The Problems of Information Technologies Effectiveness in Humanities Education

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Abstract

An impact of information technologies on high education in social and humanitarian sciences is considered. An analysis of modern teaching and assessment methods and means is given in a context of social challenges and signals of diminished interest in fundamental knowledge, over-formalization requirements for high education, application of existing tools of e-learning and assessment. It is pointed out that existing information and computer technologies and tools are not sufficient in terms of depth and qualities of assessment process, are weak in assisting of ideological understanding, do not help in formation of logic reasoning, understanding of cause-consequence dependencies, abilities of presenting results of one's own thinking, assisting in improvement of argumentative skills and finding solutions. The limitations of electronics books use are also explained. Arguments are given in favour of importance of teacher's roles such as mentor, leader, who indicates directions and corrects actions during knowledge delivery, the process of education and behaviour formation. Further improvement of methods of assessment using information and computer technologies is described as an interdisciplinary issue. The solution of this problem is possible only by consolidated efforts of scientists and lecturers from various knowledge domains, taking into account features and differences of disciplines and individual abilities of knowledge formation. A problem of efficiency improvement for information technologies application in humanitarian and social sciences is described. It's shown that adaptation and redevelopment of system software to address cognitive and behavioural goals are required; in turn, modernization of learning and methodological education schemes should be based on the principles of inheritance, consistency, and social-cultural dependence.

Keywords: humanities education, cognitive process, e-learning, information and computer technologies, assessment, teacher's role

1. Introduction

1.1 Introduce the Problem

Scientific and technical achievements of the 20th century allowed humanity to advance in the area of information processing, storage and transfer, and emergence and spreading of the Internet significantly boosted this tendency. Obviously, the development of all areas of social activity depends on information technologies (IT) and it's impossible to imagine whatsoever progress without IT use. The implementation of IT changes the forms and methods of social interaction and showed that information flows management offers numerous opportunities in the formation of world-view and eventually world order. Reality-escaping virtual world, plunging into dreams and illusions, has turned into a bulwark of new religion, the rules and regulations of which are created by each person at his own discretion abstracting from what is permitted and forbidden in the society. As any other complex phenomenon, computerization doesn't provide clear solutions, its influence fruits are not obvious and more often than not come out to be far from rose-colored expectations, that's why they require a thorough study.

1.2 Importance of the Problem

Today IT are used in a more active way in educational process, that largely extends the methods of intense learning and knowledge control and at the same time transforms person's socialization ways and means. It's logical to suppose that together with educational activity technical modernization the quality of education will be

improved at all levels. However specialists' studies and common observation show the slump in background knowledge, education takes the form of formality. Availability and multitude of information channels bate a desire to learn by heart, think independently and analyze. Verbal contacts are replaced by exchange with short texts, pictures, and signs. Young people's vocabulary transforms: it contains more and more specific computer lexicon for communication simplicity and less notions, which reflect cultural values, theoretical and empiric scientific knowledge development. Incorrect word stress becomes typical for first-year students of higher education institutes (in particular, geographical names, famous people's names) since they didn't hear them before, although it's provided by school curricula. Logic, system-based perception is succeeded by discrete, "digitized" perception particularly influencing intellect and it's to ability to comprehensive knowledge. The explicitness of a number of negative phenomena highlight the urgency of issues regarding to informatization impact on cognitive activity and model behaviour adoption necessary for person's productive life.

1.3 Describe Relevant Scholarship

Over the last years Russian researches increasingly focus on the educational process computerization issues and related phenomena. Authors emphasize the need for teaching methodology enhancement, teachers' activity content and techniques renewal (Mayorova-Scheglova, 2013; Yablokova, Paveleva, & Kutkin, 2013). One has to agree with Belyaeva's opinion, who notices the existence of contradiction between the content part of electronic resources and theoretical, didactic, and methodic conditions of their use (Belyaeva, 2012). Ermakov rightly stresses "that information society development problems cannot be reduced to large-scale and universal adoption of information and communication technologies… These problems are not only of technologic nature, but humanitarian, and require radical change of education content" (Ermakov, 2013).

