

RATIONAL STUDENT TEACHING PROCESS MANAGEMENT

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Abstract *¾ Universities of Ukraine use group methods of teaching, headed by the teacher in teaching rooms. The successful class work is possible if all the students have learnt the previous material. When material and time resources are limited, problem of rational teaching process management becomes actual. If regarding a student, a teacher and all teaching process as a complicated system it is possible to set a task of cognitive activity management, the solution of which is directed on the mastering of the material on the set disciplines by all students. Such management consists of two parts: optimisation of the curriculum on the basis of informational model of the teaching process; optimal management of the teaching process of each student. The model ensures structuring and formation of the teaching process according to subjects. Students' knowledge monitoring defines the points of application of directed individual work..*

Index Terms *¾ Student teaching process management, informational model of teaching process, hierarchical model of learning skills, optimisation of the curriculum, monitoring of knowledge, individual work, training problems.*

PROBLEM OF RATIONAL TEACHING PROCESS MANAGEMENT

For the future development of the nation breeding and education of the rising generation are of paramount importance. The law of Ukraine about education says "...education – is the basis of an intellectual, cultural, spiritual, social and economical development of the society and the state". Since 1991 and up to nowadays the reorganization of the state government structure has been taking place in Ukraine. The consequences of this reorganization have led to the decline in living standards of the Ukrainian population, reduction of the financial support of the higher education for the part of the state and the losses in highly skilled and qualified specialists of the higher educational establishments from the state point of view it has appeared a real task to hold the available high educational level and even to raise it under the general comparative reducing both the number of teachers and study hours.

To a certain extent this problem can be solved by means of using of the effective educational methods and ways. Exercising of computers and modern information technology provides a wide scope for the improvement in choice of the pedagogical methods.

Considering a student, a teacher and the whole process of education as a complex system in terms of a cybernetic approach the task of a management of the cognition process may be raised and its solving aims mastering educational material of the given subjects in wide extent by all students with the least expenses of the time and work input.

Such a management consists of two main parts:

- optimization of the curriculum according to which the training of a student will be exercised on the basis of an information model of the educational process;
- optimum management of the process of every student training.

INFORMATIONAL MODEL OF TEACHING PROCESS

An information model of the educational process is a hierarchical structure consisting of the following levels: qualification demands – skills – knowledge – training discipline – theme – training problem (Figure 1) [1].

Skills create the basis for the qualitative characteristics, each of them determines the set of basic knowledge which can be based on the knowledge of different branches of science. At the same time every field of science can supply knowledge for forming of several skills.

The list of training disciplines and a great number of elements included in them form the lower level of a macromodel of the educational process.

Consecutive working out in detail of every training discipline up to the level of each separate training problem gives possibility to make hierarchical model of a subject which may be used for a well-grounded solution of the question what elements of knowledge should be included into the curriculum of this or that academic course. It simplifies the elaboration problem of the basic and standard curricula.

Hence, an optimization of the educational process consists of an analysis of the training problems and rational formation of the subjects. Formalization and structuring of the subject contents on basis of the information model allow to systematize the educational materials and succession of studying.

On the basis of the obtained structure it's convenient to form the electronic textbooks on disciplines and to organize the hyperlinks between the problems of the different courses. In view of the permanent renewal of training material on disciplines the present work must be carried out constantly.

