
**DEVELOPMENT OF STUDENT COMPETENCIES
IN THE FIELD OF REHABILITATION:
CONTRIBUTION TO ACHIEVING UN SUSTAINABLE
DEVELOPMENT GOALS**

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INTRODUCTION

The Sustainable Development Goals, adopted in UN General Assembly Resolution 70/1 of September 25, 2015¹ (taking into account the specifics of our country, they were approved by the Decree of the President of Ukraine of September 30, 2019 No. 722), define a global strategy for achieving human welfare and protecting the planet by 2030. Among the 17 goals, Goal 3 “Good Health and Well-being” and Goal 4 “Quality Education” hold a special place, as they are directly related to the training of healthcare professionals.

According to global research published in 2020, every third person in the world needs rehabilitation care, which emphasizes the global importance of quality training of physical therapy specialists². In the context of demographic aging, increasing chronic diseases and consequences of the COVID-19 pandemic, as well as military conflicts, the need for qualified rehabilitation specialists is rapidly growing.

Modern medical education is undergoing transformation related to the implementation of a competency-based approach. Competency-based medical education (CBME), as noted by Ten Cate³, has become a leading trend in the training of medical professionals, ensuring focus on specific learning outcomes and readiness for practical activity.

¹ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

² Cieza A., Causey K., Kamenov K., Hanson S. W., Chatterji S., Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: A systematic analysis for the global burden of disease study 2019. *The Lancet*. 2020. V. 396. Iss. 10267. P. 2006–2017.

³ Ten Cate O. Competency-Based Postgraduate Medical Education: Past, Present and Future. *GMS Journal for Medical Education*. 2017. Vol. 34, № 5. Article Doc69. DOI: 10.3205/zma001146.

This issue becomes particularly important in Ukraine, where the healthcare system needs highly qualified rehabilitation specialists to work with victims of military actions and the civilian population. Under martial law conditions, the training of rehabilitation specialists acquires strategic significance for restoring the nation's health and achieving sustainable development goals in the post-war period.

The integration of sustainable development principles into the medical education system involves not only training qualified specialists but also forming their understanding of global challenges and responsibility for contributing to their solution. The conceptual foundations of modern rehabilitation are based on the biopsychosocial model, which considers health as a dynamic interaction of biological, psychological, and social factors.

The international context of rehabilitation development is characterized by growing recognition of its role as a fundamental component of healthcare systems. The World Health Assembly Resolution on Rehabilitation, approved at the 74th session of the World Health Assembly in 2021, emphasized the need to integrate rehabilitation into healthcare systems at all levels.

The aim of our research is to theoretically substantiate and empirically investigate the process of forming professional competencies of students in the field of rehabilitation in Ukraine in the context of their contribution to achieving UN Sustainable Development Goals, particularly Goal 3 “Good Health and Well-being” and Goal 4 “Quality Education”.

1. Theoretical Foundations and Global Experience of Competency-Based Approach in Training Rehabilitation Specialists

The theoretical foundations of the competency-based approach in medical education are based on understanding competency as a dynamic combination of knowledge, skills, abilities, and personal qualities that determine a person's ability to successfully conduct professional activity. As defined by the standards of higher education in Ukraine for specialty 227 “Physical Therapy, Occupational Therapy”, competency includes both general and special competencies formed at different levels of education⁴.

The historical development of the competency concept dates back to the 1960s, when American psychologist David McClelland proposed an alternative to traditional methods of ability assessment, focusing on practical activity outcomes. In the 1980s–90s, the competency-based approach began to be

⁴ Стандарт вищої освіти за спеціальністю 227 «Фізична терапія, ерготерапія» для першого (бакалаврського) рівня вищої освіти. Затверджено Наказом Міністерства освіти і науки України 29.10.2024 р. № 1541; Стандарт вищої освіти за спеціальністю 227 «Фізична терапія, ерготерапія» для другого (магістерського) рівня вищої освіти. Затверджено Наказом Міністерства освіти і науки України 30.10.2024 р. № 1549.

actively implemented in educational systems in the USA and Europe, which was related to the need to bridge the gap between education and labor market requirements.

The competency-based approach in medical education has become the dominant educational paradigm, ensuring the preparation of specialists capable of effectively responding to the challenges of modern medicine. This concept is particularly important for training rehabilitation specialists, as it allows combining several competency areas into corresponding professional tasks.

The main principles of competency-oriented education include: ensuring equal opportunities for all students, emphasis on measurable competencies, transparency of learning objectives, individual student support, assessment of skill growth, and student advancement based on demonstrated competencies. These principles correlate with Sustainable Development Goal 4 regarding ensuring inclusive and equitable quality education⁵.

For physical therapy, the principles of practice-oriented learning are particularly important, as this profession requires integration of theoretical knowledge with practical skills of working with patients. Competency-oriented education focuses not on curriculum completion but on students achieving mastery of knowledge and skills. This involves changes in student experience, faculty professional practice, and institutional culture.

