

IFTE 2018
4th International Forum on Teacher Education

**DESIGNING ELECTRONIC EDUCATIONAL RESOURCES
THROUGH TEACHER NETWORK COOPERATION IN HIGHER
EDUCATION**

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Abstract

Providing teachers and student teachers with teaching and learning support is a critically important issue. Within the framework of the project implementation we have made an effort to design and test electronic educational resources (EER) within the network cooperation of partnering universities. Upon the realization of this project it has been found that: firstly, through developing subject-specific EERs the workload of teachers can be reduced (as students are enabled to work independently); secondly, EER can be used in all universities within the cooperation network, consequently by transferring from one university to another (within the network), students continue their work with the use of EER within their chosen subject area. Along with that teachers always have the right to enrich the content of EER when that is necessary. Students are permitted to use collective works of scientists from various educational organizations across the country. The same EERs can be used multiple times.

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Keywords: Education, network cooperation, electronic educational resource, student, academic mobility, project.



1. Introduction

The urgency of the issue stems from various factors (economic, politic, etc.) which “push universities to embrace each other”. Network cooperation of universities is expanding progressively. It relates also to teacher training institutions. A lot of scientists have been always interested in researches in the field of teacher education. For example, the following issues have been studied: creative work of a teacher and a student – future teachers in the process of learning (Khuziakhmetov & Gabdrakhmanova, 2016), quality of education (Gabdrakhmanova, Kalimullina & Ignatovich, 2016), forms of school organization and management (Gabdrakhmanova, 2015), improving the teacher training process (Tatto, Andrews, Floden & Richmond, 2015). Scientists have studied various issues of network cooperation of educational institutions (Shvetsov & Dugarov, 2012; Gabdrakhmanova, Khusainova & Chirkina, 2016a), network cooperation of educational institutions in the sphere of non-school activities (Lekomtseva & Zolotariova, 2011), assessment in open education (Chiappe, Pinto & Arias, 2016), comparison of educational results of students studying by schoolbooks and by using open educational resources (Hilton, Fischer, Wiley & William, 2016), development of university teachers cooperation by network cooperation of universities (Nascimbeni & Burgos, 2016), advantages and disadvantages of distance education (Chawinga & Zozie, 2016), school organization and management using electronic educational resources (Bosova & Bosova, 2012), analysis of existing systems has been performed (Martin & Gobstein, 2015). Kazan (Volga Region) Federal University (KFU) – is a large educational organization of higher education and it is a part of a network cooperation of institutes. KFU is given an opportunity to implement a project of the Ministry of education and science of the Russian Federation ‘Development and practical approval of new modules and implementation rules of the main educational Bachelor’s program by major group of specialties “Education and Pedagogy” (field of education – Psychological and pedagogical education), organising academic mobility of students of pedagogic specialisations under the conditions of network cooperation” (Government Contract No 05.043.12.0009 of May 23, 2014). Project Managers (Director of Institute of Psychology and Education, Professor Kalimullin and Professor Valeeva) have decided not to be limited to KFU and created network cooperation between several large educational organizations of higher education (EOs HE) of Russia. After extensive negotiations with five EOs HE Cooperation Agreements have been reached and signed. The group of EOs HE has been comprised of: Federal state budgetary educational institution of higher professional education “Vyatka State University of Humanities”, Federal state budgetary educational institution of higher professional education “Naberezhnye Chelny Institute of Social and Pedagogical Technologies and Resources”, Federal state budgetary educational institution of higher professional education “Ural State Pedagogical University”, Federal state budgetary educational institution of higher professional education “Mordovia State Pedagogical Institute named after M.E. Evseyeva”, Federal state budgetary educational institution of higher professional education “Chuvash State Pedagogical University named after I.Ya. Yakovlev” (Chirkina, Khusainova & Gabdrakhmanova, 2015).

2. Problem Statement

We have formulated the following hypothesis of the study: designing and testing electronic educational resources (EER) within the network cooperation of partnering universities contributes to the following:

- reduction of teachers' workload;
- creation of favorable conditions for students. Students of partnering universities study using the same subject-specific EERs. Students interested in transferring from one university to another (within the network cooperation) can do so easily.

3. Research Questions

- 1) to study philosophic, methodic, pedagogic, psychological, social literature in regards to selected issue of the study;
- 2) to define a plan for designing the EER within the framework of the project implementation;
- 3) to organize continuing professional development courses for the staff of partnering universities.

4. Purpose of the Study

Objectives of the study

4.1. It has been required to complete the following tasks:

- 1) to group teachers from different universities into collaborative subject-specific units;
- 2) to specify unified requirements for electronic educational resources;
- 3) to create electronic educational resources for various modules;
- 4) to apply electronic educational resources at all universities within the network cooperation (Gabdrakhmanova, Khusainova & Chirkina, 2016b).

5. Research Methods

5.1. Theoretical and empirical methods

For the purposes of hypothesis testing and achieving the objectives of the study we have used a complex of various methods:

Theoretical methods: theoretical analysis and synthesis of philosophic, methodical, pedagogical, psychological, social literature, comparison and modeling;

Empirical methods: study of training and software documentation, organizational and regulatory documents, observation, pedagogical experiment, qualitative and quantitative analysis of experiment results.

