introduction

Changes, which occur in the field of education, determine by the exponential growth in volume of information, cheaper cost of media and the progress of computing technologies. High-speed Internet channels, mobile and cloud technologies, social media have replaced traditional forms of education in study rooms. The way to information has declined in times. New forms of communication with knowledge, which engage students due to their innovative and interactive nature, have appeared. Diffusion of the mobile devices and technologies for almost unlimited use of Internet resources results in the need for the review of the perception of who nowadays is the information consumer, what are his requirements, methods for obtaining, exchanging the information and interaction with the world.
The continuing development of information technologies, almost daily generation of new devices, services and resources require a development and systematic actualization of: competencies and abilities to perceive and convert the information (including the relevant search implementation); critical reflection and interpretation; selection and verification of the results; identification of unreliable and questionable data; appreciation of the degree of their compatibility and applicability; preparation and presentation of the data; transmission in multiple channels of communication etc.

Objectives / Purpose of the study

The sphere of education lags with great stagnancy in its quest for using advanced information instruments behind an objective need for their application dictated by the results of scientific and technological progress as well as informatization constituents' needs. This is taking place at a time, when the capacity to produce knowledge and skills of effective intellectual property management becomes a key factor of the economic growth, and the training of highly specialized human resources becomes a significant challenge for any state.

This discrepancy has determined the implementation of the study.

The aim of this article is to identify prerequisites that affect the transformation of education and the formation of the personality in the conditions of informatization, and in their basis – the rationale for the content and creating a lifelong digital skills training system.

Methodology

Educational transformation inextricably link to concept of informatization. Informatization acts as the subject of multidisciplinary research in different areas of humanitarian knowledge: philosophy, sociology, psychology, pedagogy, informatics, jurisprudence, economics, cultural studies, linguistics etc. Among the founders of local informatization research are V.G. Afanasyev, V.M. Glushkov, A.P. Ershov, K.K. Kolin, N.N. Moiseev, A.I. Ratikov, A.V. Sokolov, I.V. Sokolova, A.D. Ursul, Y.A. Shreyder et al.

Two main approaches to studying the informatization can currently identify in sociology. The first one intends to identify social circumstances and prerequisites as key influencers on informatization and prediction of the positive and negative effects of that process. On the other hand, the second one focuses on identifying and determining the implications of informatization for human, various social institutions and the general public activities. This area is particularly popular with representatives of various transhumanistic currents.

Today there is an informational approach to study the development of civilization, when informatization and building of knowledge-based society do not only look like social and technological, but also like sociocultural transformation that can continue informational and cultural evolution at the current stage of human history (Kolin K.K., 2015: 7).

Its' conceptual questions of educational informatization as the new sector of pedagogical science have formed in modern Russian pedagogy. Educational informatization defines as the process of supplying the sphere of education by methodology and the practice to develop and to make the optional use of modern information and communication technologies' equipment aimed at

harnessing psychological and educational learning objectives (Robert I.V., 2010: 7).

While noting selection of research areas, quantity and quality of theoretical and practical development, let us point, that this approach reflects a survey of pedagogical challenges. It does not design to suit features of organization of the study process using digital technologies; specific features of interaction between student and teacher in the process of communication; information security issues in digital educational system etc.

We are of the opinion that the informatization of education as the informatization of society should be considered as complicated socio-historic process of moving on to the next stage of civilization. It does not connect so much with high quality updating of technical and technological basis, appearance of artificial-intelligence systems, exponential growth of knowledge and information, but with changes in the content and nature of social activity, changes of social structure of the society, evolution of the information culture (Sokolova I.V., 2008: 21).

We appreciate social and technical approach for the analysis of prerequisites of educational transformation as a result of informatization processes using methods of systematic analysis, compartmentalizing, synthesis and comparison in this study.

Results / Findings

The analysis of foreign and Russian practice of informatization of various spheres of activity, exploring trends and directions of information technologies development and also thinking on author's long-term experience of creation of information systems for educational sphere lead to the formulation and argumentation of a number of assessments governing developmental characteristics of educational sphere.

From our point of view, numerous social and information prerequisites of educational transformation can group into five main groups of factors: technological, informational, communicative, cognitive and socio-pedagogical.

In our view, such mapping will not only allow to evaluate the influence and interrelation of various factors through different research positions more objectively, but also to reveal the most required directions of character-building for productive activities in the digital transformations.

Technological factors cause by rapid convergence of basic communication channels, information technologies and services. Increasing number of information services provided by smart systems, rapidly developing opportunities for machine learning and robotics lead to active substitution of human intellectual capacities by technologies.

This process characterizes by the fact that technocratic approach plays an increasingly greater role. Huge amount of experts connects the future of civilization with the development of artificial intelligent programs and machines. Technological singularity becomes the central concept of such approach. This is the moment in the development of civilization, after which an ever-accelerating progress will become so quick and complicated that the human mind will stop controlling, predicting and even realizing artefacts and signals, stemming from technosphere. The ability of neural interfaces, genetic engineering, and anatomical parameterization are increasingly the subject of special attention of transhumanists.