The modern competency-based approach involves forming not only professional skills but also the ability for critical thinking, innovative activity, and interprofessional interaction. This is particularly important in the context of achieving sustainable development goals, as it requires specialists to understand systemic interconnections between health, education, social justice, and environmental sustainability.

Global experience in training rehabilitation specialists is based on international standards and principles. The World Health Organization published the Rehabilitation Competency Framework in 2020, which describes expected competencies and activities of rehabilitation workers from various professions⁶. This framework includes a description of key values, beliefs, competencies, activities, as well as necessary knowledge and skills for rehabilitation workers at four levels of professional mastery – from basic to expert.

The WHO Framework is structured around five main domains: practice, professionalism, learning and development, management and leadership, and research. Each domain includes specific competencies, activities, tasks,

⁵ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

⁶ Rehabilitation Competency Framework: World Health Organization. Geneva: WHO, 2020. 36 p.

knowledge, and skills corresponding to different levels of professional mastery. This ensures a systematic approach to developing human resources in rehabilitation and promotes standardization of educational programs at the global level.

The “Practice” domain includes competencies related to direct provision of rehabilitation services: patient assessment, planning and implementation of interventions, progress monitoring, and treatment plan adjustment. This domain is central to all levels of training and reflects the core mission of rehabilitation specialists.

The “Professionalism” domain covers ethical aspects of activity, cultural competence, professional communication, and continuous professional development. These competencies are extremely important for ensuring service quality and patient trust, which directly correlates with sustainable development principles regarding ensuring fairness and inclusivity.

The “Learning and Development” domain includes competencies related to teaching patients, families, colleagues, and students. This reflects the educational mission of rehabilitation specialists and their role in forming a culture of health in society. Development of these competencies contributes to achieving Sustainable Development Goal 4 through disseminating knowledge and skills necessary for maintaining health.

Among the core values defined by the Framework, compassion and empathy, respect for human diversity, human dignity and rights, and each patient's self-determination hold a special place⁷. These values correlate with sustainable development principles, particularly the principle of “leaving no one behind”, which is central to the 2030 Agenda⁸.

European standards for training specialists in physical and rehabilitation medicine, outlined in the White Book on Physical and Rehabilitation Medicine (PRM) in Europe, emphasize the importance of unified basic principles and competencies for specialists in this field⁹. The document emphasizes the need for continuing medical education and professional development, which corresponds to lifelong learning principles and Sustainable Development Goal 4 regarding ensuring inclusive and equitable quality education.

The European model of specialist training is characterized by emphasis on evidence-based practice, interdisciplinary collaboration, and patient-centered

⁷ Rehabilitation Competency Framework: World Health Organization. Geneva: WHO, 2020. 36 p.

⁸ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

⁹ White Book on Physical and Rehabilitation Medicine in Europe. European Physical and Rehabilitation Medicine Bodies Alliance. *European Journal of Physical and Rehabilitation Medicine*. 2018. Vol. 54, №. 2. P. 125-155.

approach. Special attention is paid to developing research competencies and ability for critical analysis of scientific literature. This corresponds to modern trends in medicine development and promotes implementation of innovative approaches in practice.

The World Confederation for Physical Therapy in its policy statement on education defines key principles for developing educational programs, including focus on learning outcomes, evidence base, and development of necessary knowledge, skills, and attitudes¹⁰. Special attention is paid to interdisciplinary education and preparation for independent practice. The document emphasizes the importance of continuous professional development for ensuring physical therapist competence throughout their career.

The international organization “World Physiotherapy” recommends minimum standards for educational programs, including at least 4 years of university-equivalent education with a minimum of 1000 hours of clinical practice¹¹. These standards ensure the basic level of preparation necessary for safe and effective practice.

The American experience, presented in the document “Vision for Excellence in Physical Therapy Education”, defines six key directions for achieving excellence in physical therapist education¹²: educational accessibility; collaboration between educational process participants; competency-based education; diversity, equity, and inclusion; educational research and data management; infrastructure, capacity, and faculty development. These directions are directly related to sustainable development principles and Goal 4 regarding ensuring inclusive education.

Academic mobility programs, international internships, and joint research projects can significantly expand opportunities for students and faculty. Participation in international conferences and publication of research results in international journals also contribute to improving education quality.

In the Ukrainian context, training of rehabilitation specialists began in 2015 after the introduction of the specialty “Physical Therapy, Occupational Therapy”. Fastivets in his research¹³ notes that distinguishing “physical therapy” as a specialization allowed Ukraine to orient toward international

¹⁰ World Physiotherapy. *Policy statement: Education*. London, UK: World Physiotherapy; 2023. URL: <https://world.physio/policy/ps-education> (дата звернення: 11.09.2025).

¹¹ Ibid.

¹² A Vision for Excellence in Physical Therapy Education: Culmination of the Work of the Education Leadership Partnership. American Council of Academic Physical Therapy, American Physical Therapy Association, APTA Academy of Education. Alexandria: American Physical Therapy Association, 2021. 31 p.

¹³ Фастівець А. В. Теорія і практика підготовки фахівців з фізичної терапії та ерготерапії у процесі вивчення природничих дисциплін : дис. ... д-ра пед. наук : 13.00.04. Полтава, 2024. 566 с.

standards of education and practical activity of specialists. This contributed to the development of physical rehabilitation as a component of the medical field and bringing the domestic system of specialist training in line with international requirements.