When discussing the issues of education reforming in the context of system modernization of Russia, Magaril emphasizes that social humanists have to take the burden of national elite upbringing and mass consciousness rationalization upon themselves (Magaril, 2012).

In Russian historiography the consideration of society informatization in the context of axiological approach won significant development. Authors suppose that new technologies dramatically change the space where a modern person is being formed and correspondingly reappraisal of values takes place, perception technologies and conscience of information are being changed (Romanova, 2012; Yazhaninova, 2013). Under the conditions of transition to information society the functions of education should be reconsidered and transformed in the direction of personality orientation and self-development freedom (Kiryakova & Krasilnikova, 2002).

Taking about IT adoption to education the representatives of natural sciences are concerned with their enhancement. British scientists Schagaev I., Kirk B., Bacon L. wonder how to respond to changes in the field of knowledge in a more sensitive way, what technologies are actually effective for information transfer and adoption (Schagaev, Kirk, & Bacon, 2014).

The authors consider development of more exquisite facilities of structuring, aggregating, and associative search for data one of informatics problem. In their opinion it's necessary to harmonize knowledge transfer using visual and audio channels: to create programs capable to hold attention, not overburden brain and provide intense absorption of information at the same time. It's well founded for them to promote the idea of differentiated approach to learning models depending on stated objectives, and also physiological and psychological individual potentials.

The analysis of IT application problems research results in regard to education shows that they require further examination. There are a number of questions, the solution of which will allow improving efficiency of high-technology mechanisms of knowledge acquiring and regulating its action in detail.

1.4 State Hypotheses and Their Correspondence to Research Design

Based on the modern experience of new technologies adoption in teaching the paper proves the need for reconsideration of conceptual and methodological foundation of education programs; development of computer and system software adapted to cognitive tasks; change of teacher's role in educational process. The solution of above-mentioned problems is focused on IT importance increase in cognitive activity management and education quality increase, which defines its feasibility degree.

2. Method

2.1 Method Monitoring

The collection of source information and tentative hypotheses formulation were carried out by means of observation method. The groups under study included students and teachers of humanities of higher education

institutes, interacting in the course of studies with the application of IT. The considerable volume of empirical data was obtained based on the study of educational activities of Vladivostok State University of Economics and Service, which ranks third by the degree of informatization among higher educational establishments of the Russian Federations, having its own electronic base of education and monitoring & test materials developed by teachers and for five years participating in a project "Federal Internet examination in the field of professional education" carried out by Research institution of education quality monitoring.

The assessment of learning results was carried out based on inner electronic tests and external independent examination with the use of interactive site created by means of a remote server. The observation was conducted in several groups at the same time, and study circularity depended on the time of curriculum undergoing. The generalization and extrapolation of conclusions were carried out based on students' behavior typicality during lecture and practical classes over a period of humanities study and exams pass. The method allowed revealing characteristic response to computer facilities usage, their impact on the motivation of learning activity's participants when solving set problems and eventual result in the context of students' professional education requirements.

2.2 Method of Comparison and Analogies

Analogue and comparison method had a key role in revealing the general and the particular in information technologies use in the area of education in humanities. Indicators of the use of the Internet, electronic databases and textbooks, interactive and online study modes became the basis for quality and quantity changes assessment in information technologies adoption into educational process. Common dissimilarity of student's current progress and electronic testing results by one and the same subject initiated the search for causes of this phenomenon and the analysis of advantages and disadvantages of formalized approach to knowledge control. The comparison of comparable data obtained at different times regarding the adoption of theoretical world outlook and applied knowledge confirmed the thesis that information technologies relate to the factors of multiple-aspect influence not only on acquiring of knowledge, but on the ability to critical analysis and generalization.

