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EDUCATIONAL – METHODOLOGICAL COMPLEX AS A DIDACTIC BASIS
FOR THE FORMATION OF INFORMATION COMPETENCE OF STUDENTS

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Аңдапта

Берілген мақалада ақпараттық біліктіліктің дамуына және қалыптасуына білім беру әдістерінің әсері қарастырылған. Оқу – әдістемелік кешенді құрастырудың негізгі кезеңдері мен ұсанымдары берілген.

Түйінді сөздер: оқу – әдістемелік кешен (ОӘК), біліктілік тәсіл, ақпараттық біліктілік.

Аннотация

В данной статье рассматривается влияние методов обучения на формирование и развитие информационной компетенции. Приведены принципы и основные этапы разработки учебно–методического комплекса.

Ключевые слова: учебно – методический комплекс (УМК), компетентностный подход, информационная компетентность.

Annotation

This article is devoted to the consideration of the influence of teaching methods on the formation and development of information competence of students. There are various principles and stages of the design of educational – methodical complex.

Key words: educational – methodical complex (EMC), competency approach, information competence.

Introduction

Status of the modern education system of Kazakhstan is characterized by certain features that can be considered crisis. We belong to them, first of all, undeveloped methodology for selecting and structuring of training material corresponding modern approaches to the organization of learning process. Therefore there is the development of research and innovation activity in education with a view to creating a learning system that would ensure the formation of information competence of students. In this situation there is disharmony between the established traditional, stereotyped teaching methods and innovative researches that could substantially influence the course of the pedagogical process.

It should be noted that the recent education reform designed to transition to 12 – year education. Therefore will be reviewed the content of education in the field of natural science. Thus the major problem is the transition to a new system of education should be a problem of selection and working out of content of training courses, giving them the clarity and logical relevance.

Therefore, for structuring of educational material it is necessary to introduce a number of principles to streamline the training material and to structure it in accordance with the basic principles of cognition. This principles must be considered in the formation of learning tasks and students with educational materials that promote the formation and development of information competence.

Methods of research

Logical structuring of training courses provides a clear, well–organized structure, the selection of which allows to see the wealth of internal connections, their harmony and relevance.

To understand the essence of theoretical principles for developing teaching methods as a basis for the formation of information competence consider the logical chain, which includes such concepts as "patterns of cognitive processes", "patterns of learning", "learning theory", "principle", "form", "method", "means". The logical sequence of these concepts is obvious: first of all, it should be clear about what constitutes a recipient of educational space as an object and subject of educational activity: what is the level of his moral, intellectual, cultural, physical development, the level of formation of general and private–subject specific competence; individual age psychological features of cognitive processes. This is what will build a system of methodical and teaching principles of educational activities on the basis of which can be anticipated the patterns of the learning process. All this taken together will develop a theory of which are elected forms, methods, techniques and teaching aids, quality diagnostic, adjustment of difficulties. So the most important postulate of didactics, defining learning as "a two–way process, carried out by the teacher and learner in interaction", fully realized if the educational process is based on the above logical sequence. During the educational process, each subject develops knowledge, information competence. All this in a harmonious community is nothing as the realization of the aims of education, considered as "a continuous system, process and result of education and training, which aims to achieve a high level of moral, intellectual, cultural and physical development and professional competence of society".

In the development of educational and methodical complex at the rate of informatics divide the subject into the main unit, which includes the scientific knowledge and the contents of which are determined by the state educational standards and procedural block, providing the assimilation of knowledge, skill formation, the formation of emotional experience–value relations, which implements analytical, evaluative and corrective activity. Developing educational and methodical complex refers to the rate of informatics for 5 – 6 classes, and we understand that it is the first step towards creating a single computer science course for 12 – year comprehensive school, which brings together all the branches of this science.

Structuring of educational and methodical complex according to any of the subjects, requires the developer to philosophical understanding of his creative activity. Namely: not only to identify the opposition but also to justify their dialectical unity; connect history of science, studied the data subject and the history of social, industrial relations, provide an ascent in the content; the ascent from the abstract to the concrete, comprehensive analysis. All this is necessary to ensure that the content of the complex dialectic logic is transformed from a teachers explanatory principle in the method and means of knowledge of the trainee and became a base for the information world – view and dialectical creative thought. Thus the first group of principles for the development of EMC should be considered the principles of dialectical logic.