The process of adapting international standards to national conditions was complex and multi-stage. Krupa¹⁴ emphasizes the importance of forming professional competence of future physical rehabilitation specialists as an integrative personality quality characterized by a set of competencies necessary for effective performance of professional functions. This includes not only technical skills but also the ability for critical thinking, communication, and working in an interdisciplinary team.

The historical context of rehabilitation development in Ukraine is characterized by the transition from the Soviet model of therapeutic physical culture to modern international approaches of physical therapy. This transition involved not only terminology changes but also fundamental transformation of the philosophy and methodology of specialist training.

In the context of achieving sustainable development goals, the Ukrainian system of training rehabilitation specialists has particular significance. Military conflict has created unique challenges and opportunities for developing rehabilitation services. On one hand, the need for specialists capable of working with consequences of combat injuries and psychological trauma has grown. On the other hand, this has stimulated the implementation of innovative approaches and technologies in education and practice.

Strategic documents for Ukraine's development, including the National Strategy for Building a Barrier-Free Space and the Internal Resilience Plan, define rehabilitation as a priority direction for healthcare system development. This creates favorable conditions for expanding specialist training and implementing innovative educational programs.

2. Current State of the Rehabilitation Specialist Training System in Ukraine: Analysis of Educational Programs and Teaching Methodology

Our research conducted at Cherkasy Medical Academy involved 177 participants in the educational process and was carried out in three consecutive stages: preparatory (September-October 2024), main (November 2024 – February 2025), and final (March-April 2025). The sample included 110 students of different education levels (59 students from 1st–2nd year

¹⁴ Крупа В. В. Визначення сутності та змісту формування професійної компетентності майбутніх фахівців фізичної реабілітації. Збірник наукових праць Національної академії державної прикордонної служби України. *Педагогічні та психологічні науки*. 2014. № 4 (73). С. 176–187.

bachelor's, 18 students from 3rd-4th year bachelor's, 33 master's students), 19 faculty members, and 5 employers.

The methodological design of the research was based on mixed research principles, combining quantitative and qualitative approaches to obtain a more complete understanding of the studied phenomenon. The quantitative component included statistical analysis of performance indicators and survey results, while the qualitative component involved content analysis of responses to open questions.

The applied comprehensive methodology included: analysis of educational programs, curricula, course syllabi, and methodological materials; analysis of student performance for the first semester of the 2024–2025 academic year using official academic records; surveying different categories of respondents using specially developed and validated questionnaires in Google forms; statistical analysis using descriptive statistics and content analysis of responses to open questions.

Research results showed that Cherkasy Medical Academy's physical therapy educational programs demonstrate logical sequence and balanced structure. Master's students highly rated the logical transition from bachelor's to master's programs (4.48 ± 0.12 points out of 5 possible). This indicates effective implementation of continuity principles in the educational process and corresponds to Holubnycha et al.'s recommendations regarding the development of competency-oriented education¹⁵.

The bachelor's program is characterized by a balanced distribution between general (28.4%) and professional training (57.4%) cycles, with an additional 12.9% of time allocated to practical training. The total program volume is 240 ECTS credits with a study period of 3 years and 10 months, which corresponds to European standards and Bologna Process requirements.

The master's program demonstrates a significant increase in the practical training share to 40.7% of the total 120 ECTS credits, which meets the needs of advanced professional specialization and corresponds to the American Council of Academic Physical Therapy recommendations regarding strengthening the practical component of training¹⁶. The study period is 1 year and 10 months, ensuring intensive and focused master's preparation.

¹⁵ Holubnycha L., Shchokina T., Soroka N., Besarab T. Development of Competency-Based Approach to Education. *Educational Challenges*. 2022. Vol. 27. P. 54-65.

¹⁶ A Vision for Excellence in Physical Therapy Education: Culmination of the Work of the Education Leadership Partnership. American Council of Academic Physical Therapy, American Physical Therapy Association, APTA Academy of Education. Alexandria: American Physical Therapy Association, 2021. 31 p.

The structure of educational programs fully complies with Ukrainian higher education standards requirements¹⁷. The bachelor's program aims to form 11 general and 9 special competencies covering all aspects of professional activity of a physical therapist assistant. Among key competencies, it's worth noting the ability to analyze the structure and functions of the human body, conduct safe professional activity, perform examination and control components, and implement physical therapy programs under supervision.

The master's program involves forming 7 general and 12 special competencies, with particular emphasis on research, management, and teaching competencies. This includes the ability to think professionally and differentiate problems according to the biopsychosocial model, safely examine patients with complex pathology, develop and implement physical therapy programs, conduct scientific research and teaching activities.

Comparative analysis with international standards shows a high degree of correspondence between Cherkasy Medical Academy's educational programs and the principles of the WHO Competency Framework¹⁸. Specifically, the programs include all five main domains: practice (through clinical disciplines and practical training), professionalism (through ethical and communicative competencies), learning and development (through pedagogical disciplines), management and leadership (through corresponding master's program competencies), and research (through research competencies).

