

Structural and Functional Model of Pedagogical Support for the Part-time Post-graduate Training via the Moodle System

Indira M. Salpykova* (a), Svetlana N. Bashinova (b), Nadezhda P. Pomortseva (c),
Arseniy M. Raff-Ganachevsky (d)

(a), (b), (c), (d) Kazan Federal University, 420008, Kazan (Russia), 18 Kremlyovskaya street,
indimar24@mail.ru

Abstract

The relevance of the study is determined by the insufficient development of theoretical, content-technological and methodological aspects academic training part-time students through e-learning (Avdeyuk, 2011; Mozhaeva, 2013; Babanskaya, Mozhaeva, Serbin, & Feshchenko, 2015; Ignatova, 2017). The purpose of the article is to develop a structural and functional model of pedagogical support for the part-time post-graduate training via the e-learning. The basis of the strategy in constructing the structural and functional model of pedagogical support of academic training for the part-time post-graduate training via the Moodle system was the competency-based approach. The leading research method for this problem is pedagogical modeling. The article presents a structural and functional model of organizational and pedagogical support of the preparatory course for part-time post-graduates in the Moodle system, which includes target, content, functional and assessment components and reveals their particular characteristics. The article surveys the experience of the Institute of Psychology and Education at Kazan Federal University, Kazan, Russian Federation. The result of testing the structural and functional model of pedagogical support for the part-time post-graduate training via e-learning is the *Designing a Preschool Organization Brand* electronic course designed by the authors using the Learning Management System (LMS) Moodle (Modular Object-Oriented Dynamic Learning Environment). The model is aimed at adapting post-graduates - the future managers of preschool organizations - to the new conditions of professional activity in the era of global digitalization of education. The results of the study can be applied in training full-time and part-time undergraduate and postgraduate students to obtain a degree in various majors and specialties at a teacher-training university.

Keywords: structural and functional model, e-learning (e-Learning), Moodle, master's program, postgraduate, part-time learning.

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* Corresponding author. E-mail: indimar24@mail.ru

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Introduction

1.1 Background

Today, digitalization is one of the most debatable trends in modern education. Understanding the role of education in the information society was determined by modern ideas of the role of digital technologies provided by the teacher, and marked the approaches and prospects of a new stage in the development of education (Uvarov, Butler, & Frumin, 2019). The new “digitalization wave” (Koroleva, 2019) is associated with the adoption of the national project Education, in which a series of large-scale projects is planned. Federal projects such as Digital Educational Environment and Teacher of the Future are designed to create opportunities for e-education and learning, as well as improve training of future teachers.

To meet these requirements is possible in the context of lifelong education, the implementation of which involves the revision of concepts, goals, content, organizational forms and teaching methods. Vocational training of students in part-time courses can potentially solve these problems. Currently, this form of education is in demand, and the number of students is increasing annually. Improving the effectiveness of the training process is possible by means of e-learning. However, using the potential of the latter requires adapting the existing organizational and pedagogical support of training the part-time students.

1.2. Relevance of the Problem

The need for the active use of information and communication technologies (ICT) as indicated in the state standard is determined by instructional and methodological, information support for the educational process and the general cultural professional competencies of a graduate of a teacher-training university (Margolis, 2015). A post-graduate majoring in Teacher-training Education (Master's program) is to acquire the following competencies: knowledge of methods and means of obtaining, storing, processing information; computer skills as a means of information management; ability to work with information in global computer networks; readiness to apply modern methods and technologies, including information, to ensure the quality of the educational process at a particular educational level of a particular educational institution; ability to use the resources of the educational environment, including IT-resources, to ensure the quality of

the educational process. Building the indicated competencies implies the multi-level structure of the information and communication space as part of the academic environment of the university.

This task is being gradually solved by the research carried out in KFU within the Teacher of the XXI Century project, which is included in priority cross-disciplinary scientific development trends. Since 2012, the Distance Learning Platform e.kpfu.ru began to operate at KFU as a single entry point to the LMS MOODLE sites. In addition, the organizational and pedagogical support of training part-time students in the context of using the Moodle Learning Management System (LMS) (Modular Object-Oriented Dynamic Learning Environment) is an urgent problem that meets the modern challenges of the development of academic teacher-training education.

However, if the debating a single platform in KFU is just a technical issue, then understanding the problems of developing Moodle in the major of Teacher-training Education has become the main methodological problem of the teacher. The contradictions made it possible to identify the research problem - what the organizational and pedagogical support of the vocational e-learning training of students should be like to successfully increase the effectiveness of the education process.

