

**EUROPEAN HUMANITIES STUDIES:  
State and Society**

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**EUROPEJSKIE STUDIA  
HUMANISTYCZNE:  
Państwo i Społeczeństwo**

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**1.**

MODERN EDUCATION:  
CHALLENGES AND PROSPECTS

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WSPÓŁCZESNA EDUKACJA:  
WYZWANIA I PERSPEKTYWY

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**Methodological approaches to the teaching  
of Endocrinology to the students of the  
4th course: from the interrelation of the  
components to problematic issues**

**Introduction.** At present, the issues of quality of higher education, including in the medical field, remain relevant. Training a highly qualified doctor should be considered a public task. Quality training for health professionals is one of the important components of the reform and development of domestic medicine [4]. The integration of Ukraine and its higher education system into the European educational space necessarily implies changes in this field, the development and active implementation of which have been carried out in recent years. The subjects and objects of this process are the institutions of higher medical education as well as teachers and students.

The modern specialist in the level of theoretical knowledge and practical skills must meet international standards. The preparation of a



competitive graduate is possible only when introducing new forms and methods of teaching, the implementation of a problem-oriented learning strategy, creating the conditions for an active position of the student in the educational process [5]. Several principles of the educational process in higher medical school today include the widespread use of interactive teaching methods and modern innovative technologies [1, 2, 4, 6, 12, 15], the establishment of internal and external integration links and the use of cross-curricular links [2, 9, 14], implementation of student and teacher mobility [6], integrity and continuity of education. In recent years, the direction of the development of higher vocational education has naturally changed from an approach of simply acquiring a sum of knowledge to forming a new concept of competencies. Within the competence-based approach, the quality of modern education is determined by the development of competencies in students, which allow to identify connections between knowledge and situations and to apply knowledge to adequately solve professional problems [10, 16]. It is stated that the problem of forming the professional competence of future doctors is one of the most urgent ones at the moment [16].

**The purpose of work** is to analyze the peculiarities of teaching Endocrinology to the students of the 4th year with the modern tasks of the educational process.

**Main part.** The educational process at the department of Endocrinology, as well as in general in the institution of higher education is carried out in the following components: training sessions with practical training; independent work; control measures. Types of training used in the department for students of 4 courses in the specialty "Medicine" - is a lecture, practical training, individual training, consultation. Individual classes are carried out when necessary; first of all, it is an admission of missed lessons on an individual schedule, and, if necessary, - consultation before the exam.

Lecture, while remaining an important component of the educational process, has undergone some changes in today's context [3]. First of all, it is the impact of computerization and computerization of learning, with almost equal access to information sources for students and teachers. Second, it is a technological change in the preparation and reading of a lecture, a change in the role of the teacher. Now the lecturer is not just a carrier and transmitter of knowledge. In today's context, during a lecture, a student is not just an object. However, it is a subject that is actively involved in the educational process. This



approach is now implemented in our department. During the lecture, the teacher is sure to ask one or two control questions, based on the students' basic knowledge or the material just submitted. The student is not a passive listener. He is "compelled" to actively take in, think over information and be ready to answer a question or pose his own, at the time allowed by the teacher, so as not to interfere with the learning process. At the end of the lecture, a short questionnaire is sometimes interviewed for 4-5 questions about the basics, to get feedback and to reflect on the degree of assimilation of the submitted material. At no time did students express dissatisfaction with questions during or at the end of the lecture. In doing so, the friendly atmosphere in the audience helps to relieve some of the tension that may arise while waiting for a question. The format of the lecture material has also been changed. These are multimedia presentations, with the use of slideshows and snippets of visualization, which add to the interest of students, keep their attention. The student survey shows that most 4th year students (75 to 90% in different groups), consider the lecture an important part of the learning and against its elimination as a component of the learning process.

The main part of the lessons is practical classes, which are conducted according to a single structure, designed for the study of the discipline. This is the initial control of knowledge, discussion of theoretical issues of the topic of the class, practical work in the department, independent work (development of thematic patient design, solution of situational problems and analysis of additional research data), final control in the form of tests and additional short results of laboratory studies with the subsequent analysis of errors. This is a general scheme, which is now complemented by certain modern technologies. Thus, the department has developed a training manual for self-study and work in class. In the structure of the manual: "workbook", examples of test tasks, examples of solving typical situational problems, scheme and form of medical history, mandatory typical situational tasks (first level) for solving in preparation for classes, examples of formulating diagnoses for typical tasks, a list of syndromes encountered in endocrine diseases, a list of topics for presentations, a list of medicines used in the treatment of endocrine patients, a list of control questions for the exam, examples of data provided research. The guide and its sections are structured by topic of study. In the part, which is a workbook, there are questions for preparation, tasks for learning



