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*State Institution "Dnipropetrovsk Medical Academy of the Ministry of Health of Ukraine"***THE ROLE OF A SCIENTIFIC CIRCLE IN STUDENTS' PROFESSIONAL TRAINING****В. В. Родіонова, Л. А. Глиняна, К. Ю. Гашинова, Р. В. Разумний***Державний заклад «Дніпропетровська медична академія**Міністерства охорони здоров'я України»***РОЛЬ НАУКОВОГО ГУРТКА У ФАХОВІЙ ПІДГОТОВЦІ СТУДЕНТІВ**

**Abstract.** In the current context of higher education reform, there is a redistribution of academic hours, with reduced number of lectures and practical classes and increased workload for students to prepare themselves. In the training of doctors, the practical component of training remains perhaps the most important. The types of educational activities of students according to the curriculum are lectures, practical classes and students' independent work. The latter occupies an important place in the course of teaching the discipline. In order to encourage students to gain practical experience with the patient, perform scientific work, etc., students should be encouraged to participate in the work of scientific circles at the departments. During the preparation of the meetings of the circle and its conducting, the teacher becomes more familiar with the most active and purposeful students, who seek not only to deepen their knowledge during extracurricular time, but are involved in the implementation of scientific work, participate in the Olympiad, prepare scientific papers for participation in higher education all-Ukrainian competitions of scientific works. The Student Science Circle is a full-fledged, non-classroom method of student's training. The participation of students in the work of scientific circles promotes research activities, the formation of creative abilities, the increase of general self-esteem and self-realization of students. An important condition for the formation of quality education is the development of a creative component of a specialist with the support of their cognitive activity and independence, which supports professional growth of a future doctor.

**Key words:** extracurricular work; scientific circuit; improvement of practical skills.

**Анотація.** У сучасних умовах реформування вищої освіти має місце перерозподіл навчальних годин із зменшенням лекцій і практичних занять та збільшенням навантаження для самостійної підготовки студентів. У підготовці лікарів практична складова підготовки залишається чи не найбільш вагомою. Видами навчальної діяльності студентів згідно з навчальним планом є лекції, практичні заняття і самостійна робота студентів. Вагоме місце у процесі навчання дисципліни займає самостійна робота студентів. Для заохочення студентів у набутті практичного досвіду роботи із хворим, виконанні наукової роботи тощо слід запропонувати участь студентів у роботі наукових гуртків на кафедрах. Під час підготовки засідань гуртка та його проведення викладач більш глибоко знайомиться з активними та цілеспрямованими студентами, які прагнуть не тільки поглиблювати свої знання у позааудиторний час, але й залучаються до виконання наукової роботи, беруть участь у проведенні олімпіад, готують наукові роботи для участі у вузівських та всеукраїнських конкурсах наукових робіт. Студентський науковий гурток є повноцінним позааудиторним методом підготовки студентів. Участь студентів у роботі наукових гуртків сприяє науково-дослідницькій діяльності, формуванню творчих здібностей, підвищенню загальної самооцінки та самореалізації студентів. Важливою умовою

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формування якісної освіти є розвиток творчої складової фахівця з підтримкою в нього пізнавальної активності та самостійності, що підтримує професійний ріст майбутнього лікаря.

**Ключові слова:** позааудиторне навчання; науковий гурток; вдосконалення практичних навичок.

**Introduction.** The activities of the educational institution, along with the provision of knowledge in a particular profession, should be aimed at forming students' desire for self-development and interest in the independent acquisition of knowledge. An important component of higher education content is creative experience. Thus, the task of high educational institution is to teach a future specialist to creatively solve complex professional problems, to form their ability to independently analyse, to compare specific situations in practical activity, to make independent decisions. In the process of continuing education, a higher educational institution acts as a link between the general education school and the employment of a future specialist. It follows that the training of well-developed qualified specialists, who are able to constantly increase the theoretical and professional level, involves the development and implementation of such forms of learning that develop cognitive activity and creative thinking, educate students the natural need for self-acquisition and absorption. However, all efforts to improve the educational process are ineffective unless they are supplemented by intensification of students' independent work. The process of studying at a university should be based on independent, research activities of students, aimed at developing their creative abilities, training specialists who are able to carry out a research approach to solving specific problems. Fundamentals of forming the skills of independent work are laid back in school and further developed in higher education. Engaging students in active learning activities is one way of shaping the creative abilities of future professionals. Independent educational work of students in extra-curricular time, being a continuation, development and deepening of the classroom with its multidimensional characteristics and forms, improves professional training, develops cognitive interests of students. Extra-curricular independent work of students, built on the basis of creative tasks taking into account the individual characteristics and interests of students, with effective pedagogical guidance, potentially carries with it also realizes educational functions: stimulates the formation of creative qualities, fosters the need for self-education.

The main forms of extracurricular work include:

1. Mass work – in the form of a conference, a public lecture in the auditorium, watching a training video, the Olympiad, a week of science at a university, etc.

2. Group work – work in a scientific student society, organizing a circle, preparing reports for a conference, publishing a journal, attending a master class of a teacher.