We believe that the electronic course Designing a Preschool Organization Brand using the Moodle (Modular Object-Oriented Dynamic Learning Environment) Learning Management System (LMS) will increase the motivation of distance learning post-graduate students to work independently in the context of building professional competencies. In the practice of teaching part-time students, insufficient attention is paid to the use of electronic resources as a tool for developing the personality of students, in particular, in the process of organizing special conditions for organizational and pedagogical support.

1.3. Status of the problem

Research shows that the prerequisites for solving this problem have been created. The research dedicated to the Russian history, Theory and Practice of Distance Education is found in the works of Gromkova (1993) and Zimakova (1995). The improvement of distance learning by means of IT, distance educational technologies were considered by Loginov (2008) and Telesheva (2003). The implementation problems and e-learning potential were investigated by Astakhova (2005), Frolov (2009), Bulin-Sokolova (2008), Kalmykova (2006), Andreev, Andreeva, and Dotsenko (2008), Belozubov (2007), Ustyugova (2010), Arafeh (2004), Bates (2007), Holberg (1981), Steen (2008), Guri-Rosenblit (2005), Vorobiev (2013), Lukoyanova (2016), Mingazheva (2016), Keyek-Franssen (2018) and Janelli (2018). Information competence was studied by Polat, Bukharkina, Moiseeva and Petrov (2011) and Vlasova, Kirilova and Masalimova (2015).

The need for a manager to accompany studies at a university in terms of using information and communication technologies is indicated in various works of Kalmykova (2006), Kuzmina (2013) and Ibragimov (2018). The following authors considered the relevant ideas in their research work: ideas of a competency-based approach in education (Seer, 2005; Zimnaya, 2005); personality-oriented approach (Berdennikova, 2006; Polat, 2006); systematic approach (Lebedev, 2006; Mitsel, 2006); the activity approach highlighted by Galionova (2009) and Zakharova (2008); structural and functional approach (Mishchenko, 2007; Pechenkin, 2008; Yakovlev, 2010).

1.4. Hypothesis

The process of training post-graduates in part-time courses at the university in the context of e-learning will be successful in developing and implementing a structurally functional model of pedagogical support, including targeted, meaningful, operational-activity and assessment components and productive interaction of all subjects of the educational process: students and teachers.

Methodology

2.1 Research Aim

The analysis of theoretical works and practical activity in the framework of the developed problem showed that so far the issues of organizational and pedagogical support of raining post-graduates in part-time learning, carried out in the context of e-learning, has been studied insufficiently in terms of scientific knowledge and practical activity. This allowed us to formulate the goal of the study: to develop a structural and functional model of pedagogical support for the training of part-time post-graduates via the Moodle system.

2.2. Theoretical and Empirical Methods

To achieve the goal of the study, the following methods were applied: analysis of theoretical sources, analysis; synthesis; concretization; generalization; method of analogies; pedagogical modeling.

2.3. Research site

The research was carried out at the Institute of Psychology and Education, Kazan Federal University.

2.4. Research stages

The study of the problem was carried out in three stages :the first stage was to develop a theoretical and methodological base for creating a structural and functional model of pedagogical support for the training of part-time post-graduates. The second stage was the definition of the main didactic goal, the development of a model of organizational and pedagogical support for the training of part-time post-graduate students via the Moodle system. At the third stage, the main components of the model, functions were identified, the relationships between them were revealed.

Results

3.1. Model structure. Potential of the e-learning courses

The first stage of the study was to develop a theoretical and methodological base for creating a structural and functional model of organizational and pedagogical support for the process of training part-time post-graduate students via e-learning. The interpretation of the concept of “e-learning” has revealed many electronic information resources (Table 1).

Table 1. The ratio of the concepts of “information resources” and “electronic resources”.

Information Resources	Electronic Resources	
Paper Information Resources	Electronic Information Resources	Software Products

Many universities apply the multifunctional electronic educational environment Moodle. Moodle belongs to the class of LMS - learning management systems. The term “Moodle” is an abbreviation of the concept of Modular Object-Oriented Dynamic Learning Environment. It is a software package for creating distance learning courses and web sites. The table of contents (Table 2.) demonstrates that the use of electronic educational resources in the Moodle system represents the possibility of organizing interaction between the teacher and students, working with various types of information sources and the ability to design the educational process.

Table 2. Benefits of Electronic Resources

The benefits of electronic resources for undergraduate and graduate students	The benefits of electronic resources for the teacher
-interest, increased interest in the discipline (course); -the opportunity to study in a comfortable environment, pace, study the material several times; -the opportunity to study in a comfortable environment, pace, study the material several times, stimulate activity and independence in the process of mastering the course material; -conditions for independent choice of the level of tasks.	-providing automated control of knowledge and skills; -organization of independent research and design activities; -the ability to build an individual educational route for the student; -building a distance learning system.