2.3 Method of System Analysis

The analysis of teachers' activity regarding education materials and their adaptation to new requirements for teaching; students' experience in information acquisition, processing and transfer technologies use contributed to identification of entity characteristics and specific features of the processes under study. Academic record study was carried out at different levels of pedagogical process management with the check of academic programs learning by individual students and groups. The interpretation of initial data allowed revealing steady tendencies in regard to students' cognitive activity, problems concerning teaching aids intensification and their consistency with acquiring of knowledge, skills and abilities. System approach to the issue study offered an opportunity to determine the influence of information technologies on the proportion of individual components of educational process structure, their interaction, dynamics, and prospects for the development. The modeling of situation, stimulating IT use, contributed to the adjustment of ideas of their level absorbing and performance in set cognitive goal purposes achievement.

3. Results

Computer technologies have sped up the process of information streams' movement, promoted the increase of their accessibility, systematization and diversity of visual perception. Due to them the educative process has enriched with new methods and forms of work. The provision with computer devices, accessibility of web-sites, presentation of materials at lessons, use of electronic textbooks and tests, etc.—all these are important criteria of evaluation of educational institution's innovativeness. However, the availability of specified facilities itself does not guarantee the attainment of knowledge, development of disquisitive powers and skill to find optimal solutions. Unfortunately, this fact is being evident not for everyone and the predominant argument for using this or that learning tool is quite often an itch of following the trend imposed from outside.

The mechanical use of IT can cultivate the consequences unwished for educational activities, which cannot be realized at once, while the elimination of such consequences will demand for much powers and time. To avoid such situation in professional approach it is important to be guided by its ultimate goals. The main criterion of IT effectiveness in educative process should be the quality of professional training and formation of human personality of future specialist and member of society. However, life often makes one to be guided by the considerations of expenses reduction or captivates with pursuit for success factors, what, regretfully, has become the most widespread phenomenon in today's system of higher education in Russia.

The determination of efficiency of this or that educational facility itself poses the definite problem and is frequently possible when there is definite experience. Anyway, only all-round examination of obtained results with account of conditions and influence factors can help to avoid mistakes.

The integration of computer technologies into world practice runs extremely irregularly and, moreover, fits in national educational systems in different ways. For example, the electronic testing has habitually used for checking progress and common and specific abilities of students in number of highly-developed Western countries. In Russia, however, its implementation has been taken place in the last fifteen-twenty years through the conflict with long-standing traditions and existing conditions. Undoubtedly, one should perceive electronic testing as an integral part of recent life and at the same time understand its rules, methods and purpose.

The making up of a test is mostly productive in such areas of knowledge, where there is a possibility of relatively high level of formalization of content-rich part—for example, in math or physics. What is for humanities—here the situation is being much more complicated. It is quite difficult to reduce the many-sidedness and pluralism of evaluation of historical event, person or a piece of art to unambiguous symbols. Currently the potential of testing computer programs in identification of level of understanding of causal relationships, influence on worldview, ability of logical stating one's ideas and independent positions, as well as the ability of reasoning and finding solutions, is being extremely low. As the result of insularity of expressing social processes in precise notions the tests in humanities are, as a rule, overloaded with dates, names and particularities, and all these looks like an endeavour to grasp the immensity. The response to overload of student's mechanical memory is often presented with rejection or indifference: you always can choose answers at random or enter the Internet to look for them there. Another one dramatic moment is that student grows into a habit of getting answer by selecting from available variants.

As early as in the beginning of XX century William Stern pointed out the necessity of strict selection and grouping of tests for research of personal abilities. The principles he suggested to be guided with when selecting tests appear rather useful in our time as well. The tests shall have such "semeiotic meaning" that allows the most unambiguous identifying of the feature of researched characteristic of test person and covering the significant volume of the characteristic. Basing on research of intellect characteristics W. Stern had pointed at low "semeiotic meaning" of single tests and the necessity of using additional methods for checking individual indicators. According to his opinion, the data of testing must be compared with results obtained by means of other tests or methods for research of rank hierarchy in a group of individuals (Stern, 1998). In the case of check of knowledge, for example, there is a need of determining correlation between test results and the marks of current academic progress.

