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ABSTRACT

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INNOVATIVE PEDAGOGICAL TECHNOLOGIES IN THE TEACHING OF THERAPEUTIC DENTISTRY

Changes in the tasks of modern medical education, which currently consists not only in the preparation of a theoretically knowledgeable specialist in the specialty but also in ensuring the versatile development of the future doctor, his creative abilities, the formation of self-realization skills and competitiveness, also require changes in the teaching of most educational disciplines.

This problem is especially inherent in dentistry because this field of medicine is developing rapidly and requires the training of highly qualified specialists capable of professional growth, mobility, a creative approach to the profession, and the formation of an individual style in work. At the same time, the modernization of medical education and stomatology, in particular, requires the solution of several problems of an organizational and technological nature.

For the most part, using innovative technologies and introducing problem-oriented interactive learning, a modern didactic system that can combine various educational principles in the form of a clinical problem, helps to overcome most of the shortcomings of teaching in a modern medical school. The methods built on this principle aim to improve the quality of educational results due to joint, integrated, independent, and comprehensive training.

The most relevant in teaching therapeutic dentistry are innovative technologies aimed at expanding the possibility of choosing various aspects of education and professional activity, forming an individual style and ensuring the possibility of a search, a creative approach not only in mastering knowledge, but also in professional activity. These include solving situational problems, working in mini-groups, using the case-method or simulation methods, etc. These methods allow students to distance themselves from the nosological principle of education, when the basis of teaching the material is the name of nosology, an already known diagnosis.

The principles mentioned above of teaching dental disciplines contribute to the formation of the future doctor's skills of continuous education and professional development, which should ensure not only the improvement of the quality of dental services, but also the optimal use of the resources of the medical system in this field.

The purpose of the research was to conduct a theoretical analysis of scientific psychological-pedagogical, methodical, and medical publications regarding the use of innovative pedagogical technologies in teaching therapeutic dentistry.

Materials and Methods. We performed analysis of psychological-pedagogical and methodical literature, materials from educational-methodical conferences, and professional articles on the issues mentioned above to clarify the essence and features of modern innovative technologies in therapeutic dentistry teaching. To achieve the goal, theoretical methods (analysis, synthesis, generalization, comparison, and systematization) were used.

Results. The reformation of modern medicine leads to a change in the requirements for medical school graduates. Therefore, a rapid transition from simple accumulation of knowledge to the ability to use it effectively in practical activities is noticeable. The interaction between the teacher and the student gradually moves to a personal-oriented level, which should increase interest in the learning process and improve the relationship between the teacher and the student.

The use of innovative pedagogical technologies, in particular interactive methods, in the process of professional training of dentists allows expanding the opportunity for students to choose various aspects of professional activity, contributes to the formation of their style, and provides search opportunities.

In further research, it is advisable to consider the effectiveness of each teaching method separately and in combination with others to analyze the effectiveness of their varieties.

Further implementation of innovative technologies should ensure high professional achievements of future doctors and their high competitiveness.

Keywords: innovative technologies, person-oriented training, case-method, simulation technologies.

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РЕЗЮМЕ

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ВИКОРИСТАННЯ ІННОВАЦІЙНИХ ПЕДАГОГІЧНИХ ТЕХНОЛОГІЙ У ВИКЛАДАННІ ТЕРАПЕВТИЧНОЇ СТОМАТОЛОГІЇ

Зміни завдань сучасної медичної освіти, що наразі полягає не лише у підготовці теоретично-обізнаного у спеціальності фахівця, а й забезпеченні різностороннього розвитку майбутнього лікаря, його творчих здібностей, формуванні навиків самореалізації і конкурентоздатності, вимагають і зміни у викладанні більшості навчальних дисциплін.

Особливо дана проблема притаманна стоматології, адже ця галузь медицини має стрімкий розвиток і потребує підготовки висококваліфікованих спеціалістів, здатних до професійного росту, мобільності, творчого підходу до професії та формування індивідуального стилю у роботі. В той же час, модернізація медичної освіти і стоматології зокрема, потребує рішення цілого ряду проблем організаційного і технологічного характеру.

