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Psychological possibilities and functions of modern information technologies as the means for students' self-realization in university training

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ABSTRACT

The objective of this study was to define the leading functions of information and communication technologies that stimulate the manifestation of various forms of students' self-realization in the educational process of the university. The socio-cultural approach that enables to reveal the role of information technologies as means for transferring the experience of culture and realizing students' essential forces is the leading approach to study this issue. The research has found attributive signs and modalities of students' self-realization (cognitive, communicative, creative, fame, praxis, pragmatic, influence, pugnacious, dedicative). Also was shown a two-contour model of information technologies functions, which activate these signs in the course of training (actual and potential functions). The

implementation of the proposed functions will help to create an integrated informational and educational environment for students' self-realization.

Keywords: *the higher school, signs and modalities of students' self-realization, psychological functions of information technologies*

INTRODUCTION

In The development of modern information and communication technologies (ICT) is one of the moving forces of modern higher education. Many pedagogues and higher school representatives understand that the combination of digital technologies and resources gives more opportunities for expanding horizons and improving the quality of education, teaching and training than all the previous education technologies from a blackboard to the TV [Daniel, 2012].

Nowadays, the informatization of basic spheres of education including higher school has become very deep and wide-scale; therefore, there are many new issues of humanitarian nature about which prominent modern thinkers have long warned [Castells, 1998]. High tempos and a level of implementation of the modern information technologies in the university practice together with insufficient understanding of the impact of these technologies on students' psyche and the structure of their learning and cognitive activities make actual the problem of psychological support of the process of informatization. A technocratic approach to the higher school informatization suppresses didactic and psychological logic of education and reduces all training to a trivial filling of consciousness without developing important personal structures and creative thinking activity.

In our opinion, today to the forefront there is the issue of applying information technologies as ways to provide students' self-realization during university training [Maslow, 1987]. It is no secret that we can judge about the efficiency of university education by the degree and completeness of realization of students' personal potential and their concern and involvement in the process of training, apart from formal indices of performance and attendance [Shutenko E., 2015.]. Therefore, modern information technologies can play a significant role in both improving the quality of training and providing larger possibilities of personification of education and creating conditions for revealing creative abilities and resources of each student [Baker & O'Neil, 1999].

Specialists assume that informatization of education at the modern stage of development of the Russian higher school enables:

- to arrange the open system of education, providing each student with his own trajectory of learning;
- to drastically change the organization of cognitive process by shifting it to system thinking;
- to create the efficient system of managing information-methodic provision of education;
- to rationally organize the cognitive activity of learners during the educational process;
- to use the specific properties of a computer enabling to individualize the educational process and turn to entirely new cognitive means;
- to arrange, develop and improve the systems of distant education at various levels [Robert, 2007].

Besides, modern information technologies in education can help solve the important didactic tasks:

- to study the phenomena and processes in the micro- and macro-world, inside complex technical and biological systems based on means of computer graphics and computer modeling;
- to represent (in the convenient for study time scale) various physical, chemical, biological, social etc. processes in a clear view with more accuracy [Law et al., 2008].

The analysis of special scientific literature shows that the use of new information technologies provides:

- the intensification of all the levels of educational and sociocultural process in the system of university training;
- multi-aspect development of a learner in the educational process;
- training university graduates to live in the information society;
- the fulfilment of social mandate defined by the processes of global informatization [Catts & Lau, 2008; Scheuermann & Pedró, 2009; Voogt & Pelgrum, 2005].

The potential of new information and communication technologies (ICT) in higher education opens basic possibilities:

- to improve the methodology and strategies of selecting the content of education and to introduce innovations in teaching traditional disciplines;
- to raise the efficiency of learning, its individualization and differentiation, to organize new forms of interaction during education, and to change the content and character of the activity of an educator and a learner;
- to improve the management of education process, its planning, organization, control, and modernization of mechanisms to manage education system [Carstens & Pelgrum, 2009; Robert, 2007].

Nowadays, in many Western universities, the students choose online education on a mass scale. Marking this fact, A. Bates has defined four key moments in the US higher education: the growth of online education, the acceleration of this growth, the increase of distant education and its commercialization as well as the issue of assuring the quality of the results of distant learning in the system of higher education. Thus, the enrollment for distant courses in the USA has increased in 21% from 2009 to 2010 in comparison with the 2% increase of the general enrollment of students in the universities. More than 80% of American students focus on choosing the online courses in 2014, in comparison with 44% in 2009 [Bates, 2011].