practical skills, dedicated parts for solving "home" problems with a prescribed algorithm for solving and setting an intellectual task that is changed, supplemented or complicated in the process of acquiring new knowledge and skills. An example of a typical situational task is usually discussing the topic. At the same time, the typical task is to control the self-preparation, understanding and reproduction of the issues studied. "Intellectual" tasks include independently, based on the studied non-auditory theoretical questions and understanding of the steps of practical skills to identify the main and additional syndromes, symptoms, formulate a preliminary diagnosis, choose a direction and make a differential diagnosis, plan an additional assessment, clinical diagnosis according to the classifications and appoint a treatment plan according to existing standards and protocols (syndrome isolation and diagnosis are mandatory in the first session). Discussion of the topic at Endocrinology classes has long ceased to be a schoolboy, beyond the simple object-subject survey. Discussion includes elements of the round table, discussion. Students have the opportunity to interact with each other, to point out mistakes, to justify, to defend their opinion. Especially this format of consolidation of knowledge and at the same time control by the teacher (control of the observer and the leader of the discussion) manifests itself in the second half of the class, when students examine a thematic patient and / or solve a situational task of the second level, not typical, more difficult. At this stage, situational learning technology (case method) is working.

The case-method based on the use of theoretical knowledge allows mastering the methodology of situation analysis [2, 9]. The department has created blocks of tasks, both typical and atypical, sets of results of laboratory and instrumental research for both training and final control. When applying the case method, students work either individually or, rarely, in small groups (2-3 people). Often different students receive tasks with the same pathology, but with quite different manifestations. After familiarizing with the situation and solving it according to a well-known plan (the case-by-case method initially works), discussion and protection of thoughts and actions begin. Often a whole "Concilium" starts working. The case method involves identifying strategic problems and alternative solutions. And while difficulties may arise with the diagnosis, the identification of the cause, the understanding and the explanation of the etiopathogenesis of clinical manifestations, but not very often, then it is not so easy to choose an alternative follow-



up strategy. The question is "how can alternative treatment be if we work on a protocol?" In solving such problems, we inevitably dive into the process of forming clinical thinking, which is a very important goal in the preparation of the doctor. And already on the Endocrinology cycle, what we are sure of - is the formation of a doctor with wide medical expertise. Students in the 4th year should not only understand (this is laid in the stages of basic disciplines), but also to consolidate the thesis that "the doctor treats not the disease, but the patient"! Students in Endocrinology are very clearly shown this postulate, because endocrine pathology affects the whole body. When examining thematic patients, together with the teacher, special attention is paid to the search for characteristic features, stigmas of endocrine pathology, the features of a thorough physical examination of the patient, taking into account that the symptoms, which are quite understandable at first glance, may be the manifestation of non-somatic, namely endocrine disease. And when working out an alternative strategy, it can be about comorbid cases that need to be resolved, sometimes immediately, where the patient should be treated and what disease should be treated first, carry out the conservative or surgical treatment, whether or not additional valuable studies should be ordered. Thus, inevitably, both problem-oriented and personality-oriented approaches begin to work; some modern competencies are formed! When analyzing problems with urgent conditions in Endocrinology, the student learns to think and act quickly, it is enough qualified to assign a plan of urgent diagnostic and medical measures, to provide their justification. Working in a ward with real patients (with the consent of patients and their relatives) allows them to carry out the educational process, to awaken and consolidate in mercy students, respect those who will depend on them in future medical practice, to form one of the links of communicative competence.

Endocrinology module 4 practical training is also guided by the "one-day" principle. That is, during one lesson during one school day there is a complete consideration of one topic, from the initial deepening, the first uncertain steps, doubts to the consolidation of basic provisions, approaches, solving unclear questions, improving the necessary practical skills, conducting the final control. What would be very good and up-to-date is to introduce role-playing and business games into the learning process during the practice sessions. Attempts at the department were quite successful, and it was interesting for



students, but to implement continuously, at least one game per block, has not yet succeeded. This may be explained by the short duration of the Endocrinology training cycle - 7 days, one of which is a lecture. Teachers may not have sufficiently mastered this type of teaching technology. The saturation of the practical classes and, in some cases, too much information and emotional load during the practical classes may be affected.

One way to solve the tensions of the educational process is to structure the curriculum.

