

Theoretical Foundations Of The Competence Approach In Higher Education

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Summary

The article defines the essence, structure and features of the teacher's methodological competence and determines the factors, content and functional characteristics of teaching structures as structure-forming components of education. The concepts and didactic potential and effectiveness of network communities in the formation and development of the methodological competence of the future teacher in the process are characterized and substantiated deployment of structures in the course of mastering activities.

Key words:

methodological competence, competence, higher education, teaching technology

1. Introduction

The sustainable development of our country in the 21st century, its innovative economy and defense capability depend on the level of education received by the student since school bench. It is from the teacher who is at school for the student is not only a source of new subject knowledge, but also a conductor of modern ideas, methods, technologies that ensure the formation and development of students' competencies that orient them towards more efficient ways of dealing with different classes tasks, ultimately, depends on the training of qualified personnel for modern society [2-5].

In this regard, the education of the future teacher currently requires qualitative changes. These changes should take into account current trends in education - changes in the methods and ways of providing educational services and organizing training in the system of higher professional education (especially taking into account the rapidly developing Internet technologies and their didactic opportunities). The global Internet provides ample opportunities to modernize the training of future teachers based on information interaction between students, teachers

and all other participants in the educational process in various modes of work. Acting as an accessible source obtaining information, including educational; environment of social communication and personal self-realization, the Internet becomes a social, cultural and interdisciplinary intellectual environment, in which represents both individual users and network communities that arise as a result of network interaction, common goals and interests of network activities. It is in diffuse intelligent environments, both the implementation of competencies and the exchange of "Non-competence" information associated with non-formalized "personal" knowledge.

Openness and the ability to provide all students with access to common information resources; implementation of productive joint activities of students through the distribution and constant exchange of information resources; the formation of a personalized position of students; ensuring a qualitatively new level of interaction between the subjects of the educational process (horizontal); gaining experience of reflection and collective action; the transition from learning to self-education allows us to talk about the possibilities and necessity of creating networked educational communities, which can be classified as complex nonlinear information systems that tend to self-organize and obey the laws of synergetics [1-3].

The basis of the modern concept of the development of the Internet is formed by social services (Web 2.0 technologies), based on the active participation of users in the formation of content. Conducted research analysis Thompson, Lucia, Lepsinger, concerning the problem of using social services Web 2.0 in education, led to the conclusion that the available research is devoted mainly to the use of social networking services in teaching foreign language or computer science. Moreover, in the educational process of higher education until now, the use of the didactic potential of Web 2.0 technologies in teacher training is limited, as a rule,

to the use of traditional custom functions of these technologies at the expense of their wide capabilities.

In the coming era of mathematization of sciences, i.e. process penetration of mathematical ideas and methods into a wide variety of areas of knowledge, the introduction of Web technologies in the training of future teachers plays an especially important role, since it is these technologies that play a fundamental role in the information support of mathematical research in all sciences, the names of which are reflected in the list of corresponding academic subjects of secondary (complete) general education.

Professional feature of the modern teacher lies in the fact that at present his activities are acquiring an advanced, project-based nature and, as a result, mastering technology becomes a key requirement for the professional qualities of a teacher designing the content, methods, forms, means of education in accordance with the goals and priorities set by the state.

In the article, the following research methods were used to solve the set tasks: theoretical (study and analysis of scientific and pedagogical, psychological and pedagogical, reference, specialized literature, regulatory documentation on the topic of research, additional professional advanced training programs; analysis, comparison, classification of the information received and generalization); empirical (pedagogical experiment, observation, questionnaire survey, survey, conversation, testing); mathematical (statistical data processing).

2. Theoretical Consideration

Taking into account the specific features of the pedagogical activity of the teacher and the updated requirements for the professional training of a modern teacher who is ready to work in accordance with the requirements of the information society, as well as technical, software and didactic capabilities of the information educational environment; able to carry out professional actions and train in accordance with the socio-economic order of society and the requirements of the state educational standard of general education, it becomes relevant to develop new pedagogical models of formation and development competencies of students. This, in turn, makes the professional training of a future teacher relevant and practically significant with the following basic ideas: the activity position of students in the process of acquiring new knowledge and skills to solve professional problems; active and diverse interaction of subjects of the educational process; the use of a wide range of ICTs with the emphasis on the leading role of network communication technologies to maintain intelligent interactions.

There are various approaches to improvement professional training of the future teacher, we Consider the two directions that are closest to our research.

The first direction (methodological) is associated with the implementation of the coordinated interaction of the fundamental and professional components in the general structure of teacher training through: funding basic educational elements of school and university disciplines with the subsequent theoretical generalization of structural units in the direction of professionalization of knowledge and the formation of the teacher's personality; professional and pedagogical orientation of training in the main fundamental disciplines, establishing their links with appropriate school courses in all components methodical training system and an increase in the volume of courses, special courses, elective courses.