Today the modest achievements in the area of testing allow assigning them to the role of instrument for intermediate, partial check of knowledge. The prospects will depend on development of computer expert system in the humanitarian sphere based on wide and reliable databases and capable of promoting exact and correct solutions with account of alternatives and non-standard situations.

Another one matter that remains narrowly realized is related to the electronic textbooks, which are mainly distributed in the form of printed issues, what decreases their utilitarian value. There are already the conditions for vast implementation into practice of electronic textbooks with software multilevel architecture, the content of which would be accessible for users, who have no comprehensive knowledge of informatics. The teacher possessing electronic array, in which he himself in short term can set texts, pictures, graphs and testing materials and which is equipped with search system, works in interactive mode, allows performing external control for making tasks by means of Internet and electronic media, and also can flexibly response to the changes in the area of science and practice.

The paradox is also that the design and application in educative process of computer games remain not widely spread. Taking into consideration the fact that adult persons are susceptible to them not less than children, it would be reasonable to attach the applied relevance and intellectual content to games. They can be based not on the fabled, but on rather real subjects from history and imply knowledge of peculiar scientific facts for achieving progress, for example. The aim of a game can lie in the most rapid resolving situation of social conflict in comparison with other participators, finding the ways of overcoming crisis, suggest optimal strategy and tactics of behaviour, etc. It is clear that creation of highly intellectual games that at the same time would be attractive for users—the task being more complicated than development of motility on the field of fabled action, but the logic of progress aimed at technical re-equipping and optimization of education and self-education implies prospectivity of the present direction.

The improvement of education methods, work with information and control for students' progress with

application of computer technologies is being the interdisciplinary problem. To solve there is a need for consolidated efforts of scientists for the identification of specificity of teaching various disciplines and the analysis of personal data perception. The researches not only in informatics, but also in the areas of physiology, psychology, semantics and pedagogics should serve as the basis for formation of principles of preparation of education materials, which a teacher should be guided with. When making presentation it is quite useful to find out the rational balance between text, pictures and verbal comments, as well as the influence of format, colour and sound on perception. Brain overloaded with emotions loses the ability to build strings of logic, systematize, generalize and make conclusions. Designation of reference points for activation of these or those sense organs is being difficult due to personal characteristic of students and important from the point of view of scientific approach to education. The special attention here must be paid to sociological surveys in the area of influence of IT on change of person's behaviour, attitude towards social standards and values, the individual's social integration ability.

The selection of educational instruments is performed by specialists of different levels—from ministerial workers to experts of methodological departments. However, it is impossible to overestimate the role played in organization and content filling of lessons by teacher. His personal characteristics and professional development have the strongest impact on activation of students' cognitive potential. In connection with the growth of impact of informational technologies in educational milieu there is a need for re-thinking of teacher's role, which is significantly transformed losing some meanings and acquiring other ones. However, one should do such re-thinking only in context of tasks, which are solved by higher education: to form scientific worldview, to give professional knowledge, skills and abilities; to cultivate moral qualities, to foster public spirit and responsibility—i.e. far and wide develop members of society defining its qualitative state. The social mission of education is poorly subject to changes in comparison with instruments, with help of which it's realized. However, the correctly selected and properly used instruments give us an opportunity of reaching the set objectives.

The modern teacher acts in the conditions of increasing flow of information. On the one hand, it provides opportunity of expanding the cognitive field, on the other hand, causes the necessity of setting limits and milestones for those, who it is designed for. The focus is shifted from the sphere of assimilation of information to the ability of working with it. Teacher shall not only get out the teaching material, lay the basic knowledge, but also to stimulate the search for additional sources of information, learn how to define their authenticity, significant and insignificant characteristics, correlate the obtained data and estimate their practical relevance.