Education is a process, a structure, a result, it is a flexible and vibrant system that changes and improves as society sets and at times challenges itself. New technologies and approaches are being applied in high and high school, including medical. And now, in a paradigm shift, higher education is changing its forms, applying new technologies, and being guided by new principles.

With the development of new training programs, the structure of the hours and module of Endocrinology in the 4th year changed slightly, the number of hours for independent preparation increased due to practical classes, some of the topics were transferred to the program of independent study. Of course, methodical materials were revised and revised, lecture presentations were revised.

Independent work is an integral component and reserve of optimization of the educational process. At the same time, it is seen as a powerful incentive for the development of creativity and activity of the individual [6]. An important task of independent work, according to experts, is the embodiment of an individual approach to learning, providing maximum opportunity for the development of professional and personal qualities, creative individuality of future professionals [6]. The importance of independent work for in-depth, effective teaching of the profession of a doctor is difficult to overestimate. For the study of the course of Endocrinology, a thoughtful self-education process is especially important, first of all, due to the peculiarities of the endocrine system and its pathology. Independent work in the study of Endocrinology is now allocated 30% of all study time. Fragments of independent work within the scheduled time also take place in a practical session (independent supervision of the patient to write the patient's educational history, independent work on a situational task, independent performance of control test tasks, etc.). However, this is directly outside the classroom, usually without the participation of



the teacher. The knowledge that a student receives on his own is his acquisition, his achievement, his achievement and personal reward. This is at least 90% of the information that is absorbed by the student [6]. This is a preparation for a practical class, this is a study of topics that are not covered in detail in the practical class, but are taken into account in the final test control, it is work in the library or search for new information on the Internet resources found alone or recommended by the department, this is the preparation of the abstract or a modern multimedia presentation for a class or scientific group meeting. This is the design of the educational history of the disease. This can be a part of the medical advisory work of the teacher, which is often performed at the end of classes with students. That is, it is a very individualized and creative form of the educational process. At the same time, this form requires student self-organization, motivation, dedication. The result of this work is not only visible in the next practical lesson. It is work for the future, for confidence and professionalism. During independent work, another communication competence is formed - the ability to use modern computer information technologies of different levels, the ability to master distance learning, to establish relationships for possible consultations of the teacher in the preparation for the class or scientific activity.

The approaches and tools used to ensure effective student self-study should be noted. This, of course, is the involvement and development of e-learning technology. For its implementation at the level of the institution of higher medical education (medical academy), there are an electronic library, modern educational and scientific Internet resources and platforms are available, smart devices are used, etc. The Academy's website is active. To ensure quality self-study in the study of Endocrinology, a web site of the Department of Endocrinology was created. The site is updated regularly, which is important not only for the student but also for the teachers. Active work with electronic means leads to self-improvement and improvement not only of professional medical and pedagogical skills, but also to the study of new computer technologies. The website of the department in the electronic library contains guidelines, divided by topics and types (practical classes, self-study), test tasks, electronic versions of tutorials, electronic slideshows of lectures, lists of literature and addresses of necessary and useful scientific and scientific and practical resources, videos on Endocrinology, in particular, on thyroid, lower extremities



in diabetes, videos on diabetic foot syndrome, including those created by the department's teachers. Also included are electronic versions of textbooks, guidelines and official protocols for treatment of endocrine diseases, both domestic and foreign. Of course, the materials of the current educational process are presented: thematic and calendar plans, schedules of completion of missed classes, evaluation criteria, etc. Necessary announcements are posted; photos from competitions, educational events, competitions are displayed. In addition to the site, among the elements of e-learning is the electronic journal of accounting of academic performance of students of the 4th year, which is now introduced in the department of Endocrinology. However, not all issues are resolved. The Department of Endocrinology is located on several clinical bases, which are healthcare facilities, which poses some technical difficulties to computer support. Therefore, we have not yet been able to implement computer-based Internet testing technologies.

One of the forms of study, which is practically not covered by the teaching hours, but has some weight for deepening knowledge, is participation in the work of the student scientific circle of the department and participation in the student Olympiad in a particular subject. At the meetings of the group, during the research, the student must study in more detail certain issues of the discipline, better develop practical skills, especially those that are necessary for the performance of scientific work. The planning of scientific work, it's carrying out, as a rule, in the hospital department, obtaining the results, their understanding and preparation of a scientific publication or report significantly increase the level of knowledge of the student. In addition, this work reveals creativity, raises interest in further education, beyond the scope of the thematic plan in the 4th year, promotes the possible path of such a student in the scientific future. It also shapes a level of professional competence such as autonomy and responsibility. Participation in the Olympiad also encourages the student to expand the horizons of his knowledge. Undoubtedly, students who participate in the Olympics show themselves as more active, courageous, motivated, persistent personalities. The spirit of competition contributes to the formation of the ability to "make decisions", the development and consolidation of which the student - the future doctor is paid considerable attention at the present stage of higher medical education. The Endocrinology Olympiad is a separate event, but at the Academy its first stage takes place simultaneously and in one place with the Internal Medicine



Olympiad, allowing the student to prove himself, perhaps more in one of these related fields of medicine.