However, the educational possibilities of modern ICT like any other learning mean, are fully revealed and carried out when they serve as the organic tool for developing personal structures and possibilities of learners [Izmestiev, 2012]. These technologies themselves are not universal remedy in education, and there are specific difficulties related to their implementation in the higher school [Phillips, 2005]. Specialists note that these technologies may cause various risks [Ben Youssef et al., 2008]. Most of these risks are related to mechanic carrying of the latest ICT in the educational practice without appropriate adaptation of these technologies on the one hand and philosophic-methodical correction of the educational process itself on the other hand [Gridchin et al., 2016]. The point is that if informatization of education is carried out in the logics of the previous dominating paradigm of explanatory-illustrative education, all expenditure of the latest one will become absurd, and the education will become a common loading of consciousness without developing personal structures and creative thinking activity. Besides, there is a danger of devaluation of professor's activity whose role may be limited to simple maintenance of technologies [Scheuermann & Pedró, 2009].

The scientists warn that if we apply all the power of the latest information technologies, for example, in global individualization of education, within previous learning model in the prejudice of the development of collective forms and dialogic methods of interaction, it will destroy the very tissue of learning process, which actually is a process of live communication [Cox et al., 2003]. Apart from didactic problems, the folding of social contacts can result in individualism [Law et al., 2008]. Therefore, the conclusion herein is that simple mechanic introduction of ICT in the habitual education process cannot lead to the revolution in education [Rab, 2009]. We should change the concept of educational process, which would involve these technologies as the organic means of educating. The advantages and possibilities created by these technologies should be directed at the development of holistic thinking and worldview of student.

The main tasks of applying information technologies in the process of university education should include the tasks of providing conditions for adequate self-realization of student in the educational space of a university. This goal is

derived from the very construction and destination of the higher school as the institute of socializing and developing personality as well as developing competent professionals and capable members of the society.

MATERIALS AND METHODS

Our study relies on a hypothesis that the process of students' self-realization in the conditions of informatization of university training (apart from learning abilities and favorable learning conditions) depends on the arrangement of information and communication environment of learning. Besides, this environment should help students design their professional and life way and provide them with all the necessary technologies and informational resources for self-development. Obviously, successful self-realization of students largely depends now on the existence of sustainable and adequate information technology "corridor of possibilities", which is in line with basic cultural norms and values transmitted in educational process [Gewirth, 1998].

In our opinion, a current task of studying the process of higher school informatization is to connect the potentials of applying modern information and communication technologies with the process of students' self-realization in education. This article deals with the solution of the task; the goal of the article is to define the key functions of information and communication technologies that stimulate the manifestation of various forms and modalities of students' self-realization.

The possibility to elaborate this hypothesis is provided by applying sociocultural approach to studying the issue of higher school informatization, which implies using information technologies as ways to reveal and realize the essential forces of students who absorb particular historical forms of sociocultural relationships [Doroshenko et al., 2015]. Being a synthesis of knowledge, skills, aptitudes, talents etc. driven by interests, strivings, expectations and meanings, these essential forces are formed when an individual acquires the experience of culture through the mechanisms of desobjectivation and objectivation of this experience in social practice [Danakin et al., 2014].

We have conducted the complex of *social-psychological procedures* and *methods* in various RF universities of the Central District in the cycle of studying the image of young students in modern Russia under the project of the Russian Humanitarian Scientific Fund 2006-2009 (Grant No 07-06-02005a) and under the project of the Russian Foundation for Basic Research (Grant No 15-06-08802).

The methodical task of study has been to reveal the prerequisites and variations of students' successful self-realization in education important from their viewpoint including their personal characteristics and possibilities of information technologies to provide the appropriate conditions.

To solve the specified task, we have conducted a research work consisting of three stages.

The first stage has been devoted to revealing subjectively significant conditions of students' self-realization and establishing basic attributive signs of their self-realization in university training.

The second stage has been associated with studying intentional peculiarities of students' self-realization and various forms of their manifestation by means of social-psychological techniques.

The third stage has involved the generalization of the obtained data about the signs and forms of manifestation of students' self-realization and modeling appropriate functions of information technologies on this basis.

The study has involved 100 students from a humanitarian university and 100 students from a technical university (Belgorod, Russia), 200 persons in total. The study has involved senior students (4th and 5th year) studying in Belgorod National Research University at the following faculties: psychology, Roman-German psychology, social-theological faculty, faculty of municipal management and entrepreneurship, and medical faculty (28 boys, 72 girls).

In Belgorod technological university named after V.G. Shukhov, the study has involved the students of 4th and 5th year of the faculty of production automation and information technologies, road transport and engineering-ecological faculties as well as the faculty of engineer construction materials, 100 persons (71 boys, 29 girls).