5.2. Basis of the study

Kazan (Volga Region) Federal University has served as a basis of the study. The experiment has also been conducted within other partnering universities participating in the network cooperation.

6. Findings

6.1. Organizational and pedagogical conditions

Under the conditions of the project it has been required to create modules integratable into any different educational programs. It has been necessary to estimate the volume of modules in credit points, to establish a system from interrelated disciplines complementing each other and which may be studied by students consequently. Under the conditions of the project we have had to focus on students of non-pedagogical specialisations keeping in mind the issue of student academic mobility organised within partnering universities. We have divided students into several groups: students of non-pedagogical specialisations (who decided to change their major); students of pedagogical specialisations (students undergoing additional education); students who already have higher education certificate. Students might have various reasons for changing their specialisations. It is important make sure that students don't see our field of study as just another "stepping stone" on their way to develop their professional identity, and their teachers have opportunities to help students develop their educational values (Gabdrakhmanova, Khuziakmetov & Yesnazarova, 2015). EERs may contribute in such work of teachers. Electronic educational resources have been created for three modules, presenting a plan of study, based on Federal state educational standard (FSES 3+). Then they have been posted onto the platform "Distance education of KFU" (Documents of e-learning system of KFU).

The material and technical base of the electronic education system of KFU has been improved significantly over recent years (Learning management system). LMS MOODLE – is a basis of electronic system of Kazan (Volga region) federal university. MOODLE (Modular Object-Oriented Dynamic Learning Environment) is an open access online application that allows to set up sites for electronic education (electronic courses). MOODLE is translated into several languages, including Russian (Ustyugova, 2010).

MOODLE is used in 50 000 organizations in 200 countries.

MOODLE has more than 1000 installations in Russia.

MOODLE has (in some installations) up to 500 thousand users (Lms-moodle).

Learning management system (LMS) is a complex set of software and hardware powered by Internet technologies and designed to provide learning content for students and equipped with various assessment tools. LMS establishes conditions for providing synchronous and asynchronous modes. Within the synchronous mode the training is conducted according to the schedule, with the assistance of a teacher – for example, lectures, webinars, videoconferences. Within the asynchronous mode students use learning materials at their convenience: lectures, presentations, videos, tests, self-education materials, exercises, etc. LMS also promotes online collaboration among students (through the means of e-mails, discussion boards, chat groups, etc.) (Lms-moodle).

The electronic learning system in KFU has been developed on the basis of regulatory and legal documents: Federal Law of the Russian Federation "On education in the Russian Federation" (in effect from September 1, 2013), Certificate of state accreditation of KFU, Order of Ministry of Education and Science of the Russian Federation of January 9, 2014, i.2 "On Approval of electronic education, distance educational technologies application procedure by organizations, conducting educational activity, upon educational programs implementation, all laws of the Russian Federation, the Republic of Tatarstan,

regional and related legislative acts and other required documents in the field of electronic education, Regulations on electronic education in KFU.

After all the partnering universities have been determined, university staff has been selected for participation in the project implementation. Each discipline of the plan of study has been realized by 6 teachers at once in each university.

Project Managers have set a task to create a EER for each working group of teachers led by specialists from the Institute of Psychology and Education at KFU. Electronic educational resources have been designed to assist students. As for teachers EERs has been designed to assist them in monitoring of individual progress of students, to offer consultations in due time, check tests, etc. The teachers of the Institute of Psychology and Education at KFU have extensive experience in creating EERs. Even at the very beginning of electronic education system creation in KFU, the Director of the Institute of Psychology and Education at KFU organized workshops for teachers of the Institute. Continuous professional development (CPD) courses were organized for academic staff of partnering universities. These CPD courses were focused on preparing teachers for developmental work as well as for realizing Bachelor programs in the field of Education and Pedagogy (Gabdrakhmanova et al, 2015). 100 people were went through these CPD courses.

6.2.Experimental procedure and results

EERs have been developed and tested gradually. Firstly, the EER of the first module “Psychological and pedagogical foundations of education in multicultural environment” by the following disciplines has been developed:

Compulsory disciplines:

1. Pedagogy in the modern anthropological knowledge system.
2. Psychological theories in educational systems design.
3. Philosophy and History of education.
4. Problems of Childhood in ethno-pedagogy.
5. Education in multicultural and multiethnic society.
6. Psychology of Ethnic Self-awareness and cross-cultural communication.

Elective disciplines:

7. Adaptation training.
8. Team building training.
9. Personal development training.
10. Conflict management training.
11. Tolerance and cross-cultural communication.

Then EERs of the second module “Biological psychological and pedagogical fundamentals of child development” have been created:

Compulsory disciplines:

- 1 Psychophysiological peculiarities of a child development in preschool childhood.
- 2 Psychophysiological peculiarities of junior school children development.
- 3 Psychophysiological peculiarities of teenagers’ development.

