THE EXPERIENCE OF MASS EDUCATION OF UNIVERSITY TEACHERS IN NEW INFORMATION TECHNOLOGIES AND THE CREATION OF ELECTRONIC COURSES IN LMS MOODLE

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Abstract
Each next generation develops and uses new technologies and methods more quickly than the previous one - it has always been like that. And now one of the main problems facing universities is the inertia of the faculty members in mastering new information technologies. And it is not enough just to show older teachers how to use any tools, it is necessary to teach them to use these tools so as to facilitate and improve the educational process. For three years, more than 600 teachers have passed training, who have received the first skills of working with e-courses This paper describes the experience of the Peoples’ Friendship University of Russia in the mass education of university teachers in creating electronic courses and introducing them into the educational process. The analysis of the work in the electronic environment of teachers who underwent training and developed the courses independently from the point of view of the effective use of the platform functionality and active work with students during the year was carried out.

Keywords: lifelong learning, e-learning, mass education, LMS MOODLE.

1 INTRODUCTION
In 2015, PFUR installed the MOODLE educational platform, and the IT laboratory was tasked to train the faculty to work with this platform as soon as possible, as well as to start implementing blended learning methods at the university.

The task was divided into two subtasks. The first task was to teach technical skills of handling the platform's capabilities and using various elements. The main difficulty was that the university professors had very different levels IT skills. From novice users with minimal computer skills to advanced users who did not require additional training. The second problem was that not all the teachers were aware of electronic educational platforms, course creation, blended and distance learning methods. Initially, an e-learning course was created on the platform for the training of teachers, which involved face-to-face consultations, both group and individual. In three years, more than 700 teachers have been trained. This study uses data on 744 teachers.

The purpose of this study is to answer the question of how effective mass training in new information technologies and new teaching methods, such as blended and distance learning, can be in the short term. Analysis of the effectiveness of the training offered and the relevance of the results created by the trainees and the quantity and quality of materials they have posted in their e-learning courses.

The object of the research is the courses created by the trained teachers, evaluation of their effectiveness and use of the platform functionality in accordance with the goals and objectives of humanities and natural science disciplines.

Relevance of the topic - at the moment, the development of new teaching methods related to the development of technology, the need to move to new means of learning and the need to change existing methods in accordance with the requirements of the time and the availability of scientific databases, the development of digital libraries. The need to create a comfortable learning environment for students, accessible online and to optimize the learning process.
2 METHODOLOGY

2.1 Definition of criteria for e-learning courses

Before the beginning of training, the regulations on the functioning of the electronic educational environment within the university were drawn up, in which, in particular, the requirements for electronic courses were defined. A course should contain: a brief description of the course (text of advertising character about the course with indication of the language of the course); general information about the course (working program of the discipline, sources and literature, methodical recommendations for students). Theoretical material, structured by sections in accordance with the work program of the discipline:

- Theoretical materials of the course for independent study by students, arranged by topics: texts, video lectures, audio files, illustrative materials (photos, graphics, diagrams, charts, tables, maps, etc.), links to electronic resources (digital libraries, profile sites, information and science databases, etc.);
- Methodological recommendations for practical and laboratory work;
- List of basic and additional literature and sources, including links to training materials, publications, information and scientometric databases, and open sources on the Internet (a bibliography of the course of basic and additional literature in each topic is possible);
- Tasks evaluated by teacher as well as self-control tasks (essays, training tests, etc.). Each task is accompanied by instructions;
- Educational materials for in-depth study of the discipline.

Methods and tools for assessing the acquisition of knowledge in a given discipline:

- E-course evaluation tools used to monitor the success rate of students of a course;
- Elements to receive feedback from students (forums, messages, questionnaires, etc.).
- Materials for preparing students for the mid-term and final examinations (standard control tasks, training tests, etc.). [1]

Since the main problem was the unpreparedness of teachers to fully use the entire potential of the educational platform, teachers were required to fulfill only minimal requirements for content in their courses.

2.2 Training course structure and training of trainers

The distance learning course included two sections:

- Practical part included training in the technical part of the platform and basic skills of using information resources such as scientific databases and digital libraries
- Theoretical part included the theory of creating e-learning courses for use in the context of mixed and distance learning.

The learning process included self-study of the theory, practical group meetings and individual face-to-face consultations, as well as continuous counseling of teachers via e-mail and interactive elements in the training course. Teachers had to familiarize themselves with the platform initially as students in order to see how the elements work. Thus, the distance learning course included a sequential introduction to platform's interactive elements, such as a forum (teachers should participate in the training discussion on the course topic and write a comment on the previous answer), an assignment (send an answer to the assignment), participation in the development of an interactive glossary (figure 1), answering questions from the test, which was designed to use all possible types of questions in the system, adding information to the database, and participating in the encyclopedia group project work (Wiki interactive element). All interactive elements were used in the training course to the maximum extent possible, and teachers were asked to evaluate as far as possible the use of these or those elements in creating their own course in a readable discipline.
2.3 Methodology of the analysis of e-learning courses created by teachers as part of the training

The research methodology was to analyse the use of the courses in the teaching process and to assess the quality of the courses separately for humanities and science faculties. The following differentiation was used to analyse the materials according to the functionality of the MOODLE platform:

- the number of resources (resources include various kinds of files: text materials, presentations, video and audio materials, links to external resources, including scientific databases and digital libraries).
- The number of interactive elements that involve active student participation, which include self-monitoring and final control tests, elements for learning discussions (forums), elements for creating databases, elements for organizing group work (workshop, database, forum), elements for creating feedback (survey, forum, questionnaires, etc.).

The evaluation of the effectiveness of the use of courses in the training process was analyzed by the quantity and quality of content from 0 to 3 according to the following criteria:

0 - only necessary documentation is available in the course - general information about the course and the work program, which includes course summary, curriculum, list of basic and additional literature, sample checklists;

1 - the course contains lectures and tasks in text format, the number of topics and materials in the course does not correspond to the work program and curriculum, the course contains additional materials for the study of the discipline in fragments;

2 - the course is filled according to the topics specified in the work program, but there is minimal information (texts of lectures, links to external resources, tasks in the text format); the course can serve as a support for full-time learning and independent work of students, but it cannot be a full-fledged distance course;

3 - the course is filled in accordance with the topics specified in the work program, equipped with the necessary interactive tools; such courses can be used as a support for face-to-face learning and can be studied entirely in distance format.

Also one of the quality criteria was the number of students enrolled in the course in relation to the number of students actively using the course.

3 RESULTS

As a result of the analysis of the data on teachers who have completed the course, the following results were determined:
3.1 Analysis of the results of mass training of teachers

3.1.1 Teachers who have been trained and do not use e-learning courses

Table 1. Analysis of the use of courses in the training process for teachers who have completed the training.

<table>
<thead>
<tr>
<th>Natural sciences</th>
<th>Number of teachers trained</th>
<th>Number of teachers not using e-learning courses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>295</td>
<td>116 (39%)</td>
</tr>
<tr>
<td>Humanities</td>
<td>449</td>
<td>150 (33%)</td>
</tr>
</tbody>
</table>

According to Jaris' brilliant metaphor “Learning is like food, ingest it will enrich the human being: unlike food, it is difficult to have too much.” [5] many teachers, especially senior lectures have found persistent resistance to new information technologies. Teachers who do not use e-learning courses, as shown by the data analysis, have never entered an e-learning course, preferring face-to-face consultations. Instructions were prepared for this category in printed format with plenty of illustrative material.

3.1.2 Assessment of courses by quantity of materials

A total of 748 courses were created by teachers between the end of 2015 and the beginning of 2019, of which 28 courses contain only course information, 676 courses that can be used to support face-to-face learning and are used in the context of blended learning, and 36 courses for distance learning. However, under Criterion 3 (i.e., courses containing all necessary materials and interactive elements), humanitarian disciplines predominate.

Table 2. Analysis of the quality of the courses created by the trainers who have completed the training.

<table>
<thead>
<tr>
<th>Quality of the course</th>
<th>Natural sciences</th>
<th>Humanities</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – general information about the course</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>1 – course can complement the face-to-face course, with fragmented (partial) content</td>
<td>138</td>
<td>173</td>
</tr>
<tr>
<td>2 – course that complements the face-to-face course and contains all the necessary materials</td>
<td>136</td>
<td>229</td>
</tr>
<tr>
<td>3 – course that can serve as a distance learning course, containing all the necessary materials and complemented by the necessary interactive tools</td>
<td>8</td>
<td>28</td>
</tr>
</tbody>
</table>

Most tellingly, among the courses that were created for humanity disciplines, there were the largest number of courses that were fully ready for distance learning. Diagrams (Figure 2.) show that courses created for natural science disciplines have more demand for interactive elements, which is due to their practical orientation.

![Figure 2. The distribution of resources and interactive elements.](image-url)
3.1.3 Quality of courses by demand from students

We can observe the following results by analyzing the demand for courses among students. Table 3. The data is presented in the percentage ratio: the number of courses in which students are enrolled and the number of courses that are actively used by students.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>enrolled</td>
<td>use</td>
<td>enrolled</td>
<td>use</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>30%</td>
<td>30%</td>
<td>47%</td>
<td>44%</td>
</tr>
<tr>
<td>Humanities</td>
<td>33%</td>
<td>33%</td>
<td>51%</td>
<td>45%</td>
</tr>
</tbody>
</table>

The table shows that the most popular courses are those that contain complete information allowing to study the discipline, as well as the necessary tools. There is also a clear correlation between course content and student demand.

4 CONCLUSIONS

Research has shown that mass training of teachers can be effective when combined with distance learning and continuous face-to-face counselling support. A well-designed distance learning course can be useful in teacher training (although 22% have never attended a course).

In order to be effective, students need to be assigned to course based on information literacy levels, so that different hours of training can be provided to different levels of groups. As an option, initial testing should be carried out prior to the start of the training. Confident users can immediately take the final test and work independently on creating their course.

The experience of mass training of teachers has also shown that the greatest efficiency is achieved by combining different types of training: a full-fledged training course, distance learning course, face-to-face counselling, individual and group counselling, correspondence counselling (e-mail, telephone, messengers, etc.), printed materials (instructions, booklets, etc.).

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REFERENCES