3. Individual work – preparation of reports, writing of abstracts, annotations, reading of relevant literature on a specific discipline, performing creative tasks, etc. [3].

However, there are some difficulties in developing the problem of independent work of students, so, one of the directions of support of independent skills is not only academic but also research work, which promotes the development of critical thinking in students, extends their educational experience, by involving them in scientific research in the academic environment of the department and university [2]. The unity of educational and research activities is a necessary condition for the activation of students' independent cognitive activity. The prerequisites for increasing the efficiency of students' research work in the educational process at universities are the connection between the topics of student scientific works with the professional orientation of future specialists and with the topic of research of the departments. An effective means of engaging students in scientific research, closely linked to the educational process and the profile of their future specialty, is research and development tasks. The systematic and purposeful application of these tasks is important for activating students' independent educational work in extra-curricular time. The type of organization of the educational process implies the ratio of the volumes of compulsory and elective courses, compulsory classroom and independent extracurricular work, the inclusion of students in the educational and research work, its volumes and content; better attitude to such organizational forms of teaching as lecture, seminar.

In the current context of higher education reform, there is a redistribution of teaching hours, with reduced lectures and practical classes and increased workload for students to prepare themselves. All this seems quite logical and correct for the students, the so-called theoretical direction of education, where self-preparation with the use of all possible modern technical means, work in the library, etc. is extremely important. In any curriculum, time is laid for independent work, but it should not be forgotten that the teacher himself can organize outside the classroom work of students and in this case gets the opportunity to control its quality. At the same time, in the training of doctors, the practical component of training

remains perhaps the most important. Thus, starting from the 3rd year, students studying in the field of “medicine” begin their acquaintance with clinical disciplines, where the chief mentor is a doctor. That is why in the clinical departments every teacher should have the appropriate medical category for the purpose of medical and consulting work. Under the direct guidance of a doctor-teacher, students begin to learn how to communicate with a sick person, find out the circumstances of the disease, its further development, learn techniques and methods of examination. But, unfortunately, it is not so much of this crucial component of the educational process that real time remains. In addition, it is no secret that, even in the presence of university clinics, it is not always possible to find a patient whose disease corresponds to the topic of the exercise. Usually, in this case, use clinical examples based on extracts from medical records of patients undergoing treatment at the clinic, educational films and the like. But, it should be understood that no visual accessories will replace the “live” communication with the patient.

**The aim** – to find out the role of the scientific group as an integral part of extracurricular training in order to improve the professional training and development of cognitive motivation of students' learning.

**Theoretical framework.** At the Department of Occupational Diseases and Clinical Immunology students of 5 courses are trained. The purpose of the occupational disease study is determined by the ultimate goals, which are set on the basis of the relevant provisions for the training of a doctor in the profession and involves not only familiarity with certain occupational diseases, but also the acquisition of certain skills. Thus, the student should be able to conduct a clinical examination of the patient and to establish a preliminary diagnosis of the most common occupational diseases. Based on the peculiarities of the discipline, it is necessary to analyse the data of sanitary-hygienic characteristics of working conditions. Students should also perform differential diagnostics between probable occupational and other occupational or non-occupational diseases with common clinical symptoms, plan a treatment plan, address previous issues of performance review, etc. and perform many other tasks.

The types of educational activities of students according to the curriculum are lectures, practical classes and independent work of students (VTS). 45 hours / 1.5 credits are given for the study of the occupational disease discipline, of which 6 lectures, 14 practical classes, 25 hours of independent student work [1]. With a block system of classes, one separate day is allocated for lectures and 3 days for practical classes. The topics of the lectures mostly correspond to the

coverage of problematic issues of the relevant sections of occupational diseases, practical classes include control over the assimilation of theoretical issues of the topic, curation of a thematic patient (or discussion of an extract from the patient's medical history), mastering the relevant practical skills under the control of the teacher's control situations, mastering the material. This saturation of practical training is conditioned by the amount of theoretical material that a student must learn.

Students' independent work is of great importance in the process of teaching the discipline: it is, first of all, curation of patients under the guidance of a teacher with writing of medical history or substantiation of clinical diagnosis, preparation of essays on topics not included in the classroom plan, etc. Such work may include student participation in the examination of patients in the department of occupational pathology together with the attending physician, or participation in the work of the occupational pathology medical-advisory committee, processing of laboratory data in clinical laboratories and departments of functional diagnostics, etc. But in reality, these types of work, as a rule, remain unfulfilled due to lack of time.