Electronic educational resources (ESM) is a didactic tool, which is a set of teaching materials presented in electronic form, created and reproduced using ICTs, aimed at realizing the goals and objectives of modern education.

Analyzing the didactic potential of electronic educational resources, it seems to us possible to highlight the positive aspects of its use in the process of organizational and pedagogical support of part-time postgraduate students (Table 3).

Table 3. The electronic resources potential in organizational and pedagogical support.

Organizational forms of preparation of undergraduates by correspondence courses seminar, practical lesson	Potential of distance learning courses for training part-time post-graduate students
lecture	application of computer tools for visualization of educational material, increasing the information volume of educational material
seminar, practice class	differentiation and individualization of training
	control of practical tasks, tests, essays, etc.
	expanding the boundaries of research through the global Internet
independent work	organization of work at a convenient pace
	addition of Web2.0 resources with results of our own research
	The potential of electronic resources in the process of organizational and pedagogical support of part-time post-graduate students

Generally speaking, the use of the Moodle learning management system allows to ensure: multi-variance of information presentation; interactivity of training; continuous revisal of the studied material; content structuring and its modularity; creating a constantly active help system; self-control of educational activities; building individual educational routes; confidentiality of training; compliance with the principles of successful learning.

3.2. Structural and functional model of organizational and pedagogical support of training part-time post-graduates via the Moodle system

The basis of the strategy in constructing the structural and functional model was the competency-based approach, according to which special competencies are required in e-learning. Based on the research, we identified the fundamental principles for selecting the content and determining the structure of the model of organizational and pedagogical support of the training process for part-time post-graduates via the Moodle system. They are: continuity and openness; complexity and consistency; complementarity and variability; subject - subjective interaction; orientation on the self-development of part-time post-graduates.

The considered methodological approaches and conceptual provisions made it possible to determine the content and structure of the model of organizational and pedagogical support of training part-time post-graduates via the Moodle system. The main components of the model are the target, content, functional and assessment blocks. The main component of the target determined the unity of the social order, the goal (to increase the effectiveness of the training part-time post-graduates) and the tasks of organizational and pedagogical support. The purpose and objectives of the discipline have been determined in accordance with a set of competencies identified in Federal State Education Standard of Higher Education:

Professional Competence-1 (ability to effectively manage the educational system, ensuring its stable development);

Learning Competence -1 (ability to carry out a critical analysis of problem situations based on a systematic approach, develop an action strategy).

The content component was implemented at all stages of preparation by the directions of organizational and pedagogical support of ability of part-time post-graduates. The operational-activity component included the principles, necessary conditions, effective forms, methods and means of implementing the model. The fundamental approaches were identified as competency-based, contextual and problematic, and the technological basis was made up of technology: dialogue, problem-solving, information and

communication. The assessment component is based on the performance indicators of training the part-time post-graduates (Table 4.).

Table 4. Structural and functional model of organizational and pedagogical support of training part-time post-graduates in the Moodle system

The aim:

improving the effectiveness of the process of training students in e-learning in accordance with the goals formed by the competencies of the discipline Designing a Brand of a Preschool Organization.

The Course aim:

Designing a brand of a preschool organization:

to acquire the theoretical knowledge and the acquisition of initial experience in preschool brand design

Goals:

ensuring the continuity of the training of part-time post-graduates in e-learning; ensuring the interaction of all participants in the process; implementation of a personality-oriented approach in the academic training prevention and resolution of difficulties encountered by part-time post-graduates during their learning.

Organizational and pedagogical support of training part-time post-graduates via the Moodle system

Content component: filling in the directions of organizational and pedagogical support, implemented at the preparatory, main and final stages of interaction of subjects of the student training process in e-learning.

- development and implementation of an electronic course, development of an electronic educational-methodical complex Designing a Brand of a Preschool Organization in the Moodle system;
 - electronic educational-methodical complex of the discipline Designing a Brand of a Preschool Organization (DB);
 - interaction through applications by part-time post-graduates, stimulation of the activity of independent activity in the performance of tasks, tests, etc.);
 - automated processes for monitoring performance and recording results; development of individual student learning plans.

functional component: presentation of a complex of forms, methods, training aids.

Course (discipline) Designing a Brand of a Preschool Organization:

Module 1. Lectures: Theoretical Foundations of Branding. Brand: main characteristics of the concept and concept of branding. Brand - branding - trademark - trademark → Presentation → Forum- (offline-) or Chat Lessons (online-) → Glossary → Tasks for control → Forum- (off-line).

Module 2.

Lectures: Brand Identity. Brand identity development (Brand-wheel). Visual brand identification - corporate identity (corporate identity) → Forum- (offline-) or chat classes (online-) → Glossary 2 → Audio and video files → exchange messages with the teacher → Assignments for control. → Forum- (off-line).

