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Formation of Information-Educational Environment in the Partner Universities of University of Shanghai Cooperation Organization

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ABSTRACT

Actual continuity of the problems stated in this article caused by the fact that the modernization of the process of training teachers for the Eurasian area in the context of internationalization requires the development of a unified information and educational environment of the University of the Shanghai Organization of Cooperation partner universities in the direction of «Pedagogy». The purpose of the article is to develop a model of the information educational environment of the partner universities and the conditions of its formation in the context of internationalization and informatization. The leading method to the study of this problem is the simulation method to address this issue as the meaningful and organized design process and the formation of the information educational environment of partner universities on the basis of networking, distance learning, information and methodological support of the Shanghai cooperation organization of the University of partner universities cooperation in the direction of «Pedagogy». The developed information educational environment of the partner universities include components such as information and communication environment, scientific research environment, organizational and managerial environment. Teaching materials, presented in the article, methodical and technological nature may be useful in the design and shaping of information educational environment of partner institutions in accordance with the principles of intensity, psychological comfort, and the democratic possibilities of individualization of learning, openness and availability of information resources.

KEYWORDS
Informational and educational environment, information and communication environment, scientific research environment, organizational and managerial environment

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Introduction

The relevance of research

World educational practice has shown that in higher education high schools, community colleges and university associations have combined the greatest success and competitiveness of the international university community.

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This allowed us to identify priorities for cooperation with academic communities such as the University of the Shanghai organization of the Commonwealth, the International Association of Universities UNESCO, the Eurasian Association of Universities, the Association of European Universities, the Association of Russian federal universities, the Association of pedagogical universities of Kazakhstan and Russia (Asadullin 2015).

University of the Shanghai Cooperation Organization is among the universities, actively addressing the problem of internationalization. Further development of the world pedagogical ideas in the Eurasian context, the modernization of the process of professional training for the multi-level teacher education model is possible within this educational community (Efremov, 2010).

It confronts us with the need to create a unified information and educational environment for the University of the Shanghai organization of partner universities (USOP) cooperation in the direction of «Pedagogy». Without the joint efforts of educational resource that will not have the capacity and availability, which can be given in the format of an Open University international collaboration and cooperation (Charter of the Shanghai Cooperation Organization, 2002). Real communication, supported by information and communication technologies, it is the symbiosis that guarantees the success of the formation of a competitive, mobile, competent person who borrowed the best from the resources of the partner universities, will enrich the information and technological potential of their region (Islamova, Saitova & Semenova, 2015).

The need for the formation of the information educational environment of pedagogical university and the saturation of its content methods, forms and techniques as dictated by the changing needs of young people in innovative ways of information exchange, interaction and communication.

Materials and Methods

Research methods

The whole complex of complementary research methods were used to solve research problems. Among these methods are the analysis of domestic and foreign literature, comparative benchmarking, ordering materials for the research problem, modeling; teacher observation, survey, surveys, testing, pedagogical experiment, statistical methods of data processing.

Experimental research base

Experimental work was carried out at the M. Akmulla Bashkir State Pedagogical University (Ufa), Gumilev Eurasian National University (Astana).

Stages of research

The study was conducted in three stages:

The first stage - the preparatory stage - the current state of the research problem in the pedagogical theory and practice of internationalization and informatization of education was analyzed; the program of research methodology was developed; the specifics and peculiarities of the use of information and communication technologies in higher education partner of the Eurasian educational space was revealed;

At the second stage - the main stage - the model of information-educational environment of the partner university and the complex of pedagogical conditions for its implementation was developed and implemented; the effectiveness of this model in the partner universities of USOP in «Education» was audited;

At the third stage - the final stage - systematization, interpretation and synthesis of the research results were carried out; refined theoretical conclusions were refined; processing and presentation of results of research were carried out.

Results

One of the sources of increase of efficiency of higher education is its internationalization as a tool of international inter-university cooperation and collaboration (Shalgynbaeva, 2010). The exact confirmation of this are the community colleges such as the University of Shanghai Cooperation Organization (6 countries, 82 leading universities of SCO member countries); International Association of Universities supported by UNESCO (universities of more than 150 countries, including 23 Russian Universities); The European University Association (more than 850 universities from 47 countries); Association of pedagogical universities of Kazakhstan and Russia (7 universities).