Здебільшого, подоланню більшості недоліків викладання у сучасній медичній школі сприяє використання інноваційних технологій та запровадження проблемно-орієнтованого інтерактивного навчання, що являє собою сучасну дидактичну систему, яка здатна поєднувати різні освітні принципи у формі клінічної проблеми. Методики, побудовані на даному принципі спрямовані на підвищення якості освітніх результатів за рахунок спільного, інтегрованого, самостійного і всебічного навчання.

Найбільш актуальними у викладанні терапевтичної стоматології є інноваційні технології, що спрямовані на розширення можливості вибору різних аспектів навчання і професійної діяльності, формування індивідуального стилю та забезпечення можливості пошуку, творчого підходу не лише в оволодінні знаннями, а і в професійній діяльності. До них можна віднести розв'язання ситуаційних задач, роботу в міні-групах, кейс-метод, симуляційні методи та ін. Дані методики дозволяють студенту відсторонитися від нозологічного принципу навчання, коли в основі викладання матеріалу лежить назва нозології, тобто вже відомий діагноз.

Вищезазначені принципи викладання стоматологічних дисциплін сприяють формуванню у майбутнього лікаря навиків безперервної освіти та постійного підвищення кваліфікації, що має забезпечити не лише поліпшення якості стоматологічних послуг, а і оптимальне використання ресурсів медичної системи в даній галузі.

Мета дослідження: провести теоретичний аналіз наукових психолого-педагогічних, методичних та медичних публікацій, щодо застосування інноваційних педагогічних технологій в процесі викладання терапевтичної стоматології.

Матеріали та методи дослідження. Аналіз психолого-педагогічної, методичної літератури, матеріалів навчально-методичних конференцій та фахових статей з вищезазначеної проблематики. Для досягнення поставленої мети, уточнення сутності та особливостей використання сучасних інноваційних технологій у викладанні терапевтичної стоматології застосовано теоретичні методи (аналіз, синтез, узагальнення, порівняння та систематизація).

Результати. Реформування сучасної медицини призводить до зміни вимог до випускників медичної школи. Відтак, помітний стрімкий перехід від простого накопичення знань до умінь їх ефективно використовувати у практичній діяльності. Взаємодія викладача і студента поступово переходить на особистісно-орієнтований рівень, що має не лише збільшити інтерес до самого процесу навчання, а й поліпшити відносини між викладачем і здобувачем освіти.

Використання інноваційних педагогічних технологій, зокрема інтерактивних методів, у процесі професійної підготовки стоматологів, дозволяє розширити для студента можливість вибору різних аспектів професійної діяльності, сприяє формуванню його індивідуального стилю та забезпечує можливість пошуку.

В подальших дослідженнях доцільно розглянути результативності кожного методу навчання як окремо, так і у поєднанні з іншими, проаналізувати ефективність їх поєднань.

Подальше впровадження інноваційних технологій повинно забезпечити не лише високі професійні досягнення майбутніх лікарів, а і їх високу конкурентоспроможність.

Ключові слова. Інноваційні технології, інтерактивне навчання, особистісно-орієнтоване навчання, кейс-метод, симуляційні технології.

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INTRODUCTION / ВСТУП

Modern medical science needs significant changes in the teaching of most academic disciplines. This is connected, first of all, with the fact that the main task of modern medical education is not only to train specialists who are theoretically knowledgeable in their specialty but also to ensure the versatile development of the future doctor, his creative abilities, the formation of self-realization skills and competitiveness.

Dentistry is no exception because this field of medicine is rapidly developing and requires the training of highly qualified specialists capable of professional growth, mobility, a creative approach to the profession, and the formation of an individual style in work. A student of higher education must be capable of problem-situational analysis and modeling of the situation, finding different approaches to solving the problem, which will give him advantages in future professional activities.

At the same time, the modernization of medical education and stomatology requires the solution of several problems of an organizational and technological nature. Dealing with the nosological principle of studying the material is also essential.

However, the modern medical education system requires continuous education and professional development from the doctor, which, in turn, is only possible with correct and timely processing of the constantly growing amount of new information. This approach should ensure not only the improvement of the quality of dental services but also the optimal use of the resources of the medical system in this field.

The purpose of the research is to conduct a theoretical analysis of scientific psychological-pedagogical, methodical and medical publications regarding the use of innovative pedagogical technologies in teaching therapeutic dentistry.

