

Pedagogical efficiency of integrated learning in the organization of hygiene classes in medical universities

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Abstract. The article presents the experience of using integrated learning and elements of problem based learning (PBL) within the framework of the course of teaching hygiene disciplines to students of the Faculty of Preventive Medicine. The high efficiency of the (PBL) method was achieved after the preliminary preparation of cases, with a description of specific situations and a set of necessary documents and sources of information.

1 Introduction

Currently, in modern higher education, much attention is paid to the introduction of innovative teaching methods in the educational process. The right combination of traditional and innovative teaching methods helps to develop the cognitive interests and creative abilities of students, and prepare them for practical work. In today's rapidly changing world, where competition is becoming stronger every day, the lack of practical experience and skills of students can become a serious and significant obstacle to their employment and career growth [1-7]. In this regard, modern teaching methods aimed at developing certain practical skills in students are becoming increasingly popular. Theoretical and practical knowledge acquired by students during the period of study is valuable because it teaches them to think professionally and deepens general knowledge in various areas of their future specialty. However, at present, the task of teachers is not limited to simply conveying certain knowledge to students. Often acquired skills and abilities cannot be directly used in a particular area of sanitary supervision [4, 6].

The acquired special knowledge in the chosen direction or section ensures professional activity within the given framework and certain parameters, but the opportunity to realize the urgent problem, to see it as a whole, to approach the solution in a comprehensive manner should provide fundamental knowledge. The professional orientation of education is a specific principle of didactics of higher education, the task of which is to form the social and psychological orientation of future doctors [2, 3]. Considering that discipline-based learning supports passive teaching and learning, facilitating the study of each discipline separately, without connection with other disciplines and the clinical context of training, medical schools are gradually moving from a traditional discipline-oriented curriculum to

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an integrated one. Integrated training helps future hygienists to collect facts in a single chain in order to develop the necessary and adequate health measures for occupational rehabilitation for patients with occupational pathology and the implementation of preventive measures to reduce the level of morbidity of the population associated with the environment [8, 9].

An integrated approach to learning and teaching means the implementation of the principle of integration at any stage of the educational process, ensuring its integrity and consistency. The possibility of such an approach is realized through the schedule of classes and the use of innovative educational technologies: lectures-symposiums, training based on solving clinical problems, team training, work in small groups, the use of simulation technologies, problem-based learning (PBL), which contribute to further development, deepening and application of fundamental knowledge in the process of solving specific clinical problems. The PBL (Problem-Based Learning) method is regarded as a successful innovative teaching method, which is aimed at the student's independent work. In this method, the focus of learning shifts from the teacher to the student, as now the student takes a more active role, trying to solve the practical problem. This technique teaches the student to comprehend more widely and deeper everything said by the teacher during lectures and written in textbooks [5, 8].

The ability of teachers to conduct problem-oriented classes with students is superimposed on the readiness of students to perceive the activities offered by teachers. Problem-based learning involves the development of communication skills, critical thinking and creativity. However, the effectiveness of learning increases several times if the student is already prepared to perceive information presented in a special way: through a project, problem, teamwork and practice.

The purpose of the work is to study various approaches and methodological methods of using interdisciplinary connections in the process of teaching hygienic disciplines and comparing the effectiveness of the PET method with traditional practical training, its advantages and possible risks.

2 Materials and research methods

To prepare for conducting classes on PET technology, methodological instructions for classes were developed, which are a scenario of production situations, either in the form of sequential tasks, or in the form of a profессиogram (depending on the topic of the lesson).

3 Research results and discussion

Modern occupational hygiene studies the influence of production activity factors on human health, life expectancy and develops standards, requirements and sanitary measures aimed at improving the working conditions of people, which allows it to occupy a separate place in modern healthcare. Occupational health is organically linked to both clinical and hygienic medical sciences.

All teachers of the Department of Occupational Health and Communal Hygiene have methodological developments for lectures and practical classes. The department has a full range of educational and methodological materials: approved curricula and programs, thematic plans of lectures and practical classes, materials for quality control of students' education, as well as materials for basic, current and final control of knowledge and accounting and reporting documentation.

The leading didactic goal of practical classes is the formation of practical (professional) skills. For example, when studying the physiological changes of the body when performing

work, the method of dynamometry, goniometry, chronoreflexometry and proof-reading tables are used. In the process of conducting practical classes, students find confirmation of their theoretical knowledge, are convinced of the presence of certain patterns and dependencies. On the other hand, they develop practical skills and skills of organizing and conducting hygienic research, the ability to observe, compare, analyze, process empirical research data, establish dependencies, draw conclusions and generalizations, and formalize research results.

It should be noted that due to certain circumstances, which aims to get a high score at the exit, test control of knowledge in the process of studying at the university, makes our graduates poorly prepared for the formation of creative skills, the ability to express their own thoughts and for independent work. Therefore, we attach great importance to the practical form of classes, which we conduct in the form of discussions of abstracts, analysis of acts of surveys of industrial facilities, discussions (listening to everyone's opinion).. lecturing abilities of students, we attract them to speak at practical classes, scientific and practical conferences together with young applicants and doctors of the CSSEN. Students' participation in solving test, situational tasks, conducting business games activate their thinking. A necessary condition for the effectiveness of practical classes is their focus on the development of cognitive activity of students, stimulating professional interest, striving for independent creative work.