Detailed analysis of curricula revealed a thoughtful logic of educational process construction. At the bachelor's level, fundamental disciplines (“Human Anatomy”, “Human Physiology”, “Biological Chemistry of Motor Activity”) are studied in initial courses, creating a theoretical base for subsequent study of clinical disciplines. Gradual complication of clinical disciplines corresponds to higher education pedagogy principles and ensures sequential formation of professional competencies.

In master's programs, integration of theoretical and practical training is observed from the beginning of study, which corresponds to the higher education level and students' previous experience. Including research components throughout the entire study period contributes to forming research competencies and critical thinking.

Analysis of discipline syllabi showed correspondence of learning content to modern trends in physical therapy development. Including topics related to

¹⁷ Стандарт вищої освіти за спеціальністю 227 «Фізична терапія, ерготерапія» для першого (бакалаврського) рівня вищої освіти. Затверджено Наказом Міністерства освіти і науки України 29.10.2024 р. № 1541; Стандарт вищої освіти за спеціальністю 227 «Фізична терапія, ерготерапія» для другого (магістерського) рівня вищої освіти. Затверджено Наказом Міністерства освіти і науки України 30.10.2024 р. № 1549.

¹⁸ Rehabilitation Competency Framework: World Health Organization. Geneva: WHO, 2020. 36 p.

evidence-based practice, biopsychosocial model, International Classification of Functioning (ICF) reflects orientation toward international standards and modern approaches to rehabilitation.

An important feature of educational programs is their adaptability to modern challenges. Including components “Post-traumatic Rehabilitation of Combat Action Victims” (4 credits at bachelor's level) and “Modern Technologies of Physical Therapy for Combat Injuries” (3 credits in master's) demonstrates correspondence of education to current societal needs and contribution to achieving Sustainable Development Goal 3 regarding ensuring healthy lifestyles and promoting well-being for all at any age¹⁹.

These components reflect the global trend of adapting educational programs to emergency situations and crisis phenomena. In conditions of increasing armed conflicts worldwide, training specialists capable of working with consequences of military injuries becomes an important contribution to ensuring global health security. The content of these disciplines includes specifics of combat injuries, features of rehabilitation in limited resource conditions, and psychological aspects of working with military personnel.

Including the discipline “Emergency Conditions with Basics of Pre-medical Care in Wartime Conditions. Safe Practice” (3 credits) in the master's program also indicates an innovative approach to specialist training. This corresponds to WHO recommendations regarding training medical workers for emergency situations and contributes to achieving Goal 3 indicators regarding strengthening the capacity of all countries in early warning, risk reduction, and management of national and global health risks.

The inclusion of components aimed at developing entrepreneurial competencies is also innovative. The discipline “Marketing in Rehabilitation Services” at bachelor's level and “Management and Leadership in Rehabilitation” in master's contribute to forming entrepreneurial thinking and ability for innovative activity, which corresponds to Sustainable Development Goal 8 regarding promoting sustained economic growth and decent employment.

Special attention deserves the integration of digital technologies in the educational process. The discipline “Information Technologies (Professional Focus)” in master's includes studying modern software for motion analysis, telerehabilitation, and virtual reality in rehabilitation. This corresponds to global trends in healthcare digitalization and contributes to preparing specialists capable of working with modern technologies.

An interdisciplinary approach is implemented through including disciplines

¹⁹ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

that integrate knowledge from different fields. For example, “Biopsychosocial Approach and ICF Model in Healthcare” combines medical, psychological, and social aspects of rehabilitation, which corresponds to modern understanding of health as a complex phenomenon.

Elective program components demonstrate flexibility and possibility of individualizing educational trajectories. At bachelor's level, elective disciplines such as “SPA Technologies”, “Wellness Swimming and Hydrokinesiotherapy”, “Corrective Gymnastics, Fitness Technologies” are offered, allowing students to specialize in specific directions of physical therapy according to their interests and labor market needs.

The effectiveness of competency formation significantly depends on the quality of resource provision for the educational process. Cherkasy Medical Academy has a powerful material and technical base: the total area of all premises is 14,665 sq. m, of which educational area is 9,102 sq. m. In 2022, over 592 thousand hryvnias were spent on creating the Simulation Learning Center, which indicates serious investments in education quality and corresponds to sustainable development principles regarding investing in educational infrastructure.

The Simulation Learning Center is equipped with modern mannequins, phantoms, and other equipment for practicing practical skills. This includes mannequins for practicing cardiopulmonary resuscitation, phantoms for teaching injection and catheterization skills, as well as specialized equipment for simulating various clinical scenarios. The gym is equipped with necessary rehabilitation equipment: exercise machines, fitballs, Evminov board, Swedish wall, verticalizers, goniometers. This allows students to effectively practice physical therapy practical skills in conditions close to real clinical practice.

Specialized cabinets include pre-clinical practice, massage, and measurement of structural changes and impaired body functions cabinets. Each cabinet is equipped according to discipline specifics and practical training needs. The availability of modern rehabilitation equipment allows students to become familiar with technologies they will use in professional activity.