Materials and methods. Analysis of psychological-pedagogical and methodical literature, materials of educational-methodical

conferences and professional articles on the abovementioned issues. Theoretical methods (analysis, synthesis, generalization, comparison and systematization) were applied to achieve the set goal and clarify the essence and features of using modern innovative technologies in teaching therapeutic dentistry.

Results. The use of innovative technologies in teaching therapeutic dentistry is dictated by rapid changes not only in the field of medicine and in society as a whole. In such conditions, the teacher's main task is to promote the development of creative abilities, various forms of thinking, and mobility of the future doctor. Therefore, the attitude towards the student and his studies also changes. Education becomes person-oriented, increasing interest in the learning process and improving the relationship between the teacher and the student [1].

That is why the organizational and pedagogical conditions of personally-oriented professional training of future dentists are the creation of a personally-oriented educational environment, the reflection in the content of educational components of the main principles of the personally-oriented approach and the use of personally-oriented technologies in the learning process, as well as personally-oriented pedagogical support students in the process of conducting practical and seminar classes [2].

The organization of the educational work of medical specialties students has several features. This is primarily because dentistry, like medicine in general, is not an exact science. It contains elements of humanitarian knowledge. This field develops in close interaction with the natural, technical, humanitarian, and philosophical spheres and combines many theoretical and practical disciplines. In addition, the study of dentistry involves a high level of knowledge of human anatomy, histology, pathomorphology, physiology, pharmacology, etc.

The analysis of methodical, psychological-pedagogical, and educational-methodical literature showed that the most relevant in teaching therapeutic dentistry are innovative technologies aimed at expanding the possibility of choosing various aspects of learning and professional activity, forming an individual style, and ensuring the possibility of a search, a creative approach not only in the mastery of knowledge, and in professional activity.

Therefore, it is possible to highlight problem-oriented learning, which is a modern didactic system combining various educational principles in the form of a clinical problem. This method aims to improve the quality of academic results due to joint, integrated, independent and comprehensive learning. A fundamental principle of problem-oriented education is the primary formulation of the problem in a situation where students try to solve it without receiving formal lectures on the subject. This form of work should take place in small groups. The teacher, as instructions for the lesson under these conditions, should prepare methodical recommendations and training manuals. This creates opportunities for future doctors not only to acquire the necessary skills but also to establish interest and opportunities for further self-education [3].

This methodical approach allows to development of cognitive processes to improve the skills of applying the received information and diagnostic thinking to solve various clinical problems.

In didactics, passive and active learning models are distinguished. In the passive, the learner acts as an object of learning. Its role is reduced to viewing or listening to information. In active models, a student is a subject of the educational process, capable of taking an active part in learning, using a creative approach to mastering knowledge and skills, and independently choosing methods and means to achieve results.

In turn, interactive learning is one of the forms of active learning where the interaction between the student and the teacher is in the first place. This form of work involves dialogue, discussion, and cooperation between process participants. At the same time, everyone makes their individual contribution to the common cause and directly affects its outcome.

The main tasks of interactive forms of education in teaching therapeutic dentistry are to arouse interest and motivate students to the researched problem. Special attention is paid to the efficiency of assimilation of educational material, independent

search for ways and options for solving the given task, and interaction between students and the teacher. Paramount importance is attached to the formation of teamwork skills, tolerance to any point of view, forming of students' opinions, life, and professional skills, and reaching the level of perceived competence [4].

The most widely used methods in teaching dentistry include solving situational problems, working in mini-groups, using the case-method, some simulation methods, etc. Such methods allow the student to distance himself from the nosological principle of education when the basis of teaching the material is the name of nosology, that is, an already known diagnosis. The technologies mentioned above require a search approach: clarification of complaints, the appointment of examination methods, differential diagnosis, and the like. They provide not only independent diagnosis but also the independent choice of forms and methods of working with the patient [5].

Working in mini-groups, for example, allows the participant in the educational process to determine the type of activity most interesting for him independently or to try himself in a new professional "role." The distribution of "roles" with this method can be done separately in the group or assigned by the teacher. The choice of this technology stimulates students' creative thinking, encourages the use of additional learning tools, and fosters responsibility, obligation, and creativity of thinking [6].

The activity of the teacher in this type of activity includes two phases. The first phase is a complex creative work on creating situational problems, tasks, and questions for analysis. It is carried out outside the classroom and includes research, methodical, and modulating activities. Here, the teacher acts as a generator of ideas, which also allows for revealing creative pedagogical potential.