The methodology of organizing independent work itself includes a type of educational work carried out without direct intervention, but under the guidance of a teacher, as a means of involving students in independent cognitive activity with the formation of their principles of organizing such activities.

Independent work of students in the discipline "Occupational Hygiene" is carried out at the department both in classroom and extracurricular time. The classroom provides for the student's work under the direct supervision of the teacher in the form of business interaction: the student receives direct instructions, recommendations from the teacher about the organization of independent activity, and the teacher performs the function of management through accounting, control and correction of erroneous actions performs the function of management through accounting, control and correction of erroneous actions The phasing of independent work provides for a period of initial organization, requiring the teacher to directly participate in the activities of the trainees, with the detection and indication of the causes of errors and a period of self-organization when the teacher's participation in the process of independent knowledge formation is not required. The effect of independent work of students can be obtained only when it is organized and implemented as an integral system in the educational process, permeating all stages of training of students at the university.

So, in order to develop the skills of students working in a team and combining knowledge of various disciplines, in the lesson on occupational health, in group 1018 of the specialty "Medical preventive care" on the topic "Mapping working conditions and conducting certification of workplaces", the problem-oriented method was used. training (VET).

Moreover, on the same topic in group 1118 with the same level of academic performance, classes were held in the traditional form.

After analyzing the grades obtained by the students of these groups, it was concluded that the results of the students of the MTD 1018 group are much higher than the results of the MTD 1118 group. This indicates that the motivation for learning has increased. The increase in motivation is due to the understanding by students that the knowledge gained in hygiene classes is also necessary in the study of occupational diseases and communal hygiene.

A prerequisite for the study and implementation of this method in the educational process was the need to preserve the existing experience in teaching clinical disciplines, to modernize such existing forms of classes as: "business games", "situational tasks", "role-playing games", "brainstorming" and the requirements of the modern educational process

The main difference between the PBL method and other traditional methods is that the training is focused on finding the information necessary for solving cases by the students themselves.

The teacher acts as a tutor whose role is to monitor and guide the discussion in the right direction. Often the choice of methods for solving and performing a particular task is determined entirely by students. Students and teacher become employees, conduct research, search for information. In the classroom, students explore the factors of the working environment, the incidence of workers, adequate to age, length of service, profession, learn to doubt and find answers to controversial questions, as well as invent, design and create various objects and artifacts for specific tasks. Students themselves express and evaluate various decisions, have the opportunity to think about and justify their choice.

Cases for students in disciplines related to modern methods for the qualitative and quantitative assessment of the levels of exposure to harmful production factors, conducting a hygienic assessment of certain technical projects and solutions, etc.

The field of professional activity of a specialist includes a set of technologies, means, methods and methods of activity aimed at preserving and improving the health of the population by ensuring the proper quality of the provision of preventive measures aimed at creating optimal working conditions, maintaining working capacity and improving the health of working production facilities.

In the cases, in addition to information about the impact of harmful production factors, there were tasks and a list of the main sources (textbooks, articles, email addresses of the main Internet sites). When compiling tasks, special attention was paid to ensuring that they were specific, feasible and, most importantly, stimulated students to search for additional information.

For the reflection stage, tests were developed to assess the acquired knowledge and questionnaires to monitor the elements of VET technology in comparison with traditional methods of conducting practical exercises.

The algorithm for conducting classes on the discipline "Mapping of working conditions and certification of workplaces" looked like this: 1) Since all practical classes in the discipline are conducted using laboratory research, the selection and preparation of tools with the appropriate factor (noise, vibration, heating microclimate) is preliminarily carried out, EMF, barometric pressure, air humidity);

2) Cases are distributed to students; 3) At the first lesson, students, under the guidance of a teacher, conduct a detailed analysis of the situation, put forward hypotheses about the causes and circumstances of what happened, suggest possible solutions to problems, and suggest consequences.

As a result of such a "brainstorming", all the hypotheses that have arisen among students are recorded on the board, thereby forming the necessary objects of research; 4) Next, the students are divided into 2 groups, one of which goes to the production facility to monitor the state of working conditions in the workplace, identify occupational hazards, conduct a survey of workshops. Students in the amount of 5-6 people work under the guidance of a teacher, they themselves choose a speaker to summarize the results; 5) The second group of students goes to the laboratory of the department, where, under the guidance of a laboratory assistant, they conduct a laboratory study of industrial dust, toxic substances, microclimate and illumination of the premises. 5-6 students of the group also work in this group; 6) At the 2nd lesson, students, taking into account the results of studies of both groups, assess occupational risk, establish employees engaged in hard work, work

with unfavorable, harmful and (or) dangerous and other special working conditions, benefits and compensations provided for by law; 7) For the 3rd lesson, students are given additional information on this situation - production indicators (the number of employees, the incidence rate, data from periodic medical examinations, the timing of the work shift, reporting forms with temporary disability of workers, the duration of exposure to the relevant factor of the working environment and labor process (in % or hours), etc.).

Students receive the task - to develop action plans to improve working conditions and prevent occupational diseases; 8) In the audience, students in the form of presentations present their own projects for solving this situation; 9) Reflection - summing up. Under the guidance of the teacher, all the solutions found are compared with each other and with the case prepared by the teacher himself, the hypotheses are reviewed, and the results of the lesson are summed up.

4 Conclusion

Thus, integrated education, which has as its main goal the achievement of an effective result in the assimilation of scientific knowledge and the formation of professional and personal qualities of future doctors, can be considered as a promising means of improving the educational process in medical universities.

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