The second direction (technological) is associated with the qualitative transformation of all components of the methodological system of training a future teacher at a pedagogical university through electives, through the integration of courses, based on special courses, building an individual educational trajectory of fundamental teacher training through: continuous educational and research work student on "cross-cutting" topics aimed at preparing a term paper, bachelor's work and master's thesis, modular training, the use of an electronic textbook in a specific educational area, the formation of a mechanism for self-organization and self-realization of the individual within the framework of student-centered learning, etc. [5-7].

However, despite numerous studies, as before, when teaching disciplines, the future teacher in the pedagogical university actually ignores the principles of binarity and the leading ideas of the professional and pedagogical orientation of teacher training. University professors often introduce a definition of a concept, which is then illustrated with a series of examples and computational problems; focus on finding a single answer, and not on the variability and diversity of knowledge, on the use of reproductive methods of activity instead of creative ones. In addition, in the content of the training of the future teacher, historically, a separate time, and in the subject, the study of mathematical (aimed at the formation of only subject knowledge and skills) and methodological (forming methodological skills on the subject material of the school course) disciplines.

The modern concept of natural science defines mathematics as a science that studies the formal relations of reality, the structure of the objective world, displayed and modeled in general scientific categories of quantity, measure and form. Thus, an important integrating construct is the concept of a structure understood as a set with given operations and relationships on it. Three main types of structures were distinguished: algebraic, topological and ordinal. When studying, students are formed specific structures - sets with operations and relations specified on them, which are a reflection of existing real objects, the nature of which does not matter, only the established relations between them are essential. The language of structures and schemes that dominate in mathematical

modeling, discrete mathematics and the theory of computational processes lies at the basis of the use of the wide possibilities of Web technologies in the search, processing, analysis and use of mathematical information on the Internet and plays an important role in the mastery of the mathematical thesaurus by students, methods of structuring and presenting information, which are the mathematical basis for constructing methodological systems (objects) [6-8].

The data of psychological studies have shown that the basic types of structures are fully consistent with similar psychological structures. In cognitive psychology, it has been established that information is stored in memory in the form of generalized products of intellectual processing of the perceived - representative cognitive structures, which are psychological constructions formed in long-term memory in the process of learning and life and fixing specifically organized individual cognitive experience. According to theoretical provisions, the structures are formed according to the "horizontal" and "vertical" type. These types of scientists include standard cognitive structures (algebraic, ordinal, topological) and cognitive schemes (projective, metric, combinatorial, figurative geometric, logical, algorithmic, stochastic), respectively. The first type of structures is a system for storing knowledge, the second - by means, methods of mathematical cognition.

Based on the foregoing, as well as the analysis of the mentioned scientific works, it can be stated that complex studies that would consider the formation and development of the methodological competence of a future teacher in the learning process based on educational activities in networked educational communities have not been identified to date. In this regard, more and more the main contradictions between:

- opportunities for fundamentalizing content disciplines of the teacher training university in the formation and development of the foundations of the methodological competence of the future teacher and the insufficient development of the theory and practice of the development of the student's methodological competence in the process of mastering structures;

- the structure-forming role of structures in the content of mathematical education of the future teacher and the lack of pedagogical substantiation of their development and use for the development of the methodological competence of the future teacher;

- high demands of society for a modern teacher who is able to effectively carry out the educational process in the information society and insufficient use of the didactic capabilities of networked educational communities in the methodological preparation of the future teacher;

- potentially positive didactic capabilities of networked educational communities in the development of mathematical structures as structure-forming mechanisms for the development of the foundations of the methodological competence of a future teacher in a pedagogical university and the lack of pedagogical technologies for the implementation of appropriate educational activities in network communities in the process of teaching a future teacher [9-13].

Conclusions

Thus, despite a wide range of dissertations studies devoted to the subject training of a future teacher in a pedagogical university, the least studied are the issues of updating the goals, content, forms, methods and means of teaching in the context of the widespread use of the global Internet, in particular, the study of methodological aspects of introducing Web technologies in the process of mathematical training of future teachers and the formation of their methodological competence.

Based on the analysis of research on the problem, we came to the conclusion that the important questions formulated below are not fully disclosed in pedagogical theory and practice:

- opportunities and advantages of the disciplines of a teacher training university in the formation and development of the methodological competence of the future teacher;

- didactic potential of network communities and the effectiveness of their use in the formation and development of the methodological competence of the future teacher in the process of teaching mathematical structures;

- methods, forms of educational activity of students and means of the learning process aimed at developing methodological competence in the study of disciplines, using the potential of the network educational community.

In addition, there are no pedagogical technologies for the implementation of educational activities in networked educational communities that provide training for teachers of a new generation, oriented on the needs of the modern innovative knowledge economy and training of the younger generation in the context of these needs.

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