The subject "Endocrinology" is a part of the volume discipline "Internal Medicine". The scale of the latter encompasses knowledge of the normal and pathological activity of all internal organs and their systems. However, the section on endocrine pathology is quite specific, as noted above. This is due not only to the specific anatomical and histological features of the endocrine glands, not only to the specific functioning and regulation of the endocrine system, but also to the very important, complex and diverse effects of hormones on metabolic processes, growth and functioning of the whole organism, its organs and organs.

A qualitative study of the subject "Endocrinology" is impossible without qualitative preparation in basic, fundamental disciplines. Without a deep understanding of biochemistry, normal and pathological physiology, without knowledge of histology, normal and pathological anatomy, it is very difficult to approach the effective study of the basics of Endocrinology in the 4th year, when the student is first confronted with Clinical Medicine. Without some experience in the objective examination, complaint collection, and medical history of a patient acquired at the Department of Internal Medicine Propedeutics, it is quite difficult to adopt the same approaches in a patient with endocrine pathology. Besides, knowledge of pharmacology is essential for a successful understanding of the principles of treatment of endocrine diseases. And this is only one side. Knowledge gained in the cycle "Endocrinology", student certainly applies in the supervision of patients in all other departments, training in which is provided by the program of senior courses. This specificity requires the use of certain forms of integration in the study of Endocrinology.

Integration can be seen as a system of interconnection of the components of the pedagogical process (education and training; training courses; subjects, etc., which ensures the quality of education and competitiveness of educational institutions in the market of educational services). Student learning technologies based on integration with medical technologies involve a combination of different ways of interacting in educational activities, based on individual acquisition and assignment of knowledge [10]. First of all, it is the close use of cross-curricular links (the continuous process of learning one element at different levels). It is also the development and



application of in-house integration (development and construction of logical relationships between different elements of the same system).

Meta-subject integration involves the integration of heterogeneous elements of different medical disciplinary systems and considers the problem as more global than in terms of a single pathology. This is a comprehensive, qualitatively higher view of the pathological situation. It is also an integration of certain psychological, even pedagogical, approaches when dealing with an endocrine patient and his relatives.

Today, integration is also viewed from a higher level than just cross-domain links. However, it is not a question of studying one discipline.

It should be remembered that higher education is only the initial stage in continuing medical education. The acquired skills and knowledge will become the basis for further improvement in the profession, for professional growth.

**Conclusions.** Teaching students of the 4th year of higher education institution of the discipline "Endocrinology" is subject to the laws of the educational process and consists of some components. The main parts include lectures, practical classes, self-study and forms of control. Additional forms include forms of study that are not included in the lesson plan, but have additional weight for deepening knowledge: participation in the work of a student scientific group, competitions during the Olympiad in the subject. All components of the educational process are independent and at the same time constitute a complex that is necessary and sufficient for the effective assimilation of the subject. In teaching Endocrinology, some modern methodological approaches and technologies are used: case-methods, e-learning, interactive methods ("discussion", "round table"), changing the relationship between teacher and student from the variant "subject-object" to variant "subject-subject", which contributes to a better understanding of the elements of the system and increases the interest of both parts in conducting a quality educational process. Endocrinology 4-year study takes its place in the holistic and continuous process of higher education: the features of the endocrine system make it compulsory to integrate its teaching, first of all, with cross-curricular, intracellular and meta-subjects. The existing problematic issues are insignificant and do not interfere with the implementation of a quality educational process.

