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Socio – pedagogical Priorities of the Educational Process at the University: the Didactic Aspect of Information Technology

Ilya M. Rassolov[a], Natalya V. Sidyacheva[b], Larisa E. Zotova[b], Feride Sch. Salitova[c], Svetlana M. Konyushenko[d] and Nuriya Kh. Gzhemskaya[e]

[a]Plekhanov Russian University of Economics, Moscow, RUSSIA; [b]Moscow State Regional University, Moscow, RUSSIA; [c]Gzhel State University, Gzhel, RUSSIA; [d]Immanuel Kant Baltic Federal University, Kaliningrad, RUSSİA; [e]Kazan (Volga region) Federal University, Kazan, RUSSIA.

ABSTRACT

The relevance of the study is conditioned by intensive introduction of information technologies in the educational process of the University. Analysis of practical activities of University groups shows that in the absence of science-based approaches to the implementation of information technologies in the educational process, there are increasing numbers of side effects among the students and graduates: moral and ethical indifference, a decrease in the level of personal communication, interpersonal communication, motivation to learn, and strengthening of computer and network addiction, the substitution of virtual reality, alienation from professional activities and other real-world problems, "escape" into virtual reality. In this regard, priority attention in the paper is devoted to establishing the theoretical and methodological approaches to realization of social-pedagogical priorities of the educational process at the University, which are presented as didactic components (target, content, procedural and technological, resource) of information technology. The paper presents the discourse of the concept "social-pedagogical priorities of the educational process at the University"; on the basis of the results of the study the complex of social and pedagogical priorities of the educational process is revealed, which are presented as the target, content, procedural and technological, resource components of information technology; pedagogical approaches to the design of new, hybrid types of information technologies are justified; the efficacy of the established set of priorities with the help of motivational, cognitive, axiological and activity-related criteria is proven.

KEYWORDS
Socio-pedagogical priorities, educational process of modern University, teaching tools, information technology, network technology, hybrid technology

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CORRESPONDENCE Ilya M. Rassolov ✉ilyarassolov@mail.ru

Introduction

The relevance of the study

Global changes in higher education occurring in the last 10 - 15 years in connection with the intensive introduction of information technologies lead to the revision of the existing pedagogical traditions and teaching experience in the educational process of the University. The study found that this process is determined by: 1) expanding of the types of students' learning activities, implemented on the basis of information computer technology (information activities; network communication; modeling of the studied objects, their relations and processes; formalization of information; creation of electronic educational resources; use of instrumental information systems); 2) the changing in the balance of training functions. While maintaining constant of their aggregate the informational function gradually fades into the background, giving way to the functions of projecting, construction, organization, communication, etc.; the teacher simultaneously performs the functions of a teacher – designer - planner - specialist - researcher; 3) active development by teachers and use in the classroom of ICT tools (multimedia presentations in the classroom, work in a virtual laboratory, design of quasi-activities, etc.); implementation of functions not only of new means but also didactic conditions contributing to the formation of students' competences, allowing to work in the information educational environment; 4) the emergence of hypertext and hypermedia structural forms of presentation of educational material; expanding the types of instructional materials (e-textbook, electronic tests, and tools for modeling of the educational material, training and controlling software, etc.); 5) the transformation of the information educational environment into a full "participant" of training, which changes the nature of information interaction between the teacher, student and interactive source of educational information resource. The increasing of the role of information educational environment, the influence of which becomes comparable, and in many respects even superior the influence of the individual teacher in the educational process, modifies the traditional didactic proportion "of learning activity – pedagogical activity" and forms a new "learning activity - information and educational environment - pedagogical activities" (Ruthven, 2012). Tendencies identified have extensive and intensive resources of positive and negative nature. Most of the researchers consider these processes as positive results of the achievements of scientific and technical progress (Klarin, 2002; Mitra, 2005; Nordkvelle, 2003; Novikov, 2006; Ruthven, 2012; Choshanov, 2013; Khutorskoy, 2001; Yakimanskaya, 2000). Researchers - skeptics (Vjugina, 2010; Isaev, 2001; Marchenkova, 2009; Ostrovsky, 2003; Zizek, 1996; Young, 1997; Stromfeldt, 1996) see in them a real destruction of socio-cultural and personal qualities of students, all the more there are reason for that. More and more students' unformed moral and ethical norms, excessive pragmatism are manifested, there is a decrease in the level of personal communication, interpersonal communication, motivation for learning, computer and network addiction are enhanced, there is the substitution of reality by virtual reality, the alienation from professional activities and other real-world problems and fascination with virtual reality are deepened. The duality of the existing problems in University didactics ambiguously effect on the practical outcomes of the educational process (Erdniev, 1992). All of this requires one's correct and science – based solutions. In this regard, in this study,

