

МАТЕРИАЛИ
ЗА XI МЕЖДУНАРОДНА
НАУЧНА ПРАКТИЧНА КОНФЕРЕНЦИЯ
«НОВИНИ ОТ НАУЧНИЯ
НАПРЕДЪК - 2015»

15-22 май 2015

Том 7
Лекарство
Биологии
Ветеринарна наука
Селско стопанство
География и геология
Екология
Технологии
Здание и архитектура

София
«Бял ГРАД-БГ» ООД
2015

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USE OF THE VIRTUAL PRACTICAL WORK AS MEANS OF FORMATION OF INFORMATION COMPETENCE AT STUDENTS OF CHEMICAL SPECIALTIES

Changes in system of the public relations actively influence education, demand from it mobility and the adequate solution of the tasks set at a new stage of historical development of the country. The problem of definition of the strategic directions a razkvtiya of education is extremely actual in all countries.

Society of information technologies, or post-industrial society, unlike industrial society of last century, in much bigger degree is interested in that his citizens were capable to work, make independently and actively decisions, flexibly to adapt for the changing living conditions. In education transition from a substantial and subject paradigm to orientation to development of readiness and ability of the personality to effective activity is swept up.

According to the approach of UNESCO accepted now the concept of education includes concept of competence. Education represents process of socialization of the individual during which there is a formation of its abilities to self-development connected with formation of cognitive, activity, communicative, world outlook competences. Competence — intellectual quality of the personality. In practice it is accepted to call use of competences competence.

One of key is the information competence assuming ability to own information technologies to work with all types of information [1]. In this regard, the leading higher education institutions of the republic started development of new information technologies for a long time. Among them the special place is taken by creation of electronic grants: electronic textbooks, virtual practical works, various electronic test materials. Now the principles of their creation are almost developed and now aspects of their application in educational process are studied.

Computer educational technologies provide high potential for development of essentially new complexes of the didactic methods and receptions used for transfer of educational information from its source to the consumer. The Virtual Practical Work (VPW) is the training program which is carrying out a didactic cycle of process of training providing interactive educational activity thanks to active to participation trained and control of their level of knowledge. Differs from the electronic textbook in that has possibility of imitating modeling [2].

The virtual practical work is a not only complex, but also complete didactic, methodical and interactive program system. She allows to state the difficult moments of a training material with use of a rich arsenal of various forms of visualization of information, and also to give an idea of methods of scientific research by means of imitation of the last means of multimedia.

Thus availability of training due to more clear, bright and evident representation of material increases. Process of training takes place more successfully as it is based on direct participation in carrying out experiences and supervision of objects and the phenomena. The didactic aspects concerning the most general regularities of training and the methodical aspects determined by specifics of teaching these or those concrete disciplines or groups of disciplines are closely interconnected among themselves and with questions of program realization of a virtual practical work.

The maintenance of the virtual practical work created by us is determined by the program standard *uchebno* for the specialties 5B011200 Chemistry and 5B060600 Chemistry by the section "Kachestveny Chemical Analysis".

At realization of a virtual practical work the following principles were considered: structure, completeness, interactivity, presentation, branching, collecting. The created virtual practical work consists of the following sections: theoretical part, questions to the theory, practical part, tasks and exercises, testing on subjects separately, the general examination. High-quality reactions of cations and anions according to the acid and main classification are a part of practical part.

The structure of VP is developed so that the trained could move freely by means of hyperlinks on various blocks. The theoretical, practical and controlling material is accurately structured, has strict hierarchy to three levels. Ways of movement on levels are constructed logically that ensures the most comfortable functioning with a practical work, limits and allocates its semantic blocks, allows to be guided accurately in the studied information. As one of semantic blocks the electronic textbook in analytical chemistry created on the basis of the textbook under edition Yu.A.Zolotova of "Fundamentals of analytical chemistry" [3] is used.

Theoretical material VP is broken on subjects and presented in the form of separate semantic parts. The equations of reactions are separated from the main theoretical material and taken out in the next block that allows to diversify ways of use of VP when training.

The practical block is the most important structural unit of VP. It is presented in the form of the three-level accurately divided structure. The main material is located at the third level. This representation promotes the best perception and digestion of the studied material, allows to move easily on the block. All described experiences are issued according to the educational standard, contain the main points: equipment and reactants, work course, conclusion. Also references to the appropriate theoretical sections are had. Material of the practical block is presented in the form of text and photo information. Pictures display the used reactants and the equipment, highlights when carrying out chemical experiments: an initial condition of substances, the final products and where it is necessary, the intermediate stages of experience. Tiny facsimiles are provided on the main page of the description of experience. They are located as experience performance that allows to compare them and to draw the corresponding conclusions. When pressing by the left button of a mouse on them, the new window containing this picture at its maximum permission opens. It allows to consider the observed phenomenon most in details.

Speaking about an electronic embodiment of a laboratory practical work, it should be noted that skills of work with the experimental equipment first of all are important for many future researchers-chemists. The best computer experience can never replace real chemical experiment. It is wrong to think that over time the virtual practical work will force out the traditional. It is necessary to transfer to the computer those experiments which on any of the listed above reasons can't be carried out in the usual way. The most favorable approach is the combination of a traditional practical work with electronic.

The used practical work contains the illustrations created on the basis of really made experiments. In case of a divergence of analytical signals of the same reaction (various coloring of a deposit: yellow, orange or education/dissolution of a deposit) all cases are given whenever possible. The situations arising at violation of conditions of carrying out analytical reactions are especially noted (pH, the disturbing ions, temperature, etc.).

Taking into account the maintenance of the practical block the virtual practical work was used for formation of information competence as follows:

- 1) computer "exercise machine" for preparation for performance of a practical work in real laboratory (the program of computer and physical experiments is identical);
- 2) the addition to a real practical work providing such computer experiments which can't be realized owing to a lack of time (a task for SRS and SRSP);
- 3) a basis for the controlling tasks of nonconventional character ("Learn reaction", "Pick up couple" (reaction image), etc.;
- 4) independent studying of theoretical questions on the basis of results of experiment with attraction of other electronic educational products: electronic textbook, set of slides;
- 5) basis for creation of methodical recommendations about a subject.

It is noted that use of VP as computer "exercise machine" allows trained better to be prepared for carrying out physical experiment, to understand the studied effects more deeply. The nonconventional controlling tasks cause keen interest, bringing elements of game approach (reasonably). Positions 2 and 4 are recommended during the work with students of tuition by correspondence. They allow to reduce duration of performance of a practical work in real laboratory during stay in walls of educational institution, to study theoretical material during the intersession period.

Thus, the virtual practical work as didactic means allows to form information competence at students of chemical specialties already at realization of one of positions. The increase in number of the used positions naturally leads to achievement of result at decrease in time and labor expenditure.

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