Benchmarking university achievements excursions showed that the M. Akmulla BSPU has sufficient resources (multi-level model of professional education development, network research projects, multidisciplinary basic educational programs, information and education portal, the depositary of social and professional technology, etc..), providing innovative development of the university in the areas of training, not only teaching staff region, but international experts and educational space of Eurasia (Islamova, 2014).

We believe that the formation of the Eurasian Technopolis Innovation, capable of generating and implementing innovations in high-tech and competitive field of economy, industry and business, a high level of training of highly qualified teachers is needed. This conceptual vision allowed us to be one of the first to enter the Shanghai organization of the University community in the direction of «Pedagogy». For us it is not only a natural step towards internationalization and the development of academic mobility, but also access to a qualitatively new level of the network, the research and development and information and communication interaction partner universities, predetermining new format promising directions Commonwealth (Islamova & Semenova, 2014).

We concurred with scientists and managers from partner institutions in that key area of cooperation is cooperation in the field of informatization of educational space. In this context, the creation of the information environment partner universities using the variety of information and communication technology (ICT) is becoming a top priority of the educational policy of the Shanghai Cooperation Organization University (Kalkeeva, Abdykalykova & Shalgynbaeva, 2015). In a comparative analysis, we examined the potential of systems such as the system of electronic libraries and databases, electronic teaching materials and aids, the system of distance learning and the Moodle educational process management, automated information system Platonus, websites M. Akmulla BSPU and LN Gumilev ENU and others. The undeniable importance is the conclusion that a sufficiently varied use of ICT in the educational process of higher education, in the information and communication support training areas «Education» in the partner universities is unsystematic (Islamova et al., 2014).

In this context, the crucial importance has the acquiring clarify of the essential characteristics of the concept of information-educational environment of high school, by which we mean deliberately organized informational and educational space educational organizations actively influence the learning process with information and communication technologies. It includes both methodological, policy, organizational, technological resources, and intellectual and cultural potential of the partner university, aimed at the development of mobile, competent, competitive and tolerant person of the student.

Formation of the educational environment, we naturally started with design, multi-level process which involves the following levels:

- conceptual, in which the description of psycho-pedagogical mechanisms and principles was made that underpin the process of theoretical training. Project learning environment at a given level comprises not only the description of activity of the teacher, but also the activities of students;
- technologic, in which the information-educational environment as a control method is described. Description of the project was given in the form of rules and requirements for all components of the substantive and procedural aspects of the investigation, as well as methods of action, aimed at the development of students;
- operational, in which the learning process assigned to the computer as a solution to these problems, the didactic function of learning activities in the first place, and secondly, to describe the main types of the educational management. At this level were taken into account: «computer fragment» learning (repetition, consolidation etc.); the degree of individualization of learning (taking into account the student's model); history student learning and use of this information; what responses students; type of dialogue (the actual «business» pedagogical orientation); the extent to which the system allows you to manage student; kind of control;
- - realizable, composed of two sublevels - pedagogical and software implementation. The first of these actions reflected the training system, and the second defined an action teaching system in every moment of learning.

System-structural analysis of the information educational environment has allowed us to isolate its main components:

- - information and communication;
- - research;
- - organizational management.

Information and communication component includes the availability of computer classes, the possibility of on line communication and obtaining information of interest. This ensures the availability of such information resources as an electronic textbook, electronic lecture notes; case-study; laboratory practice, and others. It plays a significant role in the development of intellectual and cognitive sphere of the individual student (Polat et al., 2002).

Research component is a set of products developed in the design and research activity of students (multimedia teaching aids, teaching materials, worksheets (diaries), the test membranes, electronic portfolio, personal web pages, blogs, etc.); base training sessions with the use of these technologies authoring; fund

publications, reports (published on the Internet, in particular) with a generalization of experience in the use of media resources. It plays a significant role in the development of the research competence of the teacher.

Organizational and management component includes the coordination and approval of the basic educational programs and related documents.