priority is given to the establishment of theoretical – methodical approaches to the implementation of socio – pedagogical priorities of the educational process in the University, which serve as didactic components (target, content, procedural and technological, resource) of information technology. With this purpose, in the course of the study the modern discourse of the concept "social – pedagogical priorities of the educational process of the University" is justified, the effectiveness of new, hybrid types of information technologies is established, the productivity of the identified complex of socio – pedagogical priorities through motivational, cognitive, axiological and activity-related criteria is proven.

Literature review

The discourse of the concept "social - pedagogical priorities of the educational process of the University"

In this study, the discourse of the concept is determined by the transformation of the educational process of the University, due to intensive introduction of information technologies. It is not coincidental that all of the "four pillars of education in XX1 century: learning to know, learning to do, learning to live together, learning to live", which are declared by UNESCO are concentrated around learning technologies, as the leading life goals, helping each person to find his life and career path in a constantly and rapidly changing world (Delors, 1996). The current trends define the boundaries of rethinking of information technology as the leading social – pedagogical priorities of the educational process of the University.

The differences in the views of scientists on the research problem

In connection with the intensive introduction of new technologies in the University educational process, the beginning of XX1st century is marked by the rethinking of its socio – pedagogical priorities: the didactic triangle "teacher – student – content" has evolved into a didactic tetrahedron "teacher – student – content – technology". A significant contribution to the development of the didactic structure of the tetrahedron is made by the work of K. Ruthven (2012), in which he presents the evolution of the transformation of the educational process which is identical with the model of a tetrahedron. The didactic structure of the model of K. Ruthven has the following four faces: the first face, lying in the basis is the traditional didactic triangle: teacher – student – content; second face: student – content - technology; the third face: the teacher – content – technology; the fourth face: teacher – student – technology. The top of the model is technology. The main features of this model are the faces of a tetrahedron, reflecting the socio – pedagogical priorities of information technology. They bring new meaning into the content of the educational process of the University, expanding its educational borders and determine the objectives of the combinations of didactic components with electronic technology for "breeding" of new, hybrid forms of technology. The results of other studies of English destinations (Mitra, 2005; Nordkvelle, 2003; Schoenfeld, 2012) confirm the socio – educational trends in the rethinking of the existing priorities of the educational process of the University through the implementation of hybrid information technology. The works of Russian authors (Klarin, 2002; Novikov, 2006; Choshanov, 2013) represent the study results of the proportion problem of real educational process in the University and the virtual space, identify

educational trends of the transformation of the educational process in the University depending on the level of readiness of the information technology. Considerable attention in these studies, by analogy with K. Ruthven (2012) and S. Mitra (2005), is given to the development of hybrid information technologies. In the works of other Russian authors (Berger & Luckmann, 1995; Bourdieu, 2001; Polat, 2000; Isaev, 2001, Turkle, 1995) considerable attention is paid to the projecting of innovative educational technologies, integrating e-learning components in the dynamic information environment of the subject. The use in these technologies of the Internet and other media reflect their identity with hybrid technologies. In the course of this study it is established that the current teaching experience in the use of socio – pedagogical priorities of information technology, actualizes the areas for projecting of new types of technologies depending on the level of development of information and communication resources of the educational process in the University.

Results

The structure and content of social and pedagogical priorities of the educational process of the University

The study found that rethinking of the traditional social – pedagogical priorities of the educational process in University (content of the training activities, subject knowledge course structure, the formation of all possible competences, qualities, experience, etc.), is determined by the intense introduction of new technologies in all spheres of human life activities. In this regard, three groups of didactic criteria are justified that determine the effectiveness of the choice of socio – pedagogical priorities of the educational process in modern University.