In the second phase, the teacher's activities occur in the classroom, where he gives an introductory and closing speech, organizes small groups and discussions, maintains a business-like attitude, and evaluates the student's contribution to the analysis of the situation. Of course, in such a situation, the teacher's role is not purely evaluative. He should correct the students' answers and offer more appropriate and convenient problem-solving methods.

It should be noted that before the analysis of the work in the classroom, it is advisable to meet with several participants before the class to review the data, compare the results and discuss the strategy of

behavior. This is all the more important if the discussion of the tasks involves the presence of outsiders (patients, practicing doctors, etc.). This approach allows stimulating the responsibility and professionalism of future doctors.

Using small and simple situational tasks is recommended at the beginning of studying the discipline. They can be reduced, for example, to making a diagnosis based on complaints, anamnesis, and data from objective and additional studies. After the end of the course, and even more so during the final certification, it is advisable to use more complex “confused” tasks that require a comprehensive approach to their analysis and solution from the student, for example, careful differential diagnosis or the appointment of more thorough and thorough research methods.

It is also worth paying attention to the fact that, working in a “small group,” students not only improve practical skills (examination of the patient, palpation, percussion, probing) when examining the mucous membrane and hard tissues of the oral cavity, jointly write down the patient’s medical card, but also learn each other. They develop a sense of responsibility for the educational process, teamwork skills, and public speaking skills.

Such communication in the learning process is a specific system of mutual understanding and mutual complementarity for all participants of joint activities. With this form of interpersonal relations, each student in the group is a teacher and a student. All these forms in future doctors a qualitatively new attitude to the subject, a sense of personal complicity in the common cause, which becomes the common mastery of knowledge [7].

The case-method, or the method of specific situations (from the English “case” – case, situation), is a method of active problem-situational analysis based on learning by solving specific tasks – situations (case development). This method refers to non-game simulation active learning methods and is considered as a tool that allows applying theoretical knowledge to solve practical tasks [8].

The essence of the case is that students are invited to consider a real-life situation, the description of which at the same time reflects not only any practical problem but also activates a particular set of knowledge necessary for solving it. At the same time, the proposed task does not have straightforward solutions. The method is based on a set of such didactic principles as an individual approach to each student, taking into account his needs and learning style, maximum freedom in

learning, providing students with a sufficient number of visual materials, focusing students' attention only on the main points, ensuring the availability of the teacher for students, forming students have the ability to work with different types of information and in different situations [9].

The case structure involves the gradual (partial) provision of information. Students gradually receive information about the patient from the teacher (complaints, medical history, additional information about the patient's condition, objective, and examination data). Each block of information involves discussion and analysis of intermediate results. The teacher in such work can be both a passive observer and an active editor. In other words, he corrects the discussion and directs it in the right direction. The discussion stage also includes planning the next steps of the work and proposing hypotheses or assumptions about the patient's condition [10].

The main activity of the teacher when implementing the case method in the educational process is focused on the development of individual cases, in the case of medical education – a set of clinical situations intended for academic analysis. And the teacher's task is to carefully select the situations that will be included in the case study.

The teacher needs to develop such tasks, the solution of which is aimed at forming a system of competencies in a particular order, where each new block of educational material is logically connected with other blocks. Tasks should be offered to students with a gradual increase in difficulty. The knowledge system obtained in this way will be based on the students' already available knowledge and experience in solving similar tasks. As a result, the studied material will constantly be repeated with its further understanding and solid assimilation.

The case-method is a group method of work, but with its help, students' creative abilities and inclination to a certain type of activity are revealed. Cases consist of illustrated materials that are shown to students in a specific sequence and may contain data from a survey or examination of a patient. To achieve a common goal (diagnosis and prescribing treatment), each group member must perform the part of the task as productively as possible, using theoretical material to solve practical problems [11]. In addition, the choice of examination methods, additional diagnostics, and feasibility of interviewing the patient will need to be substantiated in a discussion, which forms responsibility in the student and stimulates mobility and search activity.

Also, this method promotes all participants' educational and cognitive activity by immersing them in an atmosphere of cooperation and mutual communication aimed at solving a common task.

It should also be remembered that the cases create an impression of the "reality" of the situations under consideration, stimulating the student's deep immersion in the process of analysis and interaction with partners. Such involvement in activities is similar to actual professional practice, explaining the high effectiveness of using this technology.

