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Network Information Technologies as a Basis of New Educational Paradigm

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Abstract

With wide implementation of network information technologies in education, there is a transition to a new paradigm. The traditional forms, methods, means and content of education do not fit into the new paradigm and so need theoretical reconsideration. The methodological basis for the new paradigm has to be the postnonclassical methodology relying on synergetic vision of the world and soft modeling ideas. The education environment gains other opportunities and limitations as compared to the previous ones. The capacities of network space further the transition from teaching to self-teaching and self-education. As a rule, under such conditions, the process of a student's perceiving the new material becomes non-linear. The main objective of school in these conditions is non-linear arrangement of information, bringing it into a self-organizing system. The paper pays attention to the most rapidly developing direction of the education system information – network technologies. The network technologies open up totally new opportunities for creativity and self-fulfillment of both students and teachers. Computer networks in teaching can be applied for joint use of software resources, for interactive communication, prompt receipt of information, continuous monitoring of quality of the knowledge obtained. Using computer networks promotes the use of new teaching techniques in school and higher education institution, implementation of collaborative technologies that allow organizing education while jointly solving study problems.

Keywords: network paradigm; synergetics; self-organization; self-education; soft modelling; collaborative learning; network technologies; social networks; network projects

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1. Introduction

Quite reasonably, the XXI century is closely connected with the rise of network technologies that penetrate literally all spheres of social life. Such phenomenon as clustering of the Internet users into groups according to interests has shown up. Such uniting often takes place in social networks being a new step in development and proliferation of computers and the Internet, their "symbiosis" with man and society. Social networks allow expanding the horizons of human communication and they quickly make their way into education as well. People get quite a few additional opportunities for fulfilling their own intellectual potential in the team work with other network users.

As a result of an intensive expansion of the network space, conditions for education have drastically changed in the modern epoch. The young people develop in a dynamic information environment; they master new information and communication means and technologies for solving the problems of their life activity quite fast. However, the youth gets used to considering the means and technologies more often as tools for communication, entertainment, and relaxation only. The style of thinking of today's students due to their continuous web-based communication with mass media becomes image and emotional and tends to abstract constructs increasingly less, which clashes the habitual verbal style of presenting the study material and the established methods of adoption of the education content.

The integrity of knowledge is broken; fragmented clip consciousness is more and more characteristic for people, they cease to feel the urge of recreating an integral picture of the world. Separate fragments of knowledge obtained from the Internet create an illusion of being at the forefront of science and technology without any particular strain of mind or any significant efforts made for it.

In the recent years, large funds have been invested into information of the education system; the students' access to the Internet has been rendered more widespread. Open electronic educational resources of new generation are being created, distance learning system is developing, special purpose software are up etc. Although scores of hundreds of books on information and computerization of education have been written already, regrettably, their authors tend to be involved with the purely technical side of the problem, while the basic science dealing with development of conceptual approaches cannot get abreast of this vigorous activity.

2. Objective, methodology and research design

The pedagogical community proved not to be ready both for a wide use of advantages and values of information technologies in the academic and upbringing process and for the negative phenomena associated with total computerization. Meanwhile, it is not only implementation of information technologies in teaching that is required but a totally new methodological basis of education, drastical renewal of its goals, content, forms, methods and means, bearing in mind the course of information and communication processes in global communication environment where the modern young people grow up. The broad implementation of network technologies into education promotes the rise of a new pedagogical paradigm.

The main goal of our research is finding ways and means for the learner's personality being maximum active during studying in the network space as it is the learner who will determine the parameters of his education. The information of education is intended to activate the learners' independence, to promote individualization of the academic process, shifting of learning towards self-teaching and self-education. The issues of students' self-education are little developed in pedagogics, and as for the area of school education, theoretical and practical developments of this kind are downright rare.

Under modern conditions, functioning of education system (anyway, at least that of its main subsystems related to transferring the information, adopting the new material and its creative application) can be and has to be viewed as organization of complex non-linear self-organizing systems. Hence it is synergetics, the theory of randomness, chaos that has to become the methodological basis for the new system of teaching and upbringing, when the factor of creative unpredictability is introduced into the academic process, and the main efforts of pedagogues are aimed at making up a powerful creative environment where each student is vested with a right to select and independently build his own educational path.

The priority objectives of the research were refusal from the strict orderliness of classical approaches to education and drastic change of technologies of extramural independent work of students. The traditional education environment for organization of extramural independent work has to be essentially supplemented by the electronic