The first group - evaluation criteria of the educational process at the projecting stage (the possibility of division of the learning process into interrelated procedures, steps, operations, stages; algorithm; technological sequence of operations and stages of the educational process).

The second group - evaluation criteria of the educational process at the implementation stage (assessment of learning; assessment of the use of teaching methods; the assessment of the used system of teaching methods; evaluation of training).

The third group is the performance criteria of learning outcomes; knowledge assimilation: depth, consistency, awareness, the volume of the acquired knowledge, speed of learning material's assimilation; the formation of the foundations of the educational – cognitive and professional activities; the formation of professional abilities and skills: the focus of the performed action, rationality, organization of work and the workplace, independence in work, observance of safety rules in training and professional work, the applicability of theoretical knowledge in performing tasks, the application of new technologies, rationality of technological process's projecting, accuracy of activity (deviation from standard), the time spent on learning of the educational material.

The implementation of the established criteria groups substantiated the main differences between the socio – pedagogical priorities of the traditional educational process from its new types, which are used as: 1) the level of information technology's application and 2) learning format. The study

determined the baseline levels of application of information technologies in the educational process of the University: low – characterized by the spontaneous use in the classroom of separate facilities, such as software Word, Power Point, Excel and some other basic computer programs. The middle level involves technologically advanced learning with a wide introduction in educational process of digital technologies and multimedia. High level, in addition to means of the average level, includes management systems of distance learning to enhance the e-learning process.

The format of the educational process in the conditions of implementation of information technology is divided into traditional, combined or partially remote and fully remote. It is established that traditional (intramural and extramural) studies are characterized by a low level of use of modern technological tools. Combined or partially-remote and fully remote ones are beyond the boundaries of traditional educational process: learning from the familiar frameworks moves in the virtual space using the Internet, interactive multimedia, and management systems of distance learning. Zone of combined and distance learning is determined by the average and high levels of information technology's application that demonstrates a shift in the traditional educational process of the University into the electronic media, which is fast-moving in subject information environment of the educational process (see table. 1).

Table 1. Levels of implementation of information technologies in educational process of the University.

Levels of implementation of electronic technology	The traditional educational process	A combined educational process	Fully electronic educational process
High			
Average			
Low			

Complex of didactic components of information technologies in the educational process of the University

The criteria established determine the orientation of the structure and content of the target, content, procedural, technological and resource components of social and pedagogical priorities of the educational process of the University on the implementation of new types of information technologies, enriched by the resources of the computer, the Internet and other interactive multimedia. Taking into account established modifications the structure and content of the didactic components of socio – pedagogical priorities of the educational process of the University in this study are validated as:

1) target components of integrative unity of strategic, operational and predictive purposes of students' training – future specialists of a new generation, on the achievement of which the technology is oriented:

- strategic goals – professional training of the individual student – the future specialist of new generation with developed intellectual capacity, a high level of critical thinking, creativity, computer literacy, communicational skills; professional and General cultural competences allowing successfully to carry out activities in modern informational and educational environment;

- operational objectives – the formation of common cultural and professional competences required for the individual student – the future specialist to use hypertext and hypermedia structural forms of presenting teaching material: the electronic textbook, electronic test, tools for modeling of educational material, training and controlling software, etc.;

-predictive goals – development of creative technological potential of personality of a future specialist, the formation of the focus on professional growth, career, readiness for change of innovations in the educational process and in future professional activities;

2) content components, reinterpreted taking into account the didactic model of the tetrahedron. It is established that the content components of social and pedagogical priorities of the educational process in the model of K. Ruthven (2012) are determined by the use of information technology in a virtual environment using the Internet and multimedia. The study justifies approaches to the use of didactic components of these technologies, in combination with the resources of the virtual space in specific educational process. Despite the fact that the model of a tetrahedron is a unified whole, each its line has the uniqueness due to the implementation of technology. The first face or the base of the model represents the traditional didactic triangle "teacher – student – content", which corresponds to the priorities of innovative pedagogical technologies implemented also by using computer resources, Internet, virtual space. The second one - "student – content – technology" reflects the priorities of e-learning or learning through information technology. It is used as a backup of self-organized learning in a virtual environment using the Internet and multimedia. The third face – "teacher – content – technology" in content and orientation is identical to the second face. They only difference is in the object of study: in the first case it is a student, in the second case – the teacher. This face corresponds to the e-learning of the teacher. The fourth face – "teacher – student – technology" reflects the interaction of the teacher and student with information technologies outside the boundaries of the subject content in electronic counseling;

3) procedural – technological components that transform the educational process of the University into creative activity, which is characterized by three types of operations (Bono, 1998):

- the logical - sequence of actions is characterized by the solution's algorithm, description. In this activity the planned result is a foregone conclusion;

- intuitive – the complex of indivisible operations which are often cannot be subjected to explanation. The main thing in intuition is an inspiration that occurs in the process of emotional state in the form of a desire to carry out the scientific prediction, to solve a "great" challenge, enrich personal experience;

heuristic – sequence of operations is built on the basis of intellectual abilities, such as willingness to explain, to analyze, to compare, to identify the main, to justify, to organize, to make discoveries, etc.

The study proves that these operations are the basis for selection of information technologies and their classification according to established socio – pedagogical priorities: at the level of the curriculum – this is a technology of organization of educational process (lectures and seminars, problem –

educational, interactive, projective, modular competency – based, electronic, media technology, multimedia); at the level of cyclic purposes, suppressing any changes in the curriculum and programs that occur under the influence of fluctuations, technology of theoretical, practical and industrial training are effective (modular, project, hypertext, media technologies, online, context); objectives of the specific course are implemented in the intermediate learning technologies, taking into account the peculiarities of the studied subjects; the purposes of the individual activities assume the use of private technologies (the formation of competences of self-transformation, self-organization, critical thinking, information activities, network information interaction; skills of modeling of the studied objects, their relations and processes; formalization of information; creation of electronic educational resources; use of instrumental information systems, etc.);

- resource components - are identical to the structure and content of educational software of information technologies in the educational process of the University. The study considers pedagogical and methodological mechanisms for the use of research findings in practical educational activity. In this context, the diversity of relationships and dependencies, the inter-disciplinary nature of their manifestations in the educational process of the University at three levels are manifested:

1) methodological – the use of concepts and conceptual approaches to the projecting and implementation of information technologies, to the development and implementation of components of social and pedagogical priorities of the educational process, to the improvement of students' and teachers' self-organization in e-learning;

2) the theoretical, which is dominated by the implementation of a set of principles underlying the educational process as the embodiment of the didactic concept in concrete forms, tools, teaching methods, forms of educational activity of students. This can be the content and technology of education, didactic systems of teaching methods, methodic of projecting and implementation of didactic components of social and pedagogical priorities of the educational process, hybrid information technology, etc.;

3) methodical – realization of the set of methods and techniques of the subject activity of the teacher and students on the mastery of a content system of knowledge and methods of their application; training documentation; learning tools; means of verification; teaching guidelines developed on science – based approaches to the use of hypertext and hypermedia structural forms of presentation of educational material, to expand the types of instructional materials (e-textbook, electronic, tests, and tools for modeling of educational material, training and controlling software, etc.).

The didactic content of the hybrid model of information technology

The study proves that the hybrid technology, unlike traditional teaching, enhances the educational process's frameworks, moving it beyond the university rooms into the digital space through Internet resources, interactive multimedia, and management systems (Selevko, 2006). However, a direct dependence is made of the structure and content of the hybrid model of information technology from the level of use in the process of projecting of didactic components of educational process in the University:

- target didactic components - perform constructional and projective functions in relation to the personality of the teacher and the student, the transformative function in relation to the subject of projecting and its participants, the normalizing function relatively to performance and result, the orientation function in relation to the final product;

- content elements are defined by the scientific rationale of content selection and structuring of educational material, providing a transition from the organization of the educational process by the teacher to acquire knowledge by students in the process of self-discovery, finding and identifying subjective personal sense in rethinking of the presented educational information, and ultimately to self-transformation and self-organization of this process through didactic and electronic means;

- the procedural – technological components – are oriented on the construction of the learning process, which represents the stages and the ways of solution of educational tasks on a didactic, content – technological, regulatory, procedural level of use of electronic resources and tools;

- resource components - provide educational process with the complex of theoretical and educational software of projecting of educational, computer, interactive, multimedia information technologies;

- criterion components - allow to use a set of universal criteria that reflect the specifics of socio – pedagogical priorities of the teaching process and didactic components of the hybrid technologies: 1) generality, which is manifested in the willingness of students to apply their knowledge in all areas of activity; 2) functionality, which is manifested in the experience of the students to apply the acquired knowledge in standard and non-standard situations and reflect these processes.

