

DEVELOPMENT OF FUTURE TEACHERS' INFORMATION COMPETENCIES THROUGH THE USE OF INTERACTIVE LEARNING TOOLS

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Abstract

The problem of development of future teachers' information competence is actual today for the Russian education. To reach a high level in the training of future teachers is possible only while maintaining a fundamental base in the field of theoretical knowledge and deepening practice-oriented training of students. The future teacher needs to be taught to solve educational and professional problems independently using different modern computer technologies. The inclusion of the component "competence" in the state standard of high education indicates a shift from the system of reproductive education to the system of competence formation. Its important element is information competence i.e. the competence to deal with a variety of information. It is necessary for a specialist of any profile, but especially for the teacher.

The article presents pedagogical conditions of the use of interactive learning tools for the development of information competence of the future teacher. The authors analyze the peculiar properties of the future teacher's information competencies, consider different approaches to the classification of interactive learning tools, and highlight their didactic functions. The article presents the results of pedagogical experiment on the development of information competence of future teachers using interactive learning tools.

Keywords: Interactive Learning Tools, Information Competence, Pedagogical Conditions

1. INTRODUCTION

The relevance of the study is due to the orientation of the system of Russian modern teacher's professional training on the formation of competencies that determine his readiness and ability to productive professional

activities and communication. An important place in the system of modern teacher's key competences is occupied by information competencies (*Robert I.V., 2010*). Interactive learning plays an essential role in the formation of information competencies, during which all subjects of the educational process interact with each other, exchange information, jointly solve educational problems, model situations, evaluate the actions of other participants and their own behavior, plunge into the real atmosphere of business cooperation while solving problems (*Zaitseva O.B., 2002; Chepel T.L., 2014*). The basic interactive learning tools include electronic educational resources that provide interaction of students in the learning process.

2. MATERIALS AND METHODS

Analysis of educational standards and Teacher professional standard suggests that the information competence of future teachers, formed in the process of interactive learning, include:

- Knowledge of the nature and importance of information in the development of modern information society, the foundations of modern technologies for the collection, processing and presentation of information, the basic requirements of information security; network search and exchange of information; features of the functioning of local and global computer networks;
- Ability to work in local and global computer networks, to operate and achieve the planned results in an open controlled information space, to perform when working with computer systems basic requirements of information security;
- Knowledge of information search skills on the Internet and databases, experience in organizing activities within the framework of group communication projects, distance and e-learning; organizational measures and techniques of anti-virus protection.

The use of interactive learning tools in the process of future teachers' training provides new types of educational activities such as: registration, collection, accumulation, storage, processing of information about the studied objects, phenomena, processes, transfer of large amounts of information presented in various forms, control display on the screen models of various objects, phenomena, processes (*Biryukova N.A., Kolomiets D.L., Kazarenkov V.I. et al. (2016)*).

The aim of the experimental part of the study was to introduce and test the effectiveness of the model for the formation of information competencies of future teachers with interactive learning tools.

The objectives of the experiment were:

- Definition of pedagogical conditions for the formation of information competencies of future teachers by interactive learning tools;
- Development and implementation of the diagnostic component for determining the level of information competencies of future teachers;
- Development of the technological component of the formation of information competencies of future teachers with interactive learning tools.

The experimental part of the study was implemented at the Mari State University (Yoshkar-Ola, Russia) where 156 students took part in the study at different stages. The results of the survey at the beginning of the experiment showed that as the main skills of working with information, most students distinguish the ability to obtain information from different sources (81.6 %) and the ability to distinguish the main and secondary in information (57.9 %).

Since information competencies are interdisciplinary and multifunctional, the educational potential of all disciplines included in the content of university education can be used in their formation. In addition, we have developed and tested in the practice special training course for future teachers " Technologies of interactive learning in modern education." According to the solved pedagogical problems, interactive learning tools used in our experiment can be classified into tools that provide basic training (electronic textbooks, training systems, knowledge control systems); practical training tools (task books, workshops, virtual designers, simulation programs, simulators); auxiliary tools (encyclopedias, dictionaries, anthologies, developing computer games); complex tools (distance and electronic training courses).

A special role in the formation of information competencies of future teachers was given to the LMS Moodle e-learning system. The advantages of Moodle include the fact that the authors of e-courses can place educational materials of any format (text materials, drawings, graphics, audio and video files, presentations, etc.); to create an environment of interactive communication, using different types of pedagogical

interaction, corresponding to the spirit of pedagogy of social constructivism (discussions and debates, joint creative activity of students to create an intellectual product); to use an effective system of knowledge control (tasks, surveys, tests, lectures, seminars); to organize differentiated work in groups, different, for example, the level of preparedness; to implement constant monitoring of all actions of students, to inform them about upcoming events (*Kondratenko E.V., Biryukova N.A., Kondratenko I.B. et al. (2016).*

3. RESULTS

According to our assumption, the use of interactive learning technologies has a positive impact on the formation of information competencies of students as related to the direct use of interactive learning tools, and the search, analysis, systematization of educational and professionally relevant information. We invited students to self-assess the competencies they have in the field of information and communication technologies.

The results of the survey at the beginning of the experiment showed that as the main skills of working with information, most students distinguish the ability to obtain information from different sources (81.6%) and the ability to distinguish the main and secondary in information (57.9%). At the end of the experiment, among the basic skills that the self-assessment of students possessed, in addition to the already mentioned skills and abilities included skills to work with information in global computer networks (66.7%); the ability to analyze information and determine its value for professional activities (60.5%); ability to work with a computer as a means of information management (52.6%).

In addition, when determining the level of formation of information cultural competence of students of the experimental group, we took into account the results of their activities when working with the LMS system Moodle, as well as expert evaluation of information competencies that students showed when creating classroom projects and for the solution of professional tasks and case studies (informed use of interactive learning to solve the posed tasks, using different sources of information and bringing knowledge from other areas, skills of working with information in global computer networks, the ability to work with a computer as a means of information management, etc.).

Data control and diagnostics indicate that the use of interactive learning positively affects the formation of such components of information competency as the ability to work with a computer as means of information management; to evaluate the software and its potential application, given the solved professional tasks, skills of work with information in global computer networks; skills of handling numeric data using tools of statistics and computer visualization. Analysis of the dynamics of the level of formation of information competencies allows us to assert that during the forming experiment the share of students with a high level of formation of this group of competencies increased from 21.1% to 39.5%, the share of students at a low level of formation of these competencies decreased from 42.1 to 18.4 %.

4. CONCLUSION

In the course of interaction with the information educational environment, future teachers have formed the ability to use universal packages of applied computer programs in solving problems of professional activity, to work with a computer as a means of information management; to evaluate the software and the prospects of its use taking into account the professional tasks. Analysis of the results of the study suggests that the use of interactive learning tools in the system of professional training of future teachers has a positive impact on the formation of information competencies of students related to the search, analysis, systematization of educational and professionally relevant information.

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