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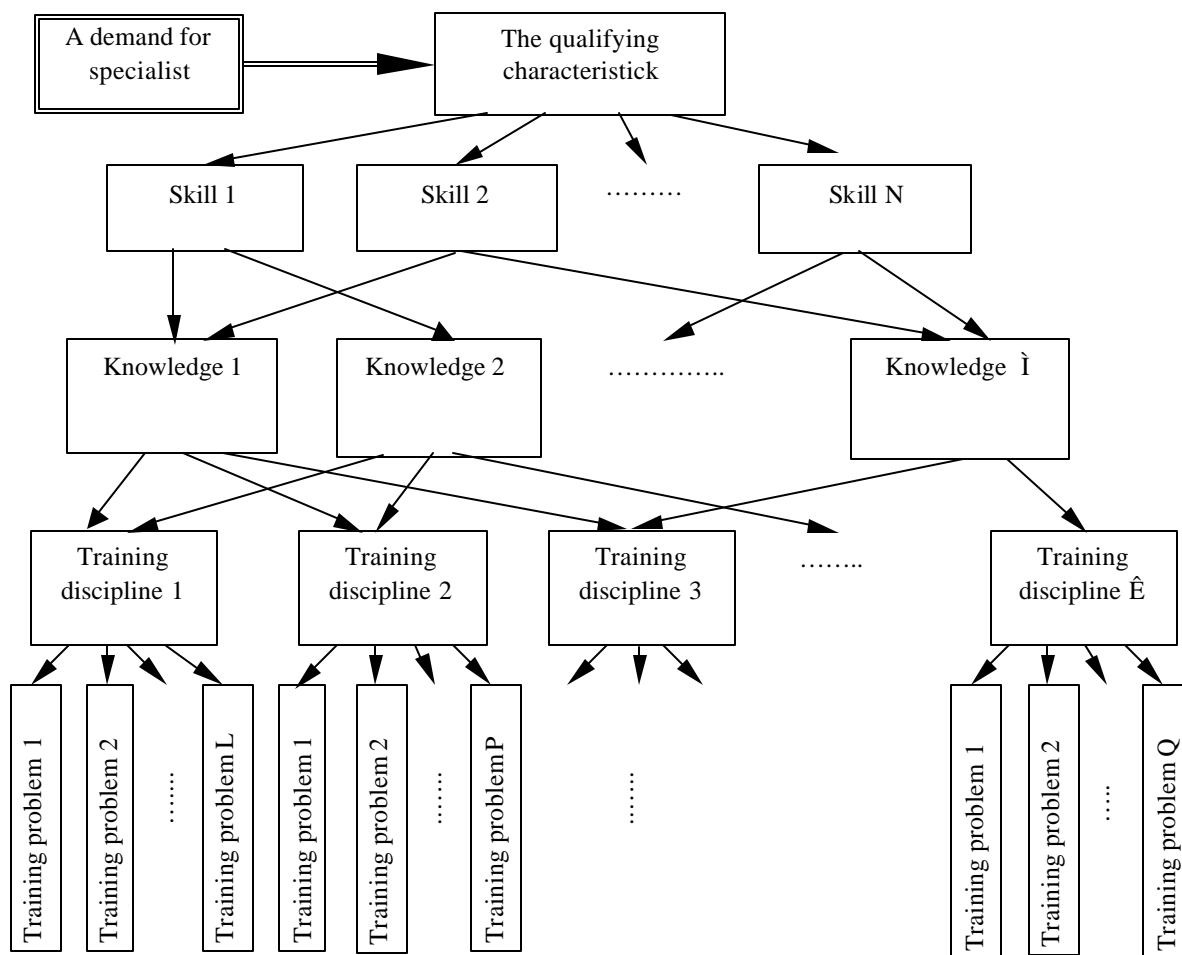


FIGURE. 1
HIERARCHICAL STRUCTURE OF THE EDUCATIONAL PROCESS UP TO THE LEVEL OF TRAINING DISCIPLINES AND PROBLEMS

STUDENT’S TEACHING PROCESS MANAGEMENT

The control strategy of the educational process is the detailed object evaluation of the control (in this case it’s the level of students knowledge) and the application of the controlling influences aimed at optimization of the educational process. In practice such procedure is testing of the students for the availability of the proper level of knowledge and skills on each element of the hierarchical model (on training problems, training disciplines). If the result is positive the trained is moved up to the next level of teaching. The former purpose of teaching at the previous stage appears as the initial phase for the next stage [1, 2]. Creation problem of individual adaptive route of teaching aim achievement is solved in this way.

However the traditions of Ukraine’s higher school are to a greater extent oriented at the student’s group in the classroom under the guidance of the teacher. For the success of such work it’s necessary to provide minimally equal level

of knowledge as to the previous elements of knowledge and skills decomposition of the training discipline according to lessons.