The study has been based on the methodology of *complex approach* providing the combination of sociological and psychological methods.

Methods of study: pilot survey, supervision, interviewing, method of focus groups, sociological survey (questioning), complex social-psychological testing (the application of test batteries and questionnaires). Statistical methods: analysis of the accuracy of differences (distribution by Student t-test), correlation analysis (Ch. Spearman rank-order correlation coefficient).

RESULTS

Within the framework of the research carried out by us, we proceeded from the assumption that the process must provide conditions of the students' subjective-significant self-image in the future profession, the society and the forthcoming life projecting by them. It is obvious that the modern university must promote student's movement toward this image through his personality potential and essential forces developing in the course of the education as the study and social life subject. Students' self-realization process is largely determined by the university practice focus on the full value personality development as the most important problem and mission of the higher school. At the psychological level the self-realization need as the leading life intension in the student age is obliged by the birth to deeper and more generalized state expressed in the self-determination and self-identity tendency [Tomlinson, 1993].

Attributive signs of students' self-realization

Through the tentative pilot questioning conducting, selective interviewing, carrying out focus groups the most important subjective-significant characteristics of students' self-realization in the modern university emerged.

In the course of the questioning and interviewing students' different opinions, estimations and answers to following questions were ascertained: «What does the self-realization in the studies and university life mean to you?», «Is it possible to achieve the self-realization in the course of the studying?», «On what does students' self-realization depend?», «What promotes and what prevents your self-realization at the university?», «What is required from yourselves for the self-realization at the university?», etc.

Received answers and opinions undergo the primary content analysis. From the received information array units with the significant content were separated out, then generalized, systematized and grouped into certain thematic communities consisting of close in the direction, context and sense estimations, which are similar in their narrative and subject line. In this regard, we aimed to omit inessential formal, logical, stylistic, discursive, lexical, grammatical and other differences and nuances. At a first approximation from the students' answers total array several semantic categories reflecting different aspects and self-realization possibilities in the studying were separated out.

As a result of the generalization of data, we formulated a number of typical behavioral and relational attitudes treated as characteristic for the most successful students in the university by opinion of the students and professors we have interviewed. These features and attitudes we denoted as *attributive signs of self-realization*, among which were highlighted the following:

- manifestation of personal qualities in education, ability to express oneself and to reveal one's strong points;
- independent studying, self-management and reliance on internal potential in studying;
- achievement of subjectively significant result in studying, the desire and possibility to be successful;
- active studying, manifestation of activity in the educational process;
- meaningfulness of education actions, carrying out meaning relations in studying;

- creative element in learning, the ability to experiment, to open new knowledge, ways of cognition and activities;
- multi-faceted learning, flexibility and variability of educational forms of cognitive activity during university training;
- internal responsibility, conscious approach to classes, readiness to self-project the university training;
- ambition in studying, a life goal and its achievement through studying in the university;
- sustainable interest to study, personal interest in training, the pursuit of learning more;
- personal efforts in studying, ability to overcome difficulties and obstacles in training;
- cooperation in studying, dialogue communication, the pursuit of consent and trust, communication culture.

Modal signs of students' self-realization

Apart from attributive signs, we have also identified some typical forms of manifestation of students' self-realization and denoted them as the *modalities of self-realization*. These modalities reflect sustainable intentions and ways for students to reveal themselves in various spheres of university life. The figure 1 represents the list of identified modalities.