The second fundamental principle of the development of EMC, the principle of unity of education content and process of its implementation—defined understanding of, what the content of education consists of the same elements as the social experience and includes:

1. Acquisition of new knowledge;
2. Application of knowledge – that means the experience of the known methods of activity;
3. Invention of new ways of life – experience of creative activity;
4. Experience of analytical work in assessing the results;
5. Experience of emotional – valuable attitude to the world of reality, to activity and its results, to themselves.

Thus EMC may serve as a form of detail – wide instructional principle of unity of education content and process of its implementation, because there is no single level in which the content would be isolated from conditions and ways to assimilate it, as there is no such level which would organize training activity, but it would not be meaningful. This means that the EMC at the same time serves, as a project of the educational process.

From this a second basic didactic principle of development of EMC follows – principle of unity of didactic and methodological principles. Insufficient registration of any principle creates flaws in the system of links EMC, disregard of any reason to excludes its didactic methodical implementation. The neglect of the variety of methodological possibilities of designing EMC weakens the role and effective force of the didactic equipping the learning process.

EMC serves as a major source of acquiring the foundations of social experience, the volume and nature of which largely determines the direction of the training of most teachers, and meaningful and logical skeleton of the EMC has a decisive influence on the education of students. This implies that the problem of selection of teaching material for the EMC is much more complicated than the problem of the course and less developed. The problem of selecting the content of EMC is not completely solved because of the close connection with the objectives of the school and the lack of empirical data on the methodological level. However, we can distinguish a group of principles governing the selection of teaching material on the content of EMC:

1. Principle dialogicality training, which might be based on the content of the EMC. That means EMC may be a tutorial, going to the level of personal growth and self development, should contribute to the development of learning motivation, improve self – esteem, forming a focused creative thinking, development of cognitive processes.
2. The principle of integration of knowledge, which requires organic synthesis of information from a variety of related areas, reflecting the national mentality, as well as with EMC trainee winning the minds of not only the global or regional, and local, at the level of his native land, ethnicity, hearth home.
3. The principle of differentiated approach to the trainees, which provides development and integration of their individual characteristics, implying a multi – level jobs with access to the creative. This will practically implement the natural abilities of students.

Thus, the structure of EMC reflects the principles of differentiation and individualization of education on the basis of which can be created different levels of EMC. Creating this kind of EMC gives the opportunity to study the subject at different volume levels and depth of content on the basis of free choice by the learner developmentally appropriate level, as well as to choose the appropriate path of study. However, freedom of choice does not imply the level of understanding of a subject lower that it was considered in the state educational standards. Consequently, textbooks should be on the EMC as its

essential component. Its component part is determined not only the content but also the conceptual approach, developed in accordance with the national paradigm of education.

Analysis of foreign experience in the establishment of school textbooks and EMC showed the following: texts in them are laconic, emotional, purely informative. It takes from 20 to 40 % of the total, 30 % illustrations, 30 % questions and practical tasks. Questions and tasks are aimed primarily at building the core competence of trainees. In order for this problematic formulation of the issues, differentiated practical tasks, questions and tasks for discussions and business games are hold.

An analysis of textbooks of the old generation has shown that their, content was chosen "by an expert", that it based on the views of scientists, which led to congestion and limited access, the textbook was not interesting and entertaining, work with it often aroused students' boredom. Therefore, without underestimating the importance of the principle of the scientific content, its implementation should be undertaken with the principle of availability. This means that of a huge amount of scientific knowledge for the study of the 12 – year old school should be selected only those facts, laws, hypotheses and theories, which are most important in the science and practice necessary for successful study of other subjects and educating students. However this selection should not distort the picture of the world, displayed conceptual – categorical apparatus of science, which is studying with this school subject. That is the selection of the content must conform to the principle of ensuring the integrity of perception.

It is obvious that only with the help of the formation of subject knowledge and skills training tasks can not be solved. The purpose of the 12 – year education is learning skills associated with the ability to get knowledge independently in the research search.

The search and self – employment in any case not be indentified with a spontaneity and uncontrollability. On the contrary, development of independent cognitive activity submits to strict psychological laws: the gradual assimilation of learning skills as aggravated system of independent activities, the main form of organization of the educational process are forms of collective and group learning activities, and joint training activity itself is complicated from stage to stage.