Teaching process management in this case consists of monitoring of the knowledge of the students in a group and application of the management influence on the found deviations of students’ knowledge level. Knowledge monitoring should define existence of a certain knowledge level, necessary for a teaching dialogue on a certain element (lesson, topic).

In cases of deviation (if students’ knowledge does not correspond to a minimum level for the next topic), a decision on getting rid of the deviation is taken. The same procedure is to be used as incoming control of the students’ knowledge at the beginning of the new program.

Let’s look at the possibilities of automation of the teaching process using the example of teaching subject “The basis of information and computer technics” at the National Law Academy of Ukraine named after Yaroslav the Wise.

The complexity of the teacher's work here is caused by the fact that at the beginning all the students have different level of knowledge and computer skills. So the major part of work is individual, giving each student his/her own temp of studying, thus equalizing the general level of knowledge in the group. In order to preserve advanced students' interest to the subject, individual out-of-class tasks are used, which are more advanced than the general course. There are 30 hours of the tutorials and 20 hours of lectures. The schedule is optimized for the speciality "Law" and includes: specification of PC and its main blocks, PC peripheral equipment, Windows 98, text processor Word 2000, archiver software WinZip, ZipMagic, WinRAR, antiviral software AVP, DrWeb. Afterward as a part of a separate course the students study Internet and special legal software.

TESTING SYSTEM

There are training problems concerning each topic, which are studied at PC class. Each topic is graded with the help of a test system, and a grade is preserved. Testing system "Quick Test" is used at PC classes. The mentioned approach is realized with its help. The system uses psychodiagnostical methods of evaluation of achieved development level of knowledge and skills with the help of tests. The system includes answers profile analysis. Its grade is profile safety coefficient, which characterizes system and reliability of the students' knowledge on all training problems. If coefficient if min or (less than 0.2) – knowledge is reliable and the course is studied systematically; students with major coefficient (0.2 through 1) – require more attention, because they answered difficult questions and did not answer simple starting questions.

A statistical processing of test results is carried out; a relative criteria of calculation of test results is used, which gives rise to comparing the answers of an individual student with the answers of those who study in a given group and have already been tested.

As practical experience in the application of the testing system shows, the great effect is rendered on the conditions of the testing. The perfect testing conditions are as follows:

- there is the state educational standard on the educational discipline which defines necessary level of knowledge;
- the students master the necessary level of the whole knowledge in the volume which is defined by state standard;
- the students master the methods of actions with the tasks of the tests;
- the ones who are tested have the equal experience of actions in the testing conditions;
- the tasks of the tests are made according the objective orders, rules and norms of testing;
- the volume of tests' tasks is not less then 10% from the volume of educational informational standard;

- the wrong answers on the tasks of tests are less than 10%, which can use the choosen method [3].

A special point, which is not under consideration here, is the evaluation of test quality. A defective test, as a means of metric evaluation of knowledge level, may significantly distort the picture of student's progress in an academic group.

Pedagogical evaluation influences the current teaching process in the sense of its improvement due to the creation of adverse effect between a student and a teacher. The regulating influence of this adverse effect represents the individual work with a student. It is, of course, an additional loading on a teacher, but it has, by its very nature, a specific aim.

The practical aid in the teacher's individual work with students is maintained by the existence of an access to the fulltext electronic versions of student's textbooks from each computer in class-rooms and also by the possibility of becoming acquainted with a list of test questions of the next step of testing students. With a great pity we can establish that the market of strustural multimedia texts-books in the ukrainian language in Ukraine is absent.

CONCLUSIONS

Creation of hierarchical models of learning skills according to qualifying characteristics of a specialist makes it possible to regulate the contents of all basic study courses and their importance in the structural scheme of training a future specialist.

The structural framing of the material studied in the course of a given training discipline makes it possible to select training problems to a given topic and automatize the process of formulating test questions on different topics of a subject.

The process of testing in a computer class gives additional information about each student and ensures the continuity in monitoring students' learning skills with the purpose of control the teaching process and maintaining an adequate level of knowledge in collective studying other topics on a given subject within one academic group.

The overcoming of students' dropping behind or effective learning a training discipline, as well as students' research work is quite possible and is carried out in the frame of an individual work with a teacher.

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