Technical infrastructure includes a local network, free access to the Moodle educational platform, and 8 computer classrooms with modern equipment. Students have constant access to Wi-Fi with high-speed internet, ensuring opportunities for distance learning and access to international educational resources. The Department of Information-Analytical Support and Publishing Activity functions, supporting the educational process and scientific activity.

High-level staffing is an additional advantage – 89.47% of full-time faculty have scientific degrees and academic titles (2 doctors of science, 15 candidates of science, 2 professors, 9 associate professors, 1 senior researcher). Professional practitioners from leading regional rehabilitation

centers are actively involved in the educational process: Municipal Non-profit Enterprise “Cherkasy City Rehabilitation and Health Polyclinic 'Astra'”, Municipal Non-profit Enterprise “Cherkasy Regional Hospital of Cherkasy Regional Council”, Municipal Non-profit Enterprise “Third Cherkasy City Emergency Medical Care Hospital”, and others.

A feature of staffing is the combination of academic qualifications with practical experience. Among professional practitioners involved in educational program implementation, 4 have scientific degrees. The support group includes 2 Honored Doctors of Ukraine and 1 Honored Healthcare Worker of Ukraine, indicating a high professional level and recognition of their contribution to field development.

The faculty development system includes participation in internship programs, scientific-practical conferences, seminars, and trainings. Many faculty members have completed international internships, ensuring familiarity with best global practices and their implementation in the educational process. This contributes to achieving Sustainable Development Goal 4 regarding ensuring quality education through continuous faculty professional development.

Library resources of the academy include over 194 thousand documents, of which 147,228 are educational publications. Cherkasy Regional Scientific Medical Library, which became part of the academy structure in 2019, provides access to a wide range of scientific and educational literature. In 2021-2024, funds were supplemented by over 498 thousand hryvnias, indicating constant investment in educational resources.

Students have free access to international information resources and databases, particularly Web of Science, Scopus, Research4Life, ensuring opportunities for familiarization with modern scientific achievements and conducting their own research. This is particularly important for master's students who perform qualification work and need access to current scientific information.

A comprehensive approach to competency formation combines various teaching methods adapted to the specifics of different competency types. For developing general competencies, interactive methods are used: educational discussion, round table, role and business games, brainstorming. These methods are particularly effective when teaching disciplines “Ukrainian Language (Professional Focus)”, “Foreign Language (Professional Focus)”, where small group work and team-oriented learning are widely used.

Interactive learning methodology is based on principles of active student involvement in the educational process. Educational discussions promote critical thinking and argumentation skills development, which are important for future healthcare professionals. Role-playing allows students to practice patient communication skills in a safe environment, while business games form management competencies.

For forming special professional competencies, practice-oriented teaching methods predominate. When studying clinical disciplines, the case study method, solving situational problems, subjective and objective patient examination under faculty guidance, and practical training are widely used. Simulation learning holds a special place, allowing students to practice practical skills in a safe environment before applying them to real patients.

The case method as an innovative learning approach involves analyzing real clinical cases, which contributes to forming clinical thinking and decision-making ability under uncertainty conditions. Students learn to integrate theoretical knowledge with practical skills, which is a key competency for rehabilitation specialists.

Simulation learning is implemented through using mannequins, virtual patients, and computer simulators. This allows creating a controlled learning environment where students can make mistakes and learn from them without risk to real patients. Simulation scenarios are developed according to learning objectives and include different complexity levels.

At the master's level, more attention is paid to methods aimed at developing research and management competencies. Disciplines “Methodology and Ethics of Scientific Research”, “Information Technologies (Professional Focus)” are taught using problem-search method, solving problem tasks, student research, and project method.

Problem-oriented learning is one of the key methods of master's preparation. Students work on real problems from practice, requiring integration of knowledge from different disciplines and development of independent learning skills. This method is particularly effective for forming critical thinking ability and innovative activity.

Students confirm the effectiveness of practical teaching methods, indicating an optimal balance of theory and practice in approximately 40% to 60% ratio. This corresponds to “World Physiotherapy” recommendations regarding the practice-oriented nature of physical therapist training²⁰ and principles of the Vision for Excellence in Physical Therapy Education²¹.

An important component of teaching methodology is using the project method at master's level, which allows integrating theoretical knowledge and practical skills to solve specific tasks. This is particularly important for forming research competencies, which are mandatory for master's level education.

²⁰ World Physiotherapy. *Policy statement: Education*. London, UK: World Physiotherapy; 2023. URL: <https://world.physio/policy/ps-education> (дата звернення: 11.09.2025).

²¹ A Vision for Excellence in Physical Therapy Education: Culmination of the Work of the Education Leadership Partnership. American Council of Academic Physical Therapy, American Physical Therapy Association, APTA Academy of Education. Alexandria: American Physical Therapy Association, 2021. 31 p.

Project activities include developing rehabilitation programs, researching intervention effectiveness, and analyzing clinical cases.