Developing of the ability to learn, as a universal characteristic of the individual, may be in problem situations, self – authorization by the trainees under the guidance of a teacher, as a basic condition for the organization of the educational process. The joint form of educational activity is in this case the condition for the development of each individual.

The greatest learning effect can be achieved after providing training sessions with sufficient volume and variety of educational materials, including electronic, for creating a real implementation of a differentiated approach to learning.

Today is still the leading tool for, training and education of students is the textbook. In the system of measures to improve the quality of the educational process defined the following requirements for each textbook: scientific, accessibility and brevity of accuracy, clarity and vividness of presentation. In terms of restructuring the content and structure of school significantly increases the role of scientific prediction, which is determined by the increasing flow of information.

Results of the study

During creation of new generation textbooks the most actual questions are the following:

- Ways to achieve the unity of scientific and availability the implementation of the textbook logic deployment of material from the abstract to the concrete;

- Means of textbook should be foster interest in teaching, self – creative process of cognition;

- Ideological material should serve not only education but also upbringing.

Theoretical understanding and practical realization of these issues can more accurately develop the concept of modern school textbook and EMC.

The most significant characteristics of the textbook and EMC informatics. Providing the function of education at the methodological level, are the following:

- EMC should be considered as a model of pedagogical process;

- EMC must combine the objective content and types of cognitive activity;

- EMC should take into account the whole process of organization of the learning process;

- The basis of constructing EMC should be based on methodical system, goals and objectives, structure and content, methodological features of the course.

Thus the EMC is a complex model, which defines both the content and organization of training. Then the above given basic principles, we look at the relationship and interaction in the teaching computer science, as well as adapt their implementation in the development of EUK.

Educational – methodical complex on the course «Informatics» includes the program, the textbook «Informatics», teacher's book and workbook.

Textbook «Informatics» [1, 2] to the concept of EMC has a special place. The textbook has, in our view, to implement the principles of culture and nature conformation aimed at instilling in students the modern scientific outlook, as well as other important principles that help to shape the information competencies. Textbook «Informatics 5 – 6 grades», developed by us, consists of five parts, each of which reveals the main issues in this section [1, 2].

In the first part of the textbook («Informatics 6 grade») is presented more in – depth study of issues related to information and the amount of information. It also provides the notion of number system, transference of integers and decimal numbers into binary code and transference integers from binary system to decimal.

The second part deals with computer software. New material of this part of the textbook is themes, composition, purpose and main functions of the operating system, and also graphical user interface elements of the OS Windows and configure of the operating system.

The third and the fourth parts of the textbook provide material of the technology of textual information (MS Word) and numerical information (MS Excel).

The fifth part is devoted to computer communication, that is, how to use the Internet, to search for information and send electronic messages.

After each topic, developed practical tasks, the implementation of which will consolidate the theoretical material presented in the section.

Here are the test questions in which the teacher can quickly and effectively assess students' knowledge.

The basis of the structure and content of the new textbook study posited applications needed to process the various information (numeral, textual, graphic).

They use the knowledge gained by students in elementary school. It is particularly important that the students will improve their practical activity for solving new training tasks.

In such situation knowledge held by students will serve as a method of teaching knowledge. Thus, we have developed textbooks which contribute to the formation of the foundations of an information culture of the students, as well as the development of information competence.

In different sections and themes of the course, at different stages of a lesson developed by us the methodical complex performs different functions: training, developing, communicative, educational.

We can say that training methodical complex teaches, educates, promotes the formation of the modern scientific worldview, the development of intellectual abilities and cognitive interests of students.

In a rapidly developing progress it is impossible to equip students with the knowledge for all the life. Knowledge is developing and becoming more complicated with the development of social and scientific processes.

Working with text, selection of the main in the form of conclusions at the end of the content of educational material on the topic, the ability to carry on a conversation, reviewing the answers of students, conducting practical work – this is not a complete list of the kinds of training activities, which form information competence.

Conclusion

Summing up the thinking what is the methodical complex, what is its role and place in the educational process can be summarized as follows:

Educational – methodical complex is a generalized, systematic, conceptually built a set of scientific, methodological, pedagogical, diagnostic, visual learning materials, which is a universal learning tool, enabling the differentiation of instruction, involving the formation and development of educational, scientific, research skills of students, saving teachers' ergometric costs in preparation for the lesson, big help for his professional development ,giving great opportunities for creative activity of a teacher.

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