On the other hand, the case is attractive to students, as they see it as a game that provides mastery of theoretical concepts and mastery of practical use of the material. It is also essential that the analysis of situations strongly influences the professionalization of students, contributes to their maturation, and forms interest and positive motivation for learning.

Thus, the immediate goal of the case method is to analyze the situation – a "case" that arises under a specific state of affairs and develop a practical solution to the problem through the joint efforts of a group of students. At the end of the process, it is mandatory to analyze the situation, which involves discussing the solution, evaluating the proposed algorithms, and choosing the best one in the context of the problem. This approach allows you to assess not only the result but also the work of each participant, identify errors, and edit errors.

One of the urgent problems in the practical training of a future qualified dentist is the insufficient possibility of direct contact and communication with actual patients. After all, it is becoming increasingly difficult to obtain the patient's consent for the participation of students in the survey or the provision of medical care to learn and practice professional skills [12].

In addition, mastering not only general and specialized knowledge but also the skills and abilities necessary to perform future professional tasks is of great importance in training a future dentist. Therapeutic dentistry is no exception. That is why, in recent times, methods and technologies of simulation training are increasingly used in teaching this discipline, which is one of the leading areas of practical training for dentists.

The development of educational material based on modeling is an artificially created illustration of an object, phenomenon, process for study, and research by experiment. The main purpose of the

method is to use simulation tools to simulate actual clinical scenarios and situations. And although medical modeling began to be used relatively recently, its advantages in mastering practical skills and practicing manipulations are undeniable. Medical simulation allows the mastering of basic manipulations with the help of predictable practice. That is, actual patients are replaced by clinical scenarios developed and analyzed in advance. One of the essential advantages of this training method is the absolute freedom for students to make and repeat mistakes without harming the patient [3].

Practicing the essential dental manipulations on phantoms and dental models allows the future doctor to feel more confident when working with an actual patient. In addition, such work can also be filled with a creative component. This is especially relevant in therapeutic dentistry when practicing the skills of preparing and forming carious cavities, applying matrices and rubber dams, as well as tooth restoration.

Simulation is an interactive learning method that allows forming of the professional skills of a future dentist by fully or partially imitating a specific clinical situation and immersion in it. In contrast to interaction with an actual patient, such work gives the student, under the clear guidance of the teacher, the opportunity to repeatedly repeat manipulations, develop an algorithm of actions for rare pathologies, and develop individual work skills in conditions of the absence of real risks. The advantages of this method are the acquisition by students of clinical experience and deeper learning, the possibility of creating clinical situations close to real ones, gaining positive experience due to stress reduction during the first independent manipulations, practicing interactions in teamwork, studying at a convenient time, practicing actions in rare pathologies, improvement of student-teacher interaction [13].

Debriefing is the final stage of the lesson using simulation. This is a mandatory part of the methodology, the purpose of which is feedback and the release of general tension after painstaking work. Debriefing consists of a number of questions that the teacher asks after completing the task. It does not involve evaluation and criticism but is aimed at self-analysis and analysis of the results [13]. Such a summary also allows the possibility of selecting other performance models of the given task, which gives the student the right to choose a similar work in the future.

CONCLUSIONS / ВИСНОВКИ

Thus, the use of innovative pedagogical technologies in the process of professional training of dentists, in particular in the teaching of therapeutic dentistry, allows to expand the opportunity for the student to choose various aspects of professional activity, contributes to the formation of individual style and provides search opportunities. At the same time, introducing these pedagogical technologies contributes to the development of clinical thinking and the professional mobility of future doctors.

The most appropriate methods in the teaching of medical disciplines, in particular stomatology, work in small groups, the case-method and simulation

technologies, since they contribute not only to the assimilation of fundamental theoretical knowledge but also to the formation of professional competence, improvement of skills and abilities, the practice of essential professional skills manipulations.

Working on mannequins, phantoms, group discussion and making a final decision not only increases self-confidence but also provides an opportunity for the future doctor to continuously improve his qualifications, gaining access to such “patients” with such diseases, which can rarely be found in ordinary clinical practice. Analyzing situational problems in small groups provides an opportunity to practice your actions in a team environment.

CONFLICT OF INTEREST / КОНФЛІКТ ІНТЕРЕСІВ

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