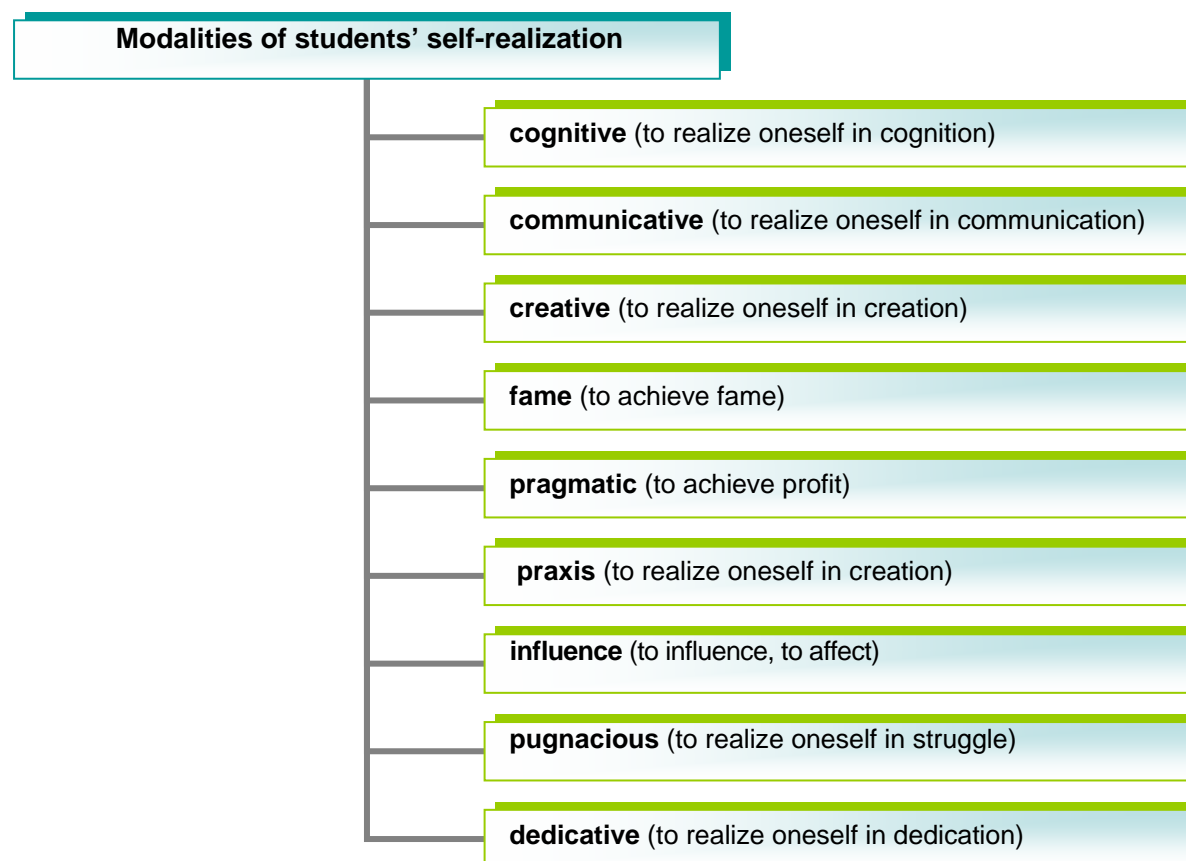


Figure 1. Modal signs of students' self-realization in university training

The figure identifies the following modalities among the most clear-cut variants of students' self-realization:

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- cognitive modality is associated with the pursuit of cognition and knowledge, and cognitive activity;
 - communicative modality reflects the forms of self-expression and self-manifestation in constant communications, relations, interaction;
 - creative modality means the creative plan of self-realization associated with the productive and constructive forms of activity;
 - fame modality reflects the public vector of self-realization associated with the pursuit of fame;
 - pragmatic modality links self-realization to profitable and useful activity bringing some dividends;
 - praxis modality reflects active nature of self-realization centered around practical actions and labor;
 - influence modality implies self-realization by influencing and affecting others;
 - pugnacious modality means to reveal oneself in struggle and overcoming difficulties;
 - dedicative modality implies total self-denial, volunteer service, and dedicating oneself to business.

The study has also revealed other modalities of students' self-realization including heroic, romantic, victim, etc. However, these variants are not represented in our study, since they are not associated with educational practice in students' answers and mostly related to personal life, relationships, household, etc.

When applying information technologies in the university, it is important to take into account and understand the leading attributes and modalities of students' self-realization, because they open the invisible internal trends of development and forms of applying these technologies from the viewpoint of activation and facilitation of personal ways and methods of acquiring the content of training and cultural experience in the university education.

Modeling of ICT functions on providing students' self-realization

Specified attributive and modal signs of students' self-realization have conditional, orientative meaning and can significantly vary depending on the peculiarities of arranging educational practice and personal characteristics of students.

At the same time, we consider it important to account for these signs for the implementation of information technologies in educational process, as this implementation should be whole and ensure that educational system really designs and carries out individual trajectory of education. To solve this task successfully, we consider it necessary to define and activate appropriate functions of applying information technologies in higher school.

We have summed the current practices and approaches to the implementation of modern ICT in educational process and tried to catalogue and further classify their functions from the viewpoint of influence on the most important structures of cognitive and learning activities of students. This classification is represented in the form of two-contour model schematically reflected in the figure 2.