Effective implementation of the above components opens up new possibilities in the information educational environment for all of its participants and their interaction:

- - reducing the time to search for and access to relevant educational and scientific information by teachers and students;
- - acceleration of renovation of educational content at the expense of teachers' time to develop new educational and methodical literature;
- - release additional time students for independent work, and the teachers in the improvement and development of the educational process;
- - acceleration of the achievement of students of the established requirements (norms, standards) to the quality of education, and others.

In our study, it was found that information-educational environment has certain characteristics that contribute to the development of the activity of the student and his personal freedom. These include the intensity, psychological comfort, democracy, the possibility of individualization of learning, opening (closing), the provision of information and technical resources.

For studying the intensity of the information educational environment is manifested in the volume and complexity of the learning activities offered in lectures, practical classes, seminars, during self-study, as well as the degree of use of interactive teaching methods. For teachers this intensity manifested in teaching load volume, as well as the level of requirements for the content and quality of their work.

Psychological comfort evidents in the degree of satisfaction with the institution, its importance and place in the value system of the subjects of the educational process, especially their relationships, etc.

Democracy manifests itself in the degree of democratic administration style of communication between teacher and students, the opportunity to participate in the management of the university, to take decisions relating to the personal interests of participants in the educational process. Also important is a manifestation of democratic autonomy in the definition of individual professional development paths.

The possibility of individualization of learning is manifested in the possibility of implementing their own educational and scientific interests in the learning process at the university. Despite the fact that in our partner universities learning objectives are predefined in the federal state educational standards of higher education of the Russian Federation and the State Compulsory education standard of Russian Law book student learning opportunities is greatly enhanced by scientific societies, participation in conferences and competitions, as well as support of desire by teachers to engage in research.

External openness manifests itself in a flexible response to the rapidly changing socio-educational situation, striving to capture sensitive social order. The internal openness is associated with the ability to choose an individual path of development based on psychological characteristics, abilities and aptitudes of the

student. A reorientation from the closed type to open type is characterized for information educational environment of modern high school.

Provision of information and technical resources is shown in the level of equipment of classrooms and laboratory technical equipment, the level of security of electronic libraries, books, databases, and the degree of access to them.

In summary it is important to emphasize that such characteristics as a psychological comfort, democracy and openness reflect the values and the target component of the information educational environment, the intensity and the possibility of individualization of learning reflect a substantial component, providing information and technical resources characteristic of organizational and technological components.

We proceeded from the fact that the model has to determine the educational environment of the partner universities as a multicomponent system of electronic training materials, databases and directory systems, automation research, organizational and administrative activities. Information educational environment model must include elements, tools and technology combining the various components into a single information system (Figure 1).