For population of the Earth it has become natural and habitual to address Internet in regard of any questions, including those linked to education. By the end 2013 the number of Internet-users all over the world has made up 2.7 bln people (38% from the total number of all the people of the planet). The first place in the world in number of Internet-users is taken by China (more than 600 mln people), it is followed by USA, Japan, India and Brazil. Russia in 2012 has taken the first place in Europe and the sixth place in the world (The number of Internet-users, 2014). According to the data of Federal State Statistics Service of the Russian Federation for October 2013, the most active users of the Internet is presented with population from 20 to 29 years old (30% from the total number of users aged 15-72) (Results of the federal statistical survey regarding the population's use of information technology and information and telecommunication networks, 2013).

The Internet is a media, where together with real facts and scientific interpretation of events there are also so-called "fakes". It is an arena of ideological struggle with use of powerful psychological pressing, techniques of consciousness aberration and political order. To direct attention and interest of user to the necessary channel one should conduct major preliminary work: to form stable frames of reference, critical attitude to information and, above all, to equip with the methods of its analysis.

The didactic materials perform their intended purpose, if they promote consistent motion from information gathering and statement of facts to the ability of logical building them, interpreting and using in professional activity. The academic provision of subject matter should reflect the specificity of in-class learning and extracurricular exercises and contain tasks of problem nature stimulating the search for solutions and argumentations. As the curricula imply more and more time for students' independent work, the role of teacher as leader and mentor pointing the direction and correcting actions is increased.

The subject of another discussion is the matter of substitution of direct communication between teacher and student with distant forms of learning, which become more and more popular, although their level of quality leaves a lot to be desired. The advantages of on-site studying underline the fact the teacher remains the key figure of education process. It is he who forms the atmosphere of knowledge perception, enlightens main and secondary matters, controls emotions, performs individual approach, motivates students, regulates interpersonal

relationships, sets for public interests and gives general (i.e. moral) appraisal. When directly or indirectly suggesting following the maxim "Do as I do", tutor goes in for the simplest and natural for human method of learning. By saving classical traditions of education the qualified teacher implements new technologies and adapts them to academic program. He accumulates and realizes numerous functions assigning the humanitarian meaning and pedagogic sense to education.

The computer technologies are universal to the higher degree. However, this doesn't mean the methods of pedagogic activity and so much the results of education should be universal. The elementary and higher, general and special, theoretical and applied education cannot be performed by common rules. Moreover, scientists pay attention to diversity of cognitive systems caused by cultural differences. Thus, Richard Nisbet and his co-authors in the research called "The culture and the system of thinking: comparison of holistic and analytic cognition" write the social differences influence the ordinary metaphysical systems of deeper level (the ideas about outworld), implicit epistemologies (the ideas that one should know and how to get the knowledge), the nature of cognitive processes (the ways with help of which the world is cognized) (Nisbet, Peng, Choi, & Norenzayan, 2011).

The Russian researcher Churinov N. M. also underlines that the model of the world actualizes the principles and theories being correspondent to it. In his opinion, the concept of education implying preparation of people aimed at improvement of public relations is typical for the Russian model of the world. In the present model the upbringing and education act united, and the means, with help of which they are performed, should be used and change in accordance with historical epoch (Churinov, 2012). Taking into account the specified ideas, we can add that it is extremely important to take into consideration the conditions, in which the education process runs, and the characteristics of its participators.

We should also say that to increase the efficiency of information technologies in education in the humanities by means of joining efforts of specialists of different areas of science it is necessary to:

– Increase the intellectualization of IT, i.e. to tune to higher degree the responses of human consciousness and the features of perceptions; adapt them to the specificity of subject's learning and the analysis of abstract notions; improve functional systems for diagnostics of diversity of characteristic, qualities, states and results of person and society's development;

– On the assumption of conceptual and functional unity of cognitive and pedagogic tasks, advance the culture of IT application in education and modernize its academic provision for the purpose of formation of abilities and skills of independent analysis and practical use of information upon conditions of dynamically changing environment;

– Improve the education informatization process management on the basis of principles of succession, consistency, socio-cultural dependence and meaning.

The information technologies together with such factors as social and economical conditions and interests, current state policy, set of mind and external influence present the entire system that has significant impact on formation of society structure and its qualitative characteristics and that should be regulated.

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