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**TYSZCZENKO IRYNA, BONDAREWA OKSANA. Metodologiczne podejścia do nauczania endokrynologii studentów 4. roku: od interakcji komponentów do kwestii problematycznych.** Artykuł dotyczy specyfiki uczenia się zagadnień endokrynologicznych przez studentów 4. roku specjalności „Medycyna”. Nacisk kładziony jest na integracyjne podejście do nauczania endokrynologii jako jednej z ważnych części dyscypliny „Medycyna wewnętrzna”. Omówiono złożoność, specyfikę i ciągłość procesu edukacyjnego w wyższej szkole medycznej, etapowość przygotowania lekarza. Przedstawiono wzajemne połączenie różnych elementów procesu edukacyjnego (wykłady, zajęcia praktyczne, samokształcenie) i ich znaczenie dla skuteczności nauczania, rolę dodatkowych działań, takich jak udział w pracach studenckiej grupy naukowej wydziału i rywalizacja podczas olimpiady przedmiotowej z endokrynologii, w celu zwiększenia zainteresowania studentów do studiowania przedmiotu. Przeanalizowano szereg problemów napotykaných w nauczaniu zarówno wśród nauczycieli, jak i studentów. Podkreślono znaczenie wprowadzenia współczesnych spojrzeń na proces edukacyjny i nowoczesnych technologii nauczania dla głębokiej konsolidacji zdobytej wiedzy i umiejętności praktycznych lekarza, w szczególności w zakresie endokrynologii.

**Słowa kluczowe:** endokrynologia, nauczanie, metodologia, edukacja, podejście integracyjne.

**ТИЩЕНКО ІРИНА, БОНДАРЕВА ОКСАНА. Методологічні підходи до викладання ендокринології студентам 4 курсу: від взаємозв'язку складових до проблемних питань.** У статті висвітлено особливості вивчення питань ендокринології студентами 4 курсу за спеціальністю «Медицина». Зроблено наголос на інтегративному підході викладання ендокринології як однієї з важливих частин дисципліни «Внутрішня медицина». Обговорено комплексність, специфічність та безперервність освітнього процесу в вищій медичній школі, поетапність підготовки лікаря. Показано взаємозв'язок різних складових освітнього процесу (лекції, практичні заняття, самостійна підготовка) та їх значення для ефективності навчання, роль додаткових заходів, таких, як участь у роботі студентського наукового гуртка кафедри та змагання під час предметної олімпіади з ендокринології, для підвищення зацікавленості студентів щодо вивчення предмета.

*Проаналізовано низку проблем, які постають під час навчання як перед викладачами, так і перед студентами. Підкреслено значення впровадження новітніх поглядів на освітній процес та сучасних технологій навчання для глибокого закріплення отриманих знань та практичних навичок лікаря, зокрема, з ендокринології.*

**Ключові слова:** ендокринологія, навчання, методологія, освіта, інтегративний підхід.

**ТИЩЕНКО ИРИНА, БОНДАРЕВА ОКСАНА. Методологические подходы к преподаванию эндокринологии студентам 4 курса: от взаимосвязи составляющих к проблемным вопросам.** В статье освещены особенности изучения вопросов эндокринологии студентами 4 курса по специальности «Медицина». Сделан акцент на интегративном подходе к преподаванию эндокринологии как одной из важных частей дисциплины «Внутренняя медицина». Обсуждены комплексность, специфичность и непрерывность образовательного процесса в высшей медицинской школе, поэтапность подготовки врачей. Показана взаимосвязь различных составляющих образовательного процесса (лекции, практические занятия, самостоятельная подготовка) и их значение для эффективности обучения, роль дополнительных мероприятий, таких, как участие в работе студенческого научного кружка кафедры и соревнования во время предметной олимпиады по эндокринологии, для повышения заинтересованности студентов в изучении предмета. Проанализирован ряд проблем, которые появляются во время обучения как для преподавателей, так и для студентов. Подчёркнуто значение внедрения новейших воззрений на образовательный процесс и современных технологий обучения для глубокого закрепления полученных знаний и практических навыков врача, в частности, по эндокринологии.

**Ключевые слова:** эндокринология, обучение, методология, образование, интегративный подход.

**TYSHCHENKO IRYNA, BONDAREVA OKSANA. Methodological approaches to the teaching of Endocrinology to the students of the 4th course: from the interrelation of the components to problematic issues.** The article represents the peculiarities of studying Endocrinology by fourth-year students in the „Medicine” speciality. The focus is on the integrative approach to teaching Endocrinology as an important part of discipline „Internal Medicine”. The article touches upon the complexity, specificity and continuity of the educational process in higher medical



*school, the step-by-step training of doctor. It demonstrates the interrelation of different components of the educational process (lectures, practical classes and self-studying) and their importance to the effectiveness of learning, the impact of additional events, such as participation in the department's „students' study group” or in the academical endocrinology contest, to raise students' interest in the study of the subject. The work also analyses various issues which both students and teachers face within the educational process. The article emphasizes the value of implementing modern approaches and contemporary technologies of studying for deeper consolidation of the acquired physician knowledge and practical skills, particularly in endocrinology.*

**Keywords:** *endocrinology, learning, methodology, education, integrative approach.*