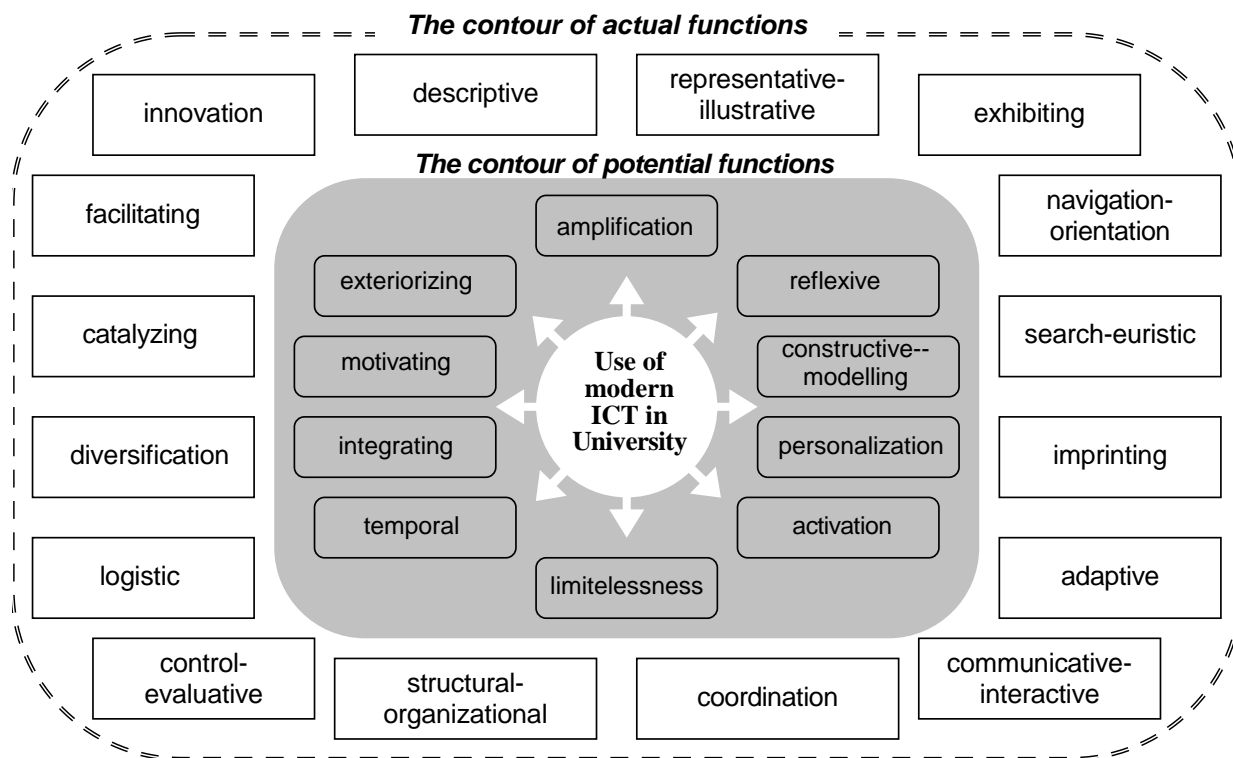


Figure 2. The model of ICT functions on providing students' self-realization in university training

As shown in the figure 2, the possibilities of modern ICT in the development of students can be represented in the framework of two groups of function contours – actual and potential.

Consider briefly each of the contours of this model.

The first contour comprises **actual functions** of modern ICT in education. This group of ICT functions has an evident, clear nature as if lying on the surface and is directly associated with the influence of these technologies on the increased efficiency of education process. These functions can be directly involved and applied in the educational process for the purposes of higher quality of students' training and self-realization. The actual contour involves the following ICT functions.

The descriptive function of modern ICT involves fuller, more capacious and various description of study material and content of study to be acquired by students during preparation. The application of ICT in education enables to refer to various forms of describing material, not only verbal, but often visual and dynamically unfolded.

Representative-illustrative function is directly associated with the previous function and means a way to represent the content of education as various illustrative-reproductive models, which can be based on modern ICT and significantly enrich and enlarge the possibilities of perception and acquisition of necessary material by students reducing temporal and human expenses in education.

The exhibiting function of modern ICT is closely associated with descriptive and representative functions and directly reflects the possibilities of whole, authentic representation of study material in the mode of expositional study provided by virtual reality, 3-D formats, and other latest information technologies.

The navigation-orientation function of ICT implies full-sized orientation activity when students find optimal rout of access and trajectory of promotion in information flows and Internet networks for obtaining necessary knowledge and information for the education and cognition purposes.

Search-euristic function is derived from and associated with navigational function and means the possibility to search for necessary information quickly and completely, to open new links and relationships in information space using ICT, and to transfer from the unknown to the known.

The imprinting function of modern ICT means the possibility to produce a whole and bright information impact to elaborate clear and sustainable images and samples without preliminary training of students, when necessary information is imprinted ready-made with minimal efforts of learners.

Adaptive function reflects greater flexibility and accommodative possibilities of modern ICT in adjusting and fitting their procedures, options, interface platforms etc. to various requests and educational needs of learners.

Communicative-interactive function is one of the main functions of modern ICT, which implies large and manifold spectrum of contacts and interaction of educated and educating subjects in the information-educational environment in the framework of various formats and links, as well as provision of various levels and modes of interpersonal communication with educational-professional purposes.

Coordination function means the possibility to manage and coordinate various information flows and evidence in the logic of educational access using modern ICT as well as to coordinate one's actions in information environment with the actions of other subjects within the framework of addressing educational tasks.

The structural-organizational function of ICT is associated with the previous function and implies the possibility to structure and organize various sketchy and fragmented information from different sources in the available educational construct to learn and use it during the professional training in the university.

The control-evaluative function of modern ICT provides enlarged by parameters and continuous in time process of control and monitoring of performing educational-cognitional and other actions by learners as well as possibilities of their self-control and tracing the correct performance of educational tasks.

Logistic function enables to provide learners with necessary information during educational process using modern ICT including the establishment of transmission channels, delivery, transportation, accumulation, distribution, sorting and representing necessary knowledge and all the information-education bulk of data in the framework of educational-professional tasks.

Diversification function means providing necessary variety of ways, modes, methods, formats and mechanisms of receiving educational services by students using modern ICT in university training.

Catalyzing function reflects general ability of modern ICT in education, which implies enhanced and more thorough education-information impact on students and acceleration of all the cycles and procedures of working with information.

The facilitating function of modern ICT is a derivative of the above functions and implies large facilitation and discharge of teaching activities as well as learning activities of students using these technologies.

The innovative function of modern ICT is expressed in the enrichment and updating of educational process by implementing new methods and ways to provide academic and professional training, involvement of students into scientific-innovation activity as well as the update of all the configuration and space of information interaction in the higher school.

The group of ICT *potential functions* in higher education is the second contour of represented model (see Fig.2). These functions are hidden and not obvious and require more subjects of educational activities to be carried out and thus raise the quality of training and possibilities of self-realization in the university education. The potential contour consists of the following ICT functions.

Reflexive function is based on providing students with a large spectrum of possible feedback about the course, quality, and efficiency of their promotion during the acquisition of study course and professional and scientific activities using modern ICT.

The constructive-modelling function of modern ICT in education is expressed in larger possibilities to make them a basis for various information models, projects and other information constructs, which enable to represent the education content in a better way and help students to perform more efficiently various learning tasks and scientific work in the university.

Function of personalization reflects the possibility to carry out personal approach in education based on modern ICT accounting for individual peculiarities of students, their abilities, preferences and expectations; besides, the application of ICT in education opens a real perspective of creating individual trajectory of student's training and providing appropriate mode, format and methods of training.

Activating function is directly associated with the previous function and means possibility to raise the sides and aspects of students' education and activities in the university from the viewpoint of their training and self-realization using ICT, possibility of their social self-affirmation and manifestation of individual qualities and abilities during university training.

The limitlessness function of modern ICT in education expresses their unique ability to overcome space limitations to carry out educational process. The ICT opens a real possibility to expand educational space and make the learning process leave the discrete limits of auditory classes. Besides, the ICT enable the professors and students from various countries and continents to communicate and provides an open mode of training in globalization.

The temporal function of applying ICT implies the change of temporal frames of educational process due to learning-communicative possibilities of new technologies of distant education; these technologies release temporal resource for more thorough and continuous training of students.

Integrating function means the possibility to use modern ICT for large involvement of learners with various educational needs including special needs students in the common space of professional university training.

Motivating function means the enhancement of students' learning motivation by competent applying of modern ICT in education and revealing their actual and potential possibilities given above. The use of ICT in education increases the desire and enthusiasm of students who receive new perspectives and chances of self-realization.

The exteriorizing function of modern ICT in education implies the activation of internal resources and essential forces of learners, in possibility of their many-sided manifestation in education due to the technologies of independent constructing and projecting of the elements of their activity during university training.

The amplifying function of applying ICT in the higher school implies general enhancement of the learning effect of university education due to the enlarged range of possibilities for students to successfully master the course of study and realize themselves.

DISCUSSION

One of the main challenges of the traditional education is that we have to create in discrete and limited in time intervals of classes the continuous didactic process covering the entire personality of a student who would be able to find the best way of professional and life self-realization [Becker, 2000]. Many innovations and reforms tried to enlarge the didactic space and time and lead the education process out of the narrow limits of classes into the sphere of students' independent work to organize and manage their academic activity outside the curriculum [Tondeur et al., 2007]. However, these attempts used to have quite poor results.

Now we have a real opportunity to solve this problem due to the development of the new generation of information and communication technologies of online study based on the use of Internet network resources (D.M. Willows, H.A. Houghton, I.G. Zakharova, V.A. Kanavo, И.В. Robert, E.V. Yakushina etc.). These technologies become a basis for various practices of mediaeducation, which serve as a ground for the development of mediapedagogics and mediadidactics (O.A. Baranov, I.V. Weisfeld, N.V. Klemeshova, Yu.N. Egorova, A.V. Osin, O.F. Nechai, C.N. Penzin, G.A. Polichko, A.V. Fedorov, Yu.N. Usov, A.V. Sharikov, N.F. Khilko, K. Bazalgette, C. Worsnop, L. Masterman, K. Tiner, E. Hart et al.). The main advantage of these technologies is that they enable to manage the

education process remotely, provide a learner with necessary tutorials, information and communications, and stimulate his high personal involvement and activity of self-study [Fullan, 2007].

At the same time, humanitarian-developmental ICT resources are still understudies in literature; the layer of socializing and didactic functions of ICT as tools for building whole and continuous educational process remains in the shadow.

Obviously, modern information technologies cannot be directly carried and embedded into educational process. Moreover, not all of them and not always can be used in education. To be applied in education, they should pass through some “psychological-pedagogical filter”, which means the extension of a set of some functions. The realization of these functions may enable to create personal-developmental informational-educational environment, which attunes students to self-realization in education and opens great possibilities for mastering a chosen specialty successfully.

The belief in big advantages and possibilities of the latest information technologies in education dominates in modern literature and studies; however, the question of these advantages from the viewpoint of real provision of personal development in the educational process is still open. Indeed, the technical aspect of ICT application is quite well described and elaborated, unlike didactic and psychological-pedagogical aspects [Wang, 2008]. By now, there are still no clearly articulated ideas of the destination and role of ICT in elaborating sustainable adequate knowledge and competences of students as well as productive ways of cognitive and creative actions [Law et al., 2008].

The above-mentioned set of actual and potential functions of modern information and communication technologies aims at providing many-sided self-realization of students, which covers various kinds of specified modalities (cognitive, communicative, creative, pragmatic, praxis etc.). At the same time, these functions of information technologies, like any educative mean, extend successfully if they are applied in the logic of *personal dimension* of university training practice. These technologies themselves are not universal remedy in education, and there are specific difficulties related to their implementation in the higher school.

The formulated ICT functions at the higher school answer logic of personal dimension of informatization of university training. This dimension, unlike other meanings of university training (professional, status-career, scientific, socializing etc.) is represented as a set of values and priorities of students’ personal development in educational process. It focuses on providing adequate self-identification and self-awareness, enlarging the sphere of students’ competence, and developing their internal responsibility and subjective position during university training [Gridchin et al., 2016].

A large implementation of ICT in the logic of personal dimension of education is to contribute to self-realization of both students and university professors. The application of these technologies can contribute to informational “cleaning” and releasing pedagogical resources for establishing interpersonal pedagogical communication and interaction between pedagogues and students as subjects of educational process. It is no secret that a modern practice of university education is characterized by poor and undeveloped educational communications. Actually, the communication of a professor and students is quite limited and has formal-role character during group classes, quick consultations, and exams. If we look at university education from the position of a student, we would count, in a best-case, only single episodes of a real dialogue, a true interaction and meeting with a professor in the form of live personal communication, when there is a contact of consciousness and thoughts, and sharing experience and positions. We especially underline the moment of meeting, which should be pedagogically prepared and to which both a student and a professor should be prepared. Meanwhile, in practice, most students and professors cannot meet each other in personal communication and wander in the “twilight of stream-course system” of training.

The informatization of education challenges deep-rooted pedagogical theories and practices, as indicated by experience and study results [Law et al., 2008]. First of all, the point is that teachers’ community loses unconditional monopoly on information and knowledge as well as control over resources and flows of educating information [Mueller et al., 2008]. Therefore, there is a current need for changing the educational paradigm. Instead of previous unidirectional subject-object model of training, we need another model of open mutually-directed subject-subject

training, where both a student and a professor would act as active co-participants of the professional education process [Gridchin et al., 2016].

Information technologies are to ease professor's labor, since they painlessly take the functions of informational provision of education. Historically, in the traditional education, informational work occupies the greatest part of professor's labor, his efforts, and time. In fact, a professor in the auditorium performs the role of a "live monitor" in front of students. Thus, during an ordinary lecture, a professor gives new material, explains, tells, shows, informs, gives examples, asks for attention and discipline etc. All this requires a great masterpiece, an art, and many mental efforts. In many aspects, a large practice of education in our country is still based on theoretical representations of explanatory-illustrative approach, under which a teaching scheme is represented by only three basic levels: delivery of material, revision and control.

At the same time, the implementation of modern information and communication technologies (ICT) in education enables to conduct the same explanatory-illustrative work with much more efficiency, extension, speed, scale, and depth. Thus, the possibilities of multimedia systems enable to represent any audiovisual information on the screen in the integral way and various forms (video film, text, graphics, animation, cartoon, slides, music etc.) realizing user's interactive dialogue with a system. Besides, the system enables to choose a necessary line of development of represented plot or situation according to the results of analysis of user's actions [Robert, 2007].

Modern information technologies can significantly unload professor's labor. Besides, if we bear in mind that ICT can perform some functions more efficiently than a professor, these technologies should become an indispensable professional tool for him. In fact, with ICT coming to a university, a professor receives a real chance to stop being an informer and to become a true pedagogue, i.e. to devote his efforts to the education, upbringing, and development of students. We should especially note that "liberating" a professor from the "chains of informative serving" by means of computerization opens real perspectives of solving the issues of differentiation and individuation of education, personification of educational process and personal approach [Izmestiev, 2012].

In traditional subject-course system, these tasks are actually beyond pedagogical abilities of a professor, and it is his full absorption in explanatory-illustrative and information-reporting work that acts as a stumbling stone. The main reason for such situation is the preservation of a stream-course system with its impassable barriers for extensive pedagogical activities.

Informatization of education can greatly reduce the specified barriers due to the internal rearrangement of content, mode, way, and configuration of interaction in educational process [Gridchin et al., 2016]. This refers to a gradual removal of an educational-illustrative dominant. As shown by practice, modern information technologies enable to expand significantly the didactic space and temporal limits of a class due to, for example, intensification of its information-reporting part in the mode of address involvement of each student with a professor released for performing the functions of establishing teaching tasks, pedagogical monitoring, correction of meaning etc. And these are by no means all potentials for transforming an educational process, which open with the application of modern ICT.

As shown by practice, famous difficulties and challenges of applying modern ICT in education emerge if they do not change the very philosophy and paradigm of education being implemented in educational process [Robert, 2007]. In this paradigm, new knowledge is obtained and comprehended by students during pedagogical communication and interaction basing on the possibilities of information technologies to provide them with necessary learning information. At the same time, the informatization of higher school cannot be performed in purely technical format anymore and implies the solution of a new task: from individualization of education to personification of education and personal-partner system of training. Thus, the development of modern ICT in higher school implies not only another philosophy and logics of dealing with information and operating information, which forms a content of education, but also another model of communication in the university.

In organizational-didactic respect, the main difference is that in a new paradigm, all necessary educational information is represented in an open and extended form and is given to students before they start to study the course, and not when they master it stage-by-stage in doses. Equal access of both professors and students to

information enables to provide their partner and subject-subject relations in introduction to knowledge and to lead them to a real dialogue and sharing generalized ways of activity, meanings, and values.

Competent application of modern ICT can qualitatively change professor's labor and rearrange its content, mode, rhythm, technology, and philosophy in general. For the first time in the history of education, there is a perspective of transferring some technical educative functions from a professor to information technologies, namely the function of information support. A human resource released in this way can be directed at enhancing pedagogical and upbringing role of a professor.

CONCLUSIONS

The study revealed the need of use modern information technologies in university educational process as stimulators for students' self-realization. The performed researches found attributive signs and modalities of students' self-realization in higher school training, allowed to formulate the personal focused model of use of information technologies at the higher school, which is built from two contours of functions – actual and potential. In general, the represented functional model of applying information technologies in the higher school is arranged to provide the possibilities of students' self-realization through unfolding actual and potential functions of these technologies. Obviously, the implementation of the latest technologies in education does not guarantee that these functions will be achieved automatically and needs large efforts and competence from the participants of educational process who consciously carry out partner subject-subject paradigm of training. In this case, the application of modern technologies can lead to the progress in training, and the described functions can be humanitarian criteria of the efficiency of using latest technologies in the higher school.

RECOMMENDATIONS

The materials of the article may have some value for professors, psychologists, methodologists, IT specialists, experts and heads of university structures in elaborating personality development programs and methods of teaching students in the process of education informatization. Besides, they may be used in psychologically correct and pedagogically reasonable selection and application of modern information technologies in the system of university education.

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