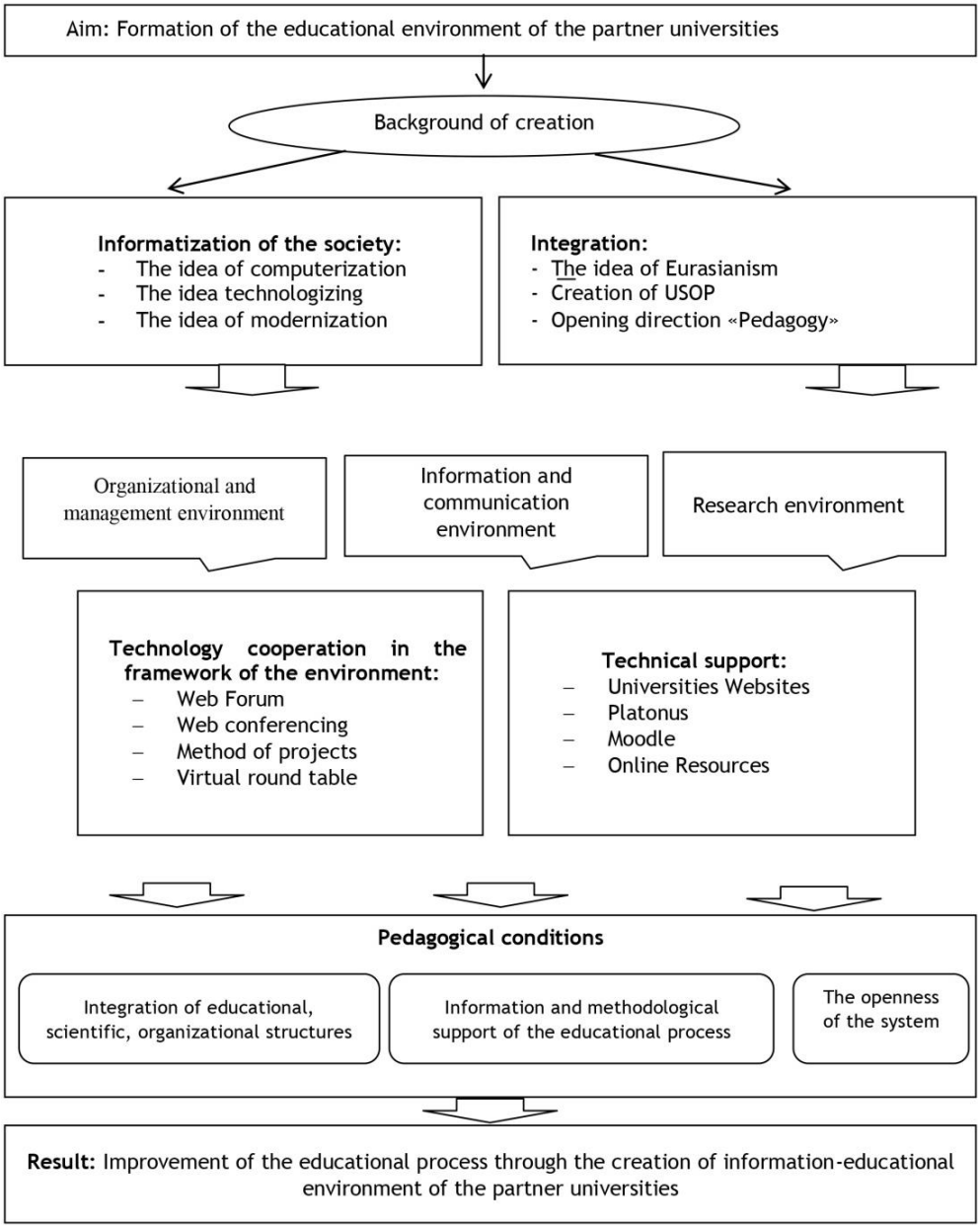

Figure 1. The model of formation of the information-educational environment of the partner universities of the Shanghai Cooperation Organization University

Implementation of the model form specifically designed and organized the information educational environment of partner universities is based on the principle of selective integration of the environment in which information-communicative environment determines the technological vectors of formation of organizational-administrative and research environment.

In the design and organization of information and communication environment, we took into account the needs of the information society in the maximum number of information sources, a high speed of spread, and individual

election of its use and the need to find the means and methods used in information-rich learning environment and meeting this need.

In order to validate our assumptions and intermediate conclusions we carried out experimental work on the basis of the M. Akmulla Bashkir State Pedagogical University (Ufa, Bashkortostan) and the L.N. Gumilev Eurasian National University (Astana, Kazakhstan).

The control and experimental sample consisted of students of the first and second courses on direction «Pedagogy and Psychology» where the study of psycho-pedagogical disciplines was provided.

In the course of ascertaining stage the following tasks were carried out:

1) techniques to determine the severity of the information educational environment characteristics were selected;

2) educational disciplines for experimental work were defined, selection of the experimental and control groups was carried out;

3) technologies in selected academic disciplines were selected and modified.

We used the N.P. Badina technique to assess the severity of the characteristics of the information educational environment of the partner universities (Badina, 2006). Carrying out of diagnostics led to the conclusion that such characteristics as the availability of resources (0.24), the intensity (0.36) and psychological comfort (0.31) have a low degree of severity in the control and in pilot groups. The low degree of such characteristics as democracy and transparency are features of partner universities (Fig. 2).