- 4 Psychophysiology of adolescence.
- 5 Psychological and pedagogical anthropology.
- 6 Gifted children.
- 7 Children at risk.
- 8 Children with behavioural problems (troubled youth).
- 9 Children suffering from addiction.
- 10 Children with disabilities.

And at last EER of the third module “Psychological and pedagogical support of children development in educational environment” has been developed:

- 1 Psychological and pedagogical diagnostics.
- 2 Qualitative and quantitative methods in psychologist’s work.
- 3 Fundamentals of preventive pedagogy.
- 4 Family psychology and pedagogy.
- 5 Psychological safety in educational spaces.
- 6 Psychological support within educational processes.
- 7 Psychological and pedagogical technologies for children with disabilities.
- 8 Psychological and pedagogical technologies for gifted children.
- 9 Technologies of psychologist’s work with children and teenagers in crisis situations.
- 10 Methods of active social and psychological learning.

Created EERs must conform to the following criteria:

1. Availability of metadata - 2 points.
2. Availability of discipline working program - 2 points.
3. Availability of brief notes of lectures - 10 points.
4. Availability of lectures notes for printing “on demand” - 20 points.
5. Structure of the course - 2 points.
6. Availability of glossary - 10 points.
7. Methodological support - 10 points.
8. Informational support - 5 points.
9. Feedback realization - 20 points.
10. Availability of theoretical material - 20 points.
- 11 Availability of introductory video tape - 14 points.

Maximal score: 115. Admission score: 51.

Electronic educational resource may be recommended for implementation into the educational process if it gains 51 scores or more.

In case if scores are less than 51 – it is required to improve it by the criteria with lower scores.

In modern conditions of education variability, differentiation and standardization, teaching materials of academic discipline becomes an important means of methodical provision of educational process in unity of purposes, contents, didactic processes and organizational forms. Prepared in such a manner it helps a teacher to comprehend more deeply and clearly his/her individual pedagogical activity and becomes a working manual for students when studying educational disciplines (Gabdrakhmanova, Khusainova & Chirkina, 2015a).

Teachers of the universities-partners have participated in creation of EER, accordingly a workload of each of them has been reduced as each of them fulfilled only the part of EER.

In an Internet age we have decided to conduct lectures for students in online mode. For example, students of the Institute of Psychology and Education might be interested in attending a lecture of a teacher from a partnering university. Institute of Psychology and Education has all opportunities to practice it. But it was required to carry out a great preparation work. Firstly, it is required that all universities-partners have conditions (material and technical facilities), allowing to listen to a lecture in online mode. Secondly, it is necessary to agree with universities-partners on time of a lecture, on adjustment of schedules. Thirdly, a specialist, who can take care of equipment in cases of technical failures during online lectures, is required. The first lectures in online mode were held by the Project Manager – professor Valeeva. Several student groups were connected to her lectures at once. Then other lecturers took up the initiative. A lecture conducted in online mode is recorded and may be used in future repeatedly.

Teachers began to include video records of their lectures to EER scope. It became possible for a student not only to read a material but also to hear it.

Within EERs the lectures were recorded by teachers of different universities. For example, the first lecture was conducted by a teacher from Institute of Psychology and Education of KFU, the second – by another teacher from a partnering university. There were EERs, where 2 teachers from different universities presented video records of a lecture on the same topic (different versions of the same lecture were prepared by different lecturers). In this case a student could listen/watch the same lecture: 1) in classroom; 2) at home (after studies).

EERs may also help students become more reflective (Gabdrakhmanova, Khusainova & Chirkina, 2015b; Khusainova, Chirkina & Gabdrakhmanova, 2015). The system records and presents to students information about their activities within EERs. Using this information students may analyse their accomplishments and make up a plan for further progress.

EERs for three modules have been tested by all partnering universities. Both students and teachers have given positive feedback after testing these EERs. The teachers have noted a reduced workload. Students have remarked that by using EER, they are able to access research works of scientists from various educational institutions across the country. Also, they have noted that the application of a unified EER system in all universities-partners is convenient for those interested in transferring from one university to another.

6.3. Discussions

Within the framework of the project implementation teachers of universities-partners have created and applied in the educational process a unified system of electronic educational resources. It has led to a reduced workload for teachers participating in the project implementation. It has contributed in creation of favourable conditions for students interested in transferring from one university to another. Created EERs have been tested repeatedly.

6.4. Recommendations

The materials of the article may be useful for those studying issues concerning university network cooperation. Material of the article may be interesting for those studying teachers' and students' reflection. Materials may also be useful for those studying materials and technical facilities of educational process, as well as distance education.]

7. Conclusion

We have managed to establish working groups of teachers from different educational organizations of higher education. These teachers collectively have created Electronic educational resources which have been applied in partnering universities. All the electronic educational resources have been tested by all educational organizations of higher education participating in the established cooperation network.]

Acknowledgments

This study has been performed according to the Russian Government Program of Competitive Growth of Kazan Federal University. We express our gratitude to all the colleagues-teachers involved in the project, especially thank those who participated in the creation and application of the EER.

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