From our point of view, **informational factors** result from the increasing volume of structured and unstructured data exceeding the opportunities of information technologies to efficient data collection, storage transfer and process. The exponential growth of information, cheapening cost of digital storage and progress of computing technologies have resulted in actualization of the issue of Big Data caused by the necessity in processing and analyzing the large volume of input data near real-time. Technological, audio-, photo-, video-information, data of social media users and location services form useful for systematic analysis, support information base, and become a strategic important asset. Its effectiveness of the management significantly affects the results of work of state and governmental authorities, telecommunication and Internet companies, banks, educational institutions, retailers, energy enterprises, housing and communal services, etc.

Uncontrolled, increased and chaotic flow of information often raises concern of informational overload, when the amount of incoming useful data surpasses the objective human possibilities of perception. Under the impact of overload the brain is stopping to comprehend properly the incoming data, the capacity for memorization is losing, emotional as well as intellectual human abilities are becoming less clear, equality of opportunity for various diseases are beginning to emerge: chronic fatigue syndrome, syndrome of permanent partial attention, syndrome of time deficit, etc. We see, that nowadays the need for learning and memorizing the information, bearing in mind the necessary data can be obtained from the Internet in seconds, is falling substantially.

In our opinion, **communicative factors** directly relate to the popularity and accessibility of Web-based technologies and mobile information exchange actors.

The Internet increasingly serves not just as base of knowledge, global data warehouse, but also often as the main channel of social communication. On the Internet, there is an interaction between individuals and groups of users;

social systems, networks and communities are organized; the processes of institutionalization of social interactions, group dynamics, value and normative regulation, role behavior of the individual take place.

The Internet is conducive to the emergence of new opportunities and ways of communication, forms new sphere of informational interaction, leads to the appearance of new types of social relationships. The structure of communication changes: from hierarchical it transforms to network the configuration of interpersonal communication also changes: it becomes more elaborate, unpredictable and uncontrolled and does not determine on the basis of geographical proximity and traditional hierarchical interactions (Ivanchenko D.A., 2016: 121).

The widespread use of mobile devices, technologies, applications and services leads to the appearance of new patterns of communicative interaction, besides previous practices of social interactions (Obukhova Y.O., 2012: 11). Prompt mobility becomes the key characteristic of information exchange.

Cognitive factors influence by the fact, that knowledge in modern social media is clear with the expectation that they are epistemologically equal. The growth of haphazard distribution and use of information resources lead to inform exchange polysemy; discrepancy between formal relevant information and actual needs and requirements; multi-dubbing and creation of superfluous information resources.

Devaluation of the authority of knowledge sources and expert estimates results in increasing infoglut and blurring of «knowledge vertical», «crushing» of knowledge. The view of specialists and experts often overlooks due to availability of information exchange, unprofessional and disreputable sources, which become the distributors of information and can be: specializing in sensations TV show, amateur website, provocative theme of board, deliberately false message in social network, consequences of vandalism in free written encyclopedia, etc.

The role of reading synchronously around the world, especially among rising generation, decreases, while the role of tools of content visualization during the communication process is increasing. Images of high quality, animation, streaming videos, and instruments of virtual reality – all of these assume enormous proportions and often turn from the means of conveying information to an end in themselves.

All processes described above, go hand in hand with the reform of prevailing approaches to educations, which defines as **socio-pedagogical factors**.

Successful activity in economy based on knowledge requires the objective need at lifelong learning, which not only provides prompt actualization of

educational attainment, but also free choice of development path and the formation of a comfortable lifelong level of social individual mobility. Education is the process, which is taking place not only in the study room, but also inside of real processes. It becomes more efficient because of detailed consideration and concrete problems solving.

In the meantime intelligent network reconnaissance is occurring. It is a process of «brain circulation»: scientists from different states participate in studies of leading universities around the world; IT-specialists work in offshore outsourcing and programming sphere developing software for foreign clients: students learn in transnational educational platforms (Coursera, edX, Udacity, etc.).

This peculiarity does not intends to be the only true statement of this structure, however, in our view, it fully represents the main sets of factors, which exerts substantial impact on the sphere of education all over the world.

Recommendations

Training and education of a person with developed cognitive communicative and technological skills in accordance with the requirements of information society should become one of the main results of educational transformation. This issue is impossible to resolve without the modernization of state educational standards, curriculum development and changing skill requirements for graduates of training institutions at all levels, in the following areas:

– development of media literacy skills (to use various Internet resources and services, communication channels for the work with information);

– development of analytical and critical thinking skills (to carry out relevant research, selection and verification of information; to evaluate quality and reliability of different information sources);

– improving the level of information culture (to create, edit, broadcast and present the information in different formats relative to the state and development of media environment);

– promoting a responsible attitude to information security (to know widespread threats and methods of protection of personal information, to apply the rules of safe operation on the Internet).

The formation of these skills should be lifelong, systemic, continuous updating as new challenges identify. Education should be implement according to changes in cognitive processes occurring among the new generation of students under the impact of digital technologies.

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