PROVIDE STUDENTS' SELF-FULFILLMENT THROUGH THE APPLICATION OF MODERN INFORMATION TECHNOLOGY IN HIGHER EDUCATION

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ABSTRACT

The level of development of modern information technologies requires their wider application in the higher school including for solving the problem of complete self-fulfillment of students during university education. The current study established attributive and modal signs of students' self-fulfillment associated with certain functions of modern information technologies. A set of these functions is represented by two contours – actual and potential. The actual contour consists of such functions as descriptive, representative, exponing, navigation-orientation, search-euristic etc. The contour of potential functions of information technologies consists of such functions as reflexive, constructive-modelling, the function of personalization, activating, translimitive, temporal, inclusive etc. Together both contours of functions form the holistic information environment of opportunities for students' self-fulfillment in the format of "person-to-person" educational interaction.

Keywords: the higher school, information technologies, attributes and modalities of students' self-fulfillment, personal-centered functions of information technologies.

INTRODUCTION

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). In our opinion, the issue of applying information technologies as ways to provide students' self-fulfillment during university training is important in the sphere of higher school informatization. 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 (Danakin, Shutenko & Ospishchev, 2014). 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 (Izmestiev, 2012).

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-actualization (Maslow, 1987). 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. However, these attempts used to have quite poor results.

METHODS

The study is based on a complex method of sociocultural analysis of the process 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 experience.

The purpose of study

Our study deals with the solution of the purpose, which is to determine the key functions of information and communication technologies that stimulate the manifestation of various forms and modalities of students' self- fulfillment.

The research hypothesis

Our study relies on a hypothesis that the process of students' self-fulfillment in the conditions of informatization of university training (apart from learning abilities and favorable learning conditions) depends on the arrangement of information and communication space of training. Besides, this space should help students to design their professional and life way and provide them with all the necessary technologies and informational resources for self-development (Kanishcheva, 2014). Obviously, successful self-fulfillment 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).

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 etc., 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, Shutenko & Ospishchev, 2014).

The tasks, logic and procedures of the study

The methodical task of study has been to reveal the prerequisites and variations of students' successful self-fulfillment 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 wok consisting of three stages.

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

The second stage has been associated with studying intentional peculiarities of students' self-fulfillment 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-fulfillment and modeling appropriate functions of information technologies on this basis.

Participants

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 State 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).

Research tools

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

Attributive signs of students' self-fulfillment

Our studies have established clear signs and variants of manifestations of students' self-fulfillment in the process of university training (Shutenko, 2015; Kanishcheva, 2014). We have generalized the data and, therefore, formulated some typical behavior and relationship attitudes treated as specific for the most successful students in the university by the students and professors we have interviewed. We have denoted these peculiarities and traits as attributive signs of self-fulfillment and identified them as:

• 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-fulfillment

Apart from attributive signs, we have also identified some typical forms of manifestation of students' self-fulfillment and denoted them as the modalities of self-fulfillment. 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.
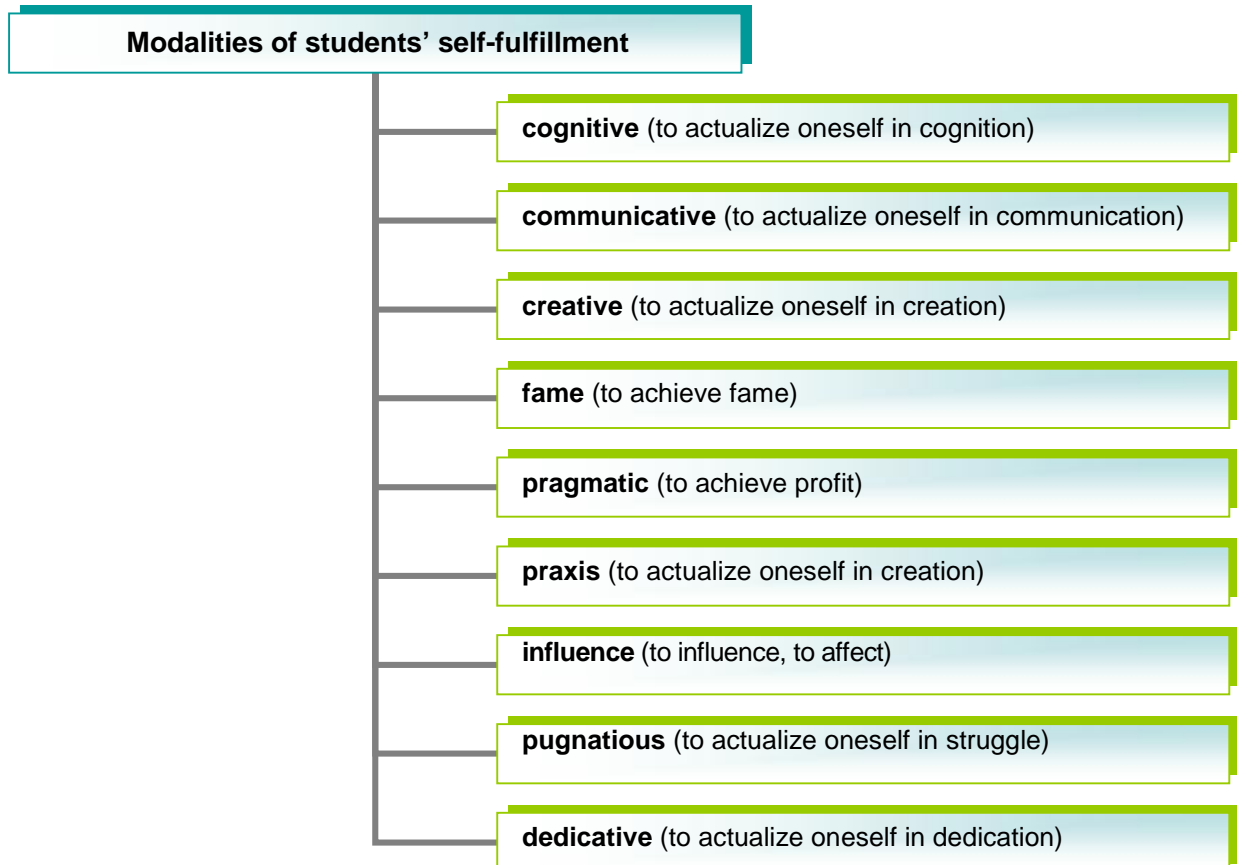

Fig.1. Modal signs of students' self-fulfillment in university training

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

▪ 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-fulfillment associated with the productive and constructive forms of activity;

▪ fame modality reflects the public vector of self-fulfillment associated with the pursuit of fame;

▪ pragmatic modality links self-fulfillment to profitable and useful activity bringing some dividends;

▪ praxis modality reflects active nature of self-fulfillment centered around practical actions and labor;

▪ influence modality implies self-fulfillment 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-fulfillment 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-fulfillment, 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.

Personal-centered functions of ICT on providing students' self-fulfillment.

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 (Shutenko A., 2011). 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, Pelgrum & Plomp, 2008).

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.

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.

SUMMARY

The above-mentioned functions of modern information and communication technologies aims at providing many-sided self-fulfillment 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.

Personal 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.

In general, the represented functions of applying information technologies in the higher school is arranged to provide the possibilities of students' self-fulfillment. 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 model 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.

CONCLUSIONS

In the completed study following was established:

- the attributive signs of students' self-fulfillment in university training;

- the modal signs of students' self-fulfillment (cognitive, communicative, creative, fame, pragmatic, praxis, influence, pugnacious, dedicative);

- personal-centered functions of information technologies on providing students' self-fulfillment (descriptive, representative-illustrative, exhibiting, navigation-orientation, search-euristic, imprinting, adaptive, coordination, structural-organizational, control-evaluative, logistic, diversification, facilitating, etc).

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