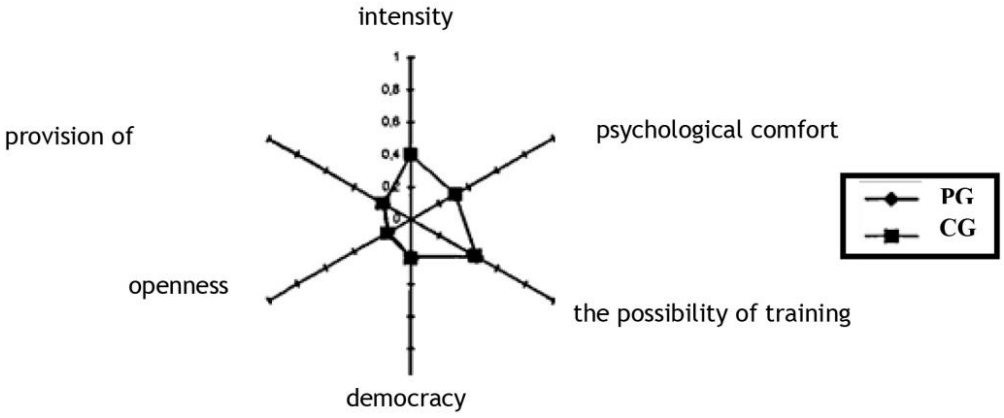

Figure 2. The extent of the information educational environment characteristics (ascertaining stage of the experiment)

In addition, in the course of ascertaining stage of the experiment the level of formation of motivational, cognitive and learning the value of quality components was determined.

Knowledge of the motives that encourage students to active learning activities, allow the teacher to influence the learning process effectively. We took the test of O.S. Grebenyuk (Grebenyuk, 2000) as the basis of measurement of motivation, where the signs of the factors are selected for each of the three properties of motivation: social orientation, a subject focus and dynamism. The conclusion that the formation of motivation of the doctrine was made is based on the test results processing.

Analysis of the results presented in Table 1, reveals the predominance average motivation level (average of 33.4% of the students).

Table 1. The level of student motivation (ascertaining experiment)

	The level of motivation			
Group	Low	Middle	Advanced	High
CG	19,2%	34,7%	26,9%	19,2%

It should be noted that only a minority of students' predominant motive of learning activity was the desire to become a highly competent specialist. To refer narrowly personal motives (the desire to take the exam, test, etc.) in a clearly defined training reasons, it is necessary first of all to link the motives of a cognitive interest, which refer motif in a new qualitative state, prompting the person to the dedication, persistence in achieving the goal, striving for the completion of activities that transforms student from the object of study in the subject of study.

During the formative stage, the following tasks were solved:

1. The developed model of the information educational environment of the partner universities and software training were implemented.

2. Pedagogical conditions of formation of information educational environment of the partner universities of USOP were created.

3. The level of formation of information and communication, organizational, managerial and research environments was determined.

Based on this, we have proposed the formation of the following technologies of information and communication and research environment of high school: the technology company of web forum and virtual roundtable. For a web forum to be more effective, we ensure the implementation of the following principles: specificity, selectivity, freedom of choice of subjects; management discussion process; the possibility of informing itself; legitimacy, privacy; monitoring user activity. In organizing and conducting a web forum, we adhered to certain plants: selected topics were wide enough for a multi-faceted discussion, topics reflected the current problems of higher education in Russia and abroad («Major trends in the global economy as a condition for the development of education», «Innovative Processes in Education», «The main directions of the reform of education», «Education quality problems» and others), interactive communication is directed to the formation of the ability of the scientific analysis of the issues discussed, virtual dialogue was positive and friendly character. Communication within our web forum was of an interactive character because the dialogue was held simultaneously in all directions with the ability to simultaneously record multiple comments. As a result, the attention of every party web forum was distributed between several people at the same time, contributing to the free and multilateral form of discussion.

Organization of the research environment was carried out in a joint projective research activities of students and teachers in the development, design and development of media products (educational services, etc.), which ultimately contributed to the development of creative abilities in the use of educational technologies. As a result, we have formed the ability of students to search, development and application of innovative technologies, the ability to design and implement research-network projects, ensuring mastery of research competencies, public speaking skills, reasoning, conducting discussions, polemics, etc.

On the reflective stage of design activity to identify the overall impression of the work on the research project, we have offered students the following profiles with unfinished thesis: «Most of all I liked ...», «Compared to the others, our project ...», «Today my mood ...» and in general, most students expressed positive emotions and positive attitude towards their work. The proposed projects gave the opportunity to deepen the knowledge of psychological and pedagogical disciplines. They contributed to the disclosure of the individual student, and caused a great interest among artists than just reproductive activity. Potential psychological and pedagogical disciplines was reinforced developed and implemented in the educational process of the experimental groups complex technologies described above. The changes taking place in the development of the individual competencies of students were subjected to qualitative analysis, recorded and systematically were discussed at faculty meetings.

The formative experiment has shown that the implementation of these activities, shown in the article, spurred on the development of the capacity of the virtual online interaction, the ability to navigate the information redundant and fragmented nature, readiness for change in information and communication space.

Thus, experimental work on testing the model of formation of information-educational environment of the University of Shanghai Cooperation Organization partner universities, as well as the positive dynamics of the pedagogical experiment confirmed the results put forward in the study of the situation.

Discussion

The analysis of the theory and practice of higher education shows that there have already been accumulated a certain amount of conceptual ideas and methodological approaches in the study of information-educational environment of high schools.

The main provisions of the theory and practice of informatization of education have been developed in the writings of S.L. Atanasyan (2009), E.S. Polat et al. (2002), I.V. Robert (2010), O.G. Smolyaninova (2002); principles of design information and educational environment were reflected in the works of scholars such as S.A. Nazarov (2006), S.B. Petrenkova & E.V. Rashidov (2009), A.V. Osin (2005), N.V. Smirnova (2001); the main provisions of networking between partner universities in the international educational community are reflected in the works of L.I. Efremova (2010), R.M. Asadullin (2015), Z.I. Islamova, L.R. Saitova & G.E. Semenova (2015). Problems of development of information and educational environment in terms of the application of information technologies have become the subject of research in the works of Y.S. Branovsky (1995), V.A. Trayneva & I.V. Traynev (2005), A.V. Khutorskoy & G.A. Andrianov (2009), who argue that information technology can become a basis of designing a new developing environment and learning space called «educational environment»".

Studies have contributed to the accumulation and systematization of scientific information on the issue of the creation of information-educational environment, however, the principles, conditions and mechanisms of formation of the information educational environment of the partner universities in the international educational community are not well understood. As a result, it increases the importance of the theoretical and practice-oriented research, identifying characteristics and

pedagogical design and operation conditions of the information educational environment of the partner universities, ensuring the development of its three components: information and communication environment, research environment, organizational and management environment.

Conclusion

It was found that the developed structural-functional model can successfully organize meaningful process of formation of the information educational environment of partner institutions on the basis of networking, distance learning and information and methodical support of the University of the Shanghai organization of cooperation partner universities in the direction of «Pedagogy».

Information educational environment of the partner universities, consisting of three interconnected components (information-communication environment, scientific research environment, organizational and management environment), provides the possibility of accumulation of intellectual, cultural, software and methodical, organizational and technical resources of the Shanghai organization of the University of partner universities cooperation.

Targeted organization of the information educational environment of the partner universities in accordance with the principles of intensity, psychological comfort, the democracy, the possibilities of individualization of learning, openness and availability of information resources provides opportunities for developing and interfacing of basic educational programs in the on-line and off-line, virtual communication, scientific network design and socially educational interaction between teachers and students in the mainstream of the international community of the Shanghai cooperation organization.

Recommendation

Presented in the article teaching materials, methodical and technological nature can be useful in the design and shaping of information educational environment of partner institutions in accordance with the principles of intensity, psychological comfort, and the democratic possibilities of individualization of learning, openness and availability of information resources.

In view of the results we can identify a number of scientific problems and promising areas for further consideration: the development and implementation of innovative models, methods and technologies of training and education of students with further extrapolation to all partner universities of Eurasian educational space; the development of psycho-pedagogical support of training, retraining and advanced training of professors and teaching staff of partner universities in all areas of the University of Shanghai Cooperation Organization; University student axiosphere identification of the University of Shanghai Cooperation Organization in the direction of preparation «Pedagogy» and the development of pedagogical conditions for its implementation.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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