The combination and interpenetration of didactic and electronic components of learning content in the creation of a hybrid model of information technology – meets modern trends of transformation of the educational process in the University, focused on training of specialists of new generation (Ruthven, 2012).

Discussion

The results of the study confirm the relevance of the problem of designing of information technologies taking into account social and pedagogical priorities of the educational process at the University, contributing to the creation of science – based solutions that have both practical and theoretical significance for training of students – future specialists in high-tech fields. The study proves the assumption - the use of didactic components in the projecting of new types of information technologies, referred to in the majority of modern studies (Ostrovsky, 2003; Choshanov, 2013; D'Angelo, 2007; Mitra, 2005; Ruthven, 2012) as the term "hybrid" technology creates an innovative environment necessary for the integration of innovative teaching and modern electronic technologies, depending on the level of development of information and communication resources of the educational process of the University. It is found that to date, hybrid technology is most fully reflect the state of the educational process of the University, spontaneously, without scientific confirmation, which is substituted by electronic technology that moves the framework of the educational process beyond the university rooms into the digital space through Internet resources, interactive multimedia, and management systems. The efficiency of use in these

processes of the structure and content of the target, content, procedural, technological and resource didactic component of information technology is proven. Theoretical and methodological grounds for the use of the didactic components of information technology as social – pedagogical priorities of the educational process of the University are proved and confirmed by results of experimental studies using motivational, cognitive, axiological and activity-related criteria (see table. 2).

Table 2. Dynamics of realization of the information technologies' didactic components in the educational process of the University (data in %).

Criteria	Didactic components of information technology							
	Target		Content		Procedural technological.		Resource	
	The beginning of the experiment	The end of the experiment	The beginning of the experiment	The end of the experiment	The beginning of the experiment	The end of the experiment	The beginning of the experiment	The end of the experiment
Motivational	13	25	18	20	10	25	11	20
Cognitive	15	29	15	22	13	19	10	27
Axiological	13	22	13	20	9	16	9	17
Activity	15	20	10	25	11	23	10	20

Conclusion

This study confirms the theoretical and practical significance of the problem of projecting and implementation of the didactic component of information technology as social – pedagogical priorities of the educational process of the University. The paper represents the discourse of the concept "social – pedagogical priorities of the educational process at the University"; updates the content of the concept "hybrid technology"; based on the results of the study reveals the complex of social and pedagogical priorities of the educational process at the University: target, content, procedural and technological, resource components of information technology; justifies pedagogical approaches to the projecting of hybrid information technology; proves efficacy of the established set of priorities with the help of motivational, cognitive, axiological and activity-related criteria. This problem as a research direction is not exhausted by the decision of these goals and objectives. It is important for the theory and practice of educational process of the University to study more profoundly and in detail the phenomenon of hybrid interaction of didactic components of pedagogical technologies with resource sources of electronic technologies; to plan educational process of the University, enriched with new technologies; to project new models of activities of teachers and students; to improve curricula, programs, subject content, scientific and methodical and resource support of electronic technologies steadily moving into the digital space.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Ilya M. Rassolov, Doctor of Law, Professor, Head of the Department of State and Legal Disciplines of Plekhanov Russian University of Economics, Moscow, Russia.

Natalya V. Sidyacheva - PhD, Associate Professor, Department of Social Psychology, Moscow State Regional University, Moscow, Russia.

Larisa E. Zotova - PhD, Associate Professor, Department of Social Psychology, Moscow State Regional University, Moscow, Russia.

Feride Sch. Salitova - Doctor of Education, Professor of the Department of Psychology and Education, Gzhel State University, Moscow Region, Gzhel, Russia.

Svetlana M. Konyushenko - Doctor of Education, Professor of the Department of Education and Educational Technologies, Immanuel Kant Baltic Federal University, Kaliningrad, Russia.

Nuriya Kh. Gzhemskaya - PhD, Associate Professor, Department of Physical Education and Sport, Kazan (Volga region) Federal University (Naberezhnye Chelny Branch), Kazan, Russıa.

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