It is for the sake of overcoming these difficulties, as well as for encouraging students to do scientific work, that students' participation in the work of scientific circles at the departments should be offered. Thus, at the Department of Occupational Diseases and Clinical Immunology, a suitable student group works fruitfully, whose meetings are held once a month. The meetings of the circle are held on a monthly basis, with the date of their holding determined based on the basic employment of the circles. Scientific reports are made by students of different courses, interns, residencies and teaching assistants of the department. After the presentations and oral reports, analysis and analysis of interesting clinical cases on the topic of the meeting. The topics of the meetings of the circle include modern scientific and practical aspects of occupational diseases, medical law issues, as well as a number of other current issues. The basic directions of activity of the student scientific circle: studying of the historical information on the formation and development of the professional pathology service in Ukraine and Dnipropetrovsk region; analysis of medical errors; topical issues of various occupational diseases, diagnostic methods, etc. Each session is preceded by a painstaking work of the teacher to prepare the definition of the topic, which will be covered during the meeting of the circle, discussing reports with students-circles, preparation of visual demonstration – training film, accessories for carrying out appropriate laboratory and instrumental research, extracts from medical histories. The

most important is the invitation of the patient who agrees to participate in the discussion of his illness – complaints, medical history of the disease, demonstration of symptoms of the disease, performance of accessible examination, analysis of laboratory and instrumental research data, determination of questions of treatment and expertise of working capacity, etc. Preparatory tasks also include the announcement of a future meeting of the circle with a report to students who have not yet completed their studies at the department at the time of the meeting or have completed it. Although this work of the teacher not only takes a lot of time and creative efforts, it does not take into account in his schedule of hours and personal rating, which does not help to encourage the teachers themselves to carry out this much needed work in preparation of students. It should be added that during the preparation of the meetings of the group and its conducting, the teacher becomes more acquainted with the active and purposeful students, who seek not only to deepen their knowledge in extra-curricular time, but are involved in doing scientific work. For the most part, it is from this youth that a group of students who participate in the Olympiad, prepare scientific papers for participation in high school and national competitions of scientific works is formed [4].

As an example, we describe a meeting of a student scientific group on the topic: “Vibration pathology in workers of modern production: unresolved issues”. 27 students have participated in the work of the circle. Three reports were planned: – clinical manifestations of vibration disease due to local and general vibration; – methods of laboratory and instrumental diagnostics of vibrational pathology; – features of differential diagnosis of vibrating disease. A patient, who is being supervised at the City Centre for the Treatment of Occupational Diseases, on which the department is located, was previously invited. The patient worked as a metal casting scraper for the metallurgical industry for 14 years. Documents under which the patient was diagnosed with occupational disease were considered: sanitary and hygienic characteristics of working conditions, a copy of the work book, an excerpt from the medical card of an outpatient patient and extracts from inpatient medical records. The patient was carefully examined by students under the guidance of the teacher (photo 1–3). Samples specific to the examination of the patient with vibrational pathology were conducted: determination of nervous sensitivity disorders, cold test, dynamometer, Bogomolov test, white spot test, and others. The changes revealed on the ECG, the results of neomyography, Doppler ultrasound, X-rays of the upper tassets and spine, thermograms and other methods of examination. The corresponding



**Photo 1.** Vibration sensitivity test (5<sup>th</sup>-year students together with the teacher during the work of the circle).



**Photo 2.** Examination of the cardiovascular system (5<sup>th</sup>-year students together with the teacher during the work of the circle).



**Photo 3.** Skin temperature testing (5<sup>th</sup>-year students together with the teacher during the work of the circle).

data of sanitary and hygienic characteristics of working conditions – the time of vibration action and its parameters (frequency, vibration speed, vibration acceleration), associated adverse and harmful factors of the production environment are analysed. Students had the opportunity

to determine the class and severity of these production factors and, based on the examination of the patient, the documents presented to substantiate the conclusion about the possibility of developing a professional disease in the patient, namely vibration disease.

Another example of a meeting of a student scientific group was a meeting, which was offered by the students themselves during the classes: non-traditional methods of treatment in the clinic of occupational pathology: phytotherapy, peloid therapy, hirudotherapy. The lively discussion was caused by the possibility of applying non-traditional methods in the treatment of patients with occupational diseases, their positive and negative sides, the opportunity to supplement conventional treatment methods, in accordance with current national and international recommendations.

Thus, education of an individual is considered as its formation. Education is based on new values, including self-development. Considering this as a topical issue of creating conditions in which the identification and development of their capabilities would be a natural need for the student, which would generally contribute to his personal self-realization. Extracurricular activities provide great opportunities for self-realization. It is participation in educational activity, work of circles and

various creative associations, charitable actions, etc. It is in this activity that closer interpersonal informal communication of students, teachers occurs, there is a professional and cultural enrichment of the personality, development and deepening of professional skills, etc. In this sense, encouraging students to participate in the work of scientific circles at the departments is of great pedagogical and professional importance.

**Conclusions and Prospects for Research.** 1. Student scientific circle is a full-fledged non-auditory method of students' training.

2. Participation of students in the work of scientific circles promotes research activity, formation of creative abilities, increase of general self-esteem and self-realization of students.

3. An important condition for the formation of quality education is the development of the creative component of a specialist with the support of their cognitive activity and independence, which supports the professional growth of the future doctor.

4. The contribution of scientific societies (circles), as an out-of-class direction of work with students, requires further improvement and research of the contribution to the formation of skills and skills of independent work and improvement of professional training of future doctors.

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