Module 3.

Lectures: Russian and foreign practice of creating a brand of a preschool educational institution. Preschool education systems in different countries → Forum- (offline-) or chat classes (online-) → Glossary 3 → Audio and video files → Assignments for control → Questionnaire → Presentation → Forum- (off-line).

Module 4.

Lectures: Generating and promoting a brand of a preschool institution → Forum- (offline-) or chat classes (online-) → Glossary 4 → Audio and video files → Assignments for monitoring → exchanging messages with a teacher → Intermediate test → Final test → Consultation (full-time) or part-time) → Credits (creative project defense).

Organizational and methodological support of the process: the curriculum of the discipline, lecture texts, presentations.

Educational and methodological recommendations for independent work of students: topics and tasks for independent work, guidelines, recommendations for implementation.

Information support: “Forum”, “Test”, “Resource”, “Glossary”, “Lecture”, “Questionnaire”, “Task”, a list of basic and recommended literature; control and assessment materials (on-line tests, questionnaires, control questions).

Basically, organizational and pedagogical support is understood as a set of organizational actions aimed at managing and coordinating activities, the distribution of assignments and responsibilities of subjects of the preparation process (organizational component); determination of the content, forms and methods of training, methodological, informational, technological support, personal support that are adequate to the goals, principles, patterns of the process of preparing students for part-time forms of education (pedagogical component), aimed at improving the effectiveness of this process.

A modular approach provided flexibility and openness to the curriculum. The number of modules per semester was determined in accordance with the program of the Designing a Brand for a Preschool Organization course. For organizational and methodological support of the training process the electronic educational system Moodle was successfully applied such as:

- the curriculum of the discipline, based on the competency-based approach and the modular construction of the course Designing a Brand for a Preschool Organization;
- texts of lectures, video lectures, presentations;

- educational and methodological guidelines for independent work of students: topics and tasks for independent work, instructions for implementation, simulators;
- information support: a list of basic and recommended literature;
- control and assessment materials (online tests, control).

In the preparation and conducting the classes, the following set of elements of the course were used: “Forum”, “Test”, “Resource”, “Glossary”, “Lecture”, “Questionnaire”, “Task”.

It is important to note that the Moodle training system provides the ability to track and assess independent tasks, the learning outcomes of each post-graduate. Each student can ask the on-going questions, both organizational and those concerning the discipline Designing a brand of a preschool organization.

In accordance with this, the design of organizational and pedagogical support of the training of part-time post-graduate students, acquires a research and practice-transformative character and becomes the subject of mastering the discipline Designing a Brand of a Preschool Organization.

Thus, it can be assumed that training of post-graduate future teachers of preschool educational organizations by applying the Learning Management System (LMS) Moodle, via the given structure and functional model helps to improve the quality of knowledge of students of the Designing a Preschool Organization Brand course, determine the formation of motivation for educational activities, as well as the engaging the part-time post-graduates in the educational process by ensuring continuity and openness of the preparation process.

Discussions

The study of psychological and educational literature allows us to conclude that part-time learning is currently considered as one of the most effective, democratic forms of professional education. The current organization of part-time and distance learning is based not only on extended practice, but also on systematic theoretical, methodological and instructional developments. The relevance of part-time distance learning and attention to trends in its development in the international space is confirmed by the fact that UNESCO has an International Council for part-time and distance learning.

However, insufficient attention is paid to the use of electronic resources in the process of organizing pedagogical support for part-time post-graduates. Traditionally, the Russian system of part-time learning is a combination of classical classroom meetings of students with teachers and independent work during the

period between summer and winter session. For the introduction of e-learning in teaching students, the willingness and ability of teachers to use information technology is required.

The use of information technology can become a factor stimulating the process of developing professional knowledge and competencies through mastering the content of academic courses, in our study the Designing a Brand for a Preschool Organization course.

Conclusion

It is established that the proposed model of pedagogical support for part-time post-graduate students thanks to the unity of interrelated target, content, functional and assessment components contributes to the formation of educational activity motivation, engagement in the educational process by ensuring continuity, openness of the preparation and providing for the subject position of a student.

The result of testing the structural and functional model of the organizational and pedagogical support of training part-time students through e-learning is the development by the team of authors of the Designing a Brand of a Preschool Institution Course using the Learning Management System (LMS) Moodle (Modular Object-Oriented Dynamic Learning Environment). The structural and functional model of organizational and pedagogical support can be used in organizing the process of training part-time undergraduate and post-graduate students of various majors and specialties of the university, provided that the necessary adjustments are made depending on the academic program's specifics.

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