Digital technologies are actively integrated into the educational process through using the Moodle educational platform, online resources, and virtual laboratories. This ensures learning flexibility and educational material accessibility, which is particularly important under martial law conditions and the need to adapt to distance learning forms.

The assessment system at Cherkasy Medical Academy is based on competency-based approach principles and includes various forms and methods of assessment. At bachelor's level, the following methods predominate: written work assessment, oral response assessment, testing, practical skills mastery assessment, and solving situational practice-oriented tasks.

At master's level, more attention is paid to comprehensive assessment methods: solving clinical cases, assessing patient examination conduct, defending individual research projects, writing abstracts and articles, and participating in conferences. This corresponds to higher levels of competency formation and master's education requirements.

Current control is carried out throughout the semester through various assessment forms: control works, practical tasks, presentations, and discussion participation. Final control includes semester exams, which can be conducted in written, oral, or mixed form depending on discipline specifics.

Graduate certification includes comprehensive assessment forms. For bachelors, this is the unified state qualification exam and objective structured clinical examination (OSCE). For masters, demonstration of research competencies through qualification work defense is additionally provided.

OSCE (Objective Structured Clinical Examination) is an innovative assessment form widely used in medical education. This method allows standardized assessment of students' practical skills through a series of stations, each checking specific competencies. OSCE ensures objectivity and fairness of assessment, corresponding to quality education principles.

Educational process effectiveness is confirmed by high student performance indicators. The average grade for profile disciplines is 4.30 ± 0.04 at bachelor's level and 4.42 ± 0.06 in master's. Practical training results are particularly indicative: 4.72 ± 0.09 in junior bachelor's courses, 4.33 ± 0.11 in senior bachelor's courses, and 4.82 ± 0.10 in master's. Moreover, 82.35% of master's students received the highest grade for practical training, indicating high effectiveness of the practice-oriented approach.

Performance indicator dynamics demonstrates a positive trend of practical competency growth with transition to higher education levels. This corresponds to the logic of educational program construction, where the practical component

gradually increases and becomes more complex. The highest practical training indicators in master's students confirm the effectiveness of specialized training at this level.

These results correlate with competency education principles described by Holubnycha et al.²² and correspond to international quality standards for physical therapist education²³. High practical training indicators are particularly important in the context of achieving Sustainable Development Goal 3, as they directly impact the quality of rehabilitation services that graduates will provide.

3. Assessment of Competency Formation Effectiveness and Development Prospects in the Context of Sustainable Development Goals

Student self-assessment analysis revealed an interesting trend: students tend to underestimate their own achievements compared to objective results. At bachelor's level, students demonstrated the highest self-assessment regarding mastering basic skills (4.31 ± 0.10), understanding future profession (4.24 ± 0.10), and understanding theoretical material (4.10 ± 0.10). In master's, the highest self-assessment was for complex practical skills (4.30 ± 0.13), management skills (4.27 ± 0.13), and advanced theoretical knowledge (4.24 ± 0.13).

Features of self-assessment among students from different courses reflect changes in professional identity and understanding of professional requirements. Junior course students more optimistically assess their achievements, while senior course students and master's students demonstrate greater self-criticism, which may be related to better understanding of professional activity complexity.

Master's students gave the lowest self-assessment to research competencies (4.12 ± 0.15), indicating the need to strengthen this training component. This is particularly important in the context of achieving Sustainable Development Goal 4, which involves ensuring that all learners acquire knowledge and skills necessary for promoting sustainable development²⁴.

The difference between self-assessment and objective results can reach 0.5 points, especially in practical skills. This may indicate growing professional responsibility and critical attitude toward one's own competencies, which is a positive trend for future healthcare professionals. Such self-criticism can stimulate further professional development and striving for skill improvement.

²² Holubnycha L., Shchokina T., Soroka N., Besarab T. Development of Competency-Based Approach to Education. *Educational Challenges*. 2022. Vol. 27. P. 54–65.

²³ World Physiotherapy. *Policy statement: Education*. London, UK: World Physiotherapy; 2023. URL: <https://world.physio/policy/ps-education> (дата звернення: 11.09.2025).

²⁴ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

Gender aspects of self-assessment show that female students, who constitute the majority in physical therapy, somewhat more often tend to underestimate their own achievements, especially in technical aspects of professional activity. This corresponds to general trends identified in research on gender features of self-assessment in medical education.

Comparative analysis of self-assessment among students from different courses shows that the greatest difference between self-assessment and objective results is observed in 3rd-4th year bachelor's students. This may be related to a “competency crisis”, when students realize the complexity of professional activity but have not yet gained sufficient confidence in their abilities.

Academy faculty note a high level of development in bachelor's students of general and communicative competencies. Most frequently mentioned are “ability to learn and master modern knowledge”, “communication skills”, and “ability to explain to patients, clients, families, interdisciplinary team members the need for physical therapy measures”. This corresponds to White Book on PRM principles²⁵ regarding the importance of communicative competencies for rehabilitation specialists.

Faculty particularly highly assess students' ability for independent learning and information search, which is critically important in modern conditions of rapid medical knowledge development. Students demonstrate skills in using various information sources, including international databases and modern scientific publications.

Communicative competencies are assessed by faculty as highly developed, including both verbal and non-verbal communication. Students demonstrate empathy, active listening ability, and skill in adapting their communication to different patient categories. This is particularly important in the context of the biopsychosocial rehabilitation model.

However, faculty note insufficient development of research competencies in bachelor's students, particularly “ability to search, process, and analyze information from various sources” and “research skills”. This corresponds to higher education standards principles, which provide for a basic level of research competencies at bachelor's level with their deepening in master's.

Among other insufficiently developed competencies, faculty mention “critical thinking”, “self-analysis”, “clinical thinking”, and “ability to adapt and act in new situations”. These competencies are fundamental for an analytical approach to the rehabilitation process and ability to make informed decisions in non-standard situations.

²⁵ White Book on Physical and Rehabilitation Medicine in Europe. European Physical and Rehabilitation Medicine Bodies Alliance. *European Journal of Physical and Rehabilitation Medicine*. 2018. Vol. 54, №. 2. P. 125–155.

Critical thinking as a key competency for healthcare professionals includes the ability to analyze evidence base, assess research quality, and formulate informed conclusions. Faculty note that students often accept information uncritically, which can negatively impact future professional activity quality.

Clinical thinking as a specific competency of medical professionals includes the ability to integrate theoretical knowledge with clinical data to formulate diagnostic hypotheses and plan interventions. Development of this competency requires significant practical training and experience working with real patients.

Employers highly assess bachelor's graduates' communication skills, theoretical preparation, ability to help patients understand their own needs, ability to search for necessary information, and ambition. Particularly noted is graduates' readiness for learning and professional development, which is an important characteristic in conditions of a rapidly changing field.

Among positive qualities, employers note graduates' professional ethics, responsible attitude toward work, and readiness to work in a team. This indicates effective formation of professional values and ethical principles during study.

Among shortcomings, practical skills, independence in decision-making, and critical thinking are most frequently mentioned. This indicates the need to strengthen practical training and develop clinical thinking, which corresponds to American Physical Therapy Association recommendations²⁶. Employers note that graduates need time to adapt to real working conditions and gain confidence in making independent decisions.

Graduate adaptation time to work varies from several weeks to several months, which is a normal indicator for medical professions. Employers note readiness to strengthen cooperation with the academy through providing practice bases, participating in program development, conducting master classes, and employing graduates.

Particularly valuable is employers' readiness to participate in educational program development, ensuring correspondence of education content to real labor market needs. This includes proposals regarding current topics for study, modern work methods, necessary equipment, and technologies.

The research also revealed certain challenges requiring attention. Insufficient adaptation of junior course students to higher education institution learning is observed (adaptation difficulty is assessed at 3.90 ± 0.12 points), affecting their performance. Students note difficulties with studying fundamental disciplines, particularly human anatomy and physiology, large volume of material for independent study, and general subject complexity.

²⁶ A Vision for Excellence in Physical Therapy Education: Culmination of the Work of the Education Leadership Partnership. American Council of Academic Physical Therapy, American Physical Therapy Association, APTA Academy of Education. Alexandria: American Physical Therapy Association, 2021. 31 p.

First-year student adaptation problems include differences between school and university learning, need for independent educational process organization, high requirement levels, and learning intensity. Particularly difficult is the transition from reproductive to productive learning, requiring critical thinking and analytical skills development.

Fundamental disciplines such as anatomy and physiology are traditionally difficult to master due to large volumes of factual material and need for memorization. Students note insufficient time for quality material mastery and need for additional practical classes.

Martial law conditions have a special impact on the educational process. Students mention air raids as a factor complicating learning and disrupting its regularity. This creates additional difficulties in educational process planning and affects students' psychological state. Sleep deprivation problems due to academic load and stressful conditions also negatively impact learning quality.

At master's level, main challenges are insufficient development of research competencies and need to increase hours for certain current directions, particularly military rehabilitation and clinical practice. Master's students particularly emphasize the need for in-depth study of rehabilitation in neurological diseases, corresponding to epidemiological trends of population aging and increasing prevalence of neurodegenerative diseases.

Research competencies require special attention at master's level, as they are mandatory for this education degree. Students feel the need for greater support in conducting research, access to scientific literature, and opportunities to publish results.

For further educational process improvement, faculty propose a complex of innovative approaches. Most frequently mentioned is simulation learning and implementation of modern technologies: “more simulation learning”, “learning on simulators using computer technologies”, “technology integration”, and “using virtual and augmented reality for motor skills training”. This corresponds to modern education digitalization trends and contributes to achieving Sustainable Development Goal 4²⁷.

Simulation learning as an innovative approach allows creating a safe learning environment for practicing complex skills. Using high-tech simulators, virtual reality, and augmented reality can significantly increase practical training effectiveness and reduce time necessary for professional skill formation.

An important direction is practice-oriented learning in diverse environments. Faculty emphasize the need for “increasing practical classes” and “learning in

²⁷ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

various medical institutions – hospitals, rehabilitation centers, sports clubs”. which will allow students to gain diverse experience and better prepare for work in different conditions.

Diversification of clinical practice bases is an important factor in preparing universal specialists. Working in different types of institutions (hospitals, rehabilitation centers, outpatient clinics, sports centers) allows students to become familiar with different models of rehabilitation service provision and areas of physical therapy application.

Significant attention is paid to developing “soft skills”. Faculty emphasize the importance of forming “critical thinking, communication skills, emotional intelligence”, and “analytical abilities”. These competencies are critically important for ensuring rehabilitation service quality and correspond to WHO Rehabilitation Competency Framework requirements²⁸.

Emotional intelligence as an important competency includes the ability to understand and manage one's own emotions as well as understand others' emotions. For rehabilitation specialists, this is particularly important due to the need to work with patients who often experience complex emotional states.

International cooperation is also considered a necessary innovation. Faculty propose “studying and implementing international PT education standards” and “expanding international cooperation and creating joint programs with foreign educational institutions”. This will contribute to increasing graduate competitiveness in the global labor market and ensure education correspondence to world quality standards²⁹.

Academic mobility programs, international internships, and joint research projects can significantly expand opportunities for students and faculty. Participation in international conferences and publication of research results in international journals also contribute to improving education quality.

Responding to modern challenges, faculty propose “introducing a block of educational disciplines ‘Consequences of Military Actions: Injuries and PT’”, which is particularly relevant in the context of the current situation in Ukraine and global trends of increasing armed conflicts. This also corresponds to principles of educational program adaptability to emergency situations.

Military rehabilitation as a separate direction includes specific knowledge about combat injuries, features of military personnel psychological state, and methods of working in limited resource conditions. Development of this

²⁸ Rehabilitation Competency Framework: World Health Organization. Geneva: WHO, 2020. 36 p.

²⁹ White Book on Physical and Rehabilitation Medicine in Europe. European Physical and Rehabilitation Medicine Bodies Alliance. *European Journal of Physical and Rehabilitation Medicine*. 2018. Vol. 54, №. 2. P. 125-155; World Physiotherapy. *Policy statement: Education*. London, UK: World Physiotherapy; 2023. URL: <https://world.physio/policy/ps-education> (дата звернення: 11.09.2025).

direction contributes to preparing specialists capable of effectively working in conflict and emergency conditions.

Digital transformation of the educational process is one of the key directions of innovative development. Implementation of digital technologies includes using educational platforms, virtual laboratories, mobile learning applications, and artificial intelligence for education personalization.

Telerehabilitation as a modern practice direction requires appropriate specialist preparation. Students should master skills of working with digital platforms, methods of remote patient assessment, and online consultation principles. This is particularly relevant in pandemic conditions and other emergency situations.

Using big data and analytics in rehabilitation opens new opportunities for treatment personalization and intervention effectiveness assessment. Preparing specialists to work with these technologies becomes an important component of modern education.

Development of student competencies in rehabilitation directly contributes to achieving several UN Sustainable Development Goals³⁰. Most obvious is the contribution to Goal 3 “Good Health and Well-being”. Training qualified rehabilitation specialists ensures accessibility of quality rehabilitation services, which is particularly important considering that every third person in the world needs rehabilitation care³¹.

Formation of competencies aimed at working with different age groups, including children and elderly people, contributes to achieving Goal 3 indicators regarding reducing child mortality, fighting epidemics, and ensuring healthy aging. Including military rehabilitation components in educational programs corresponds to Goal 3 tasks regarding strengthening countries' capacity for early warning and health risk management.

Rehabilitation as an important component of universal health coverage contributes to achieving indicator 3.8.1 regarding coverage with essential health services. Training specialists capable of working in different conditions and with different populations ensures equal access to rehabilitation services.

Goal 4 “Quality Education” is implemented through introducing innovative teaching methods, ensuring education inclusivity, and forming competencies necessary for sustainable development. Development of research competencies in master's students contributes to achieving Goal 4 task regarding ensuring that

³⁰ Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).

³¹ Cieza A., Causey K., Kamenov K., Hanson S. W., Chatterji S., Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: A systematic analysis for the global burden of disease study 2019. *The Lancet*. 2020. V. 396. Iss. 10267. P. 2006–2017.

all learners acquire knowledge and skills necessary for promoting sustainable development.

Education inclusivity is implemented through ensuring equal opportunities for all students regardless of their social status, gender, or ethnic affiliation. Adapting the educational process to the needs of students with special educational needs also contributes to achieving inclusive education principles.

Formation of management and entrepreneurial competencies contributes to achieving Goal 8 “Decent Work and Economic Growth”. Training specialists capable of creating their own rehabilitation centers and developing innovative services stimulates economic growth and job creation in the healthcare sector.

Development of the rehabilitation services sector has significant potential for creating jobs at different qualification levels. This includes not only physical therapy specialists but also support staff, administrators, rehabilitation equipment developers, and software developers.

Goal 10 “Reduced Inequalities” is implemented through forming competencies aimed at ensuring equal access to rehabilitation services for all population groups, including people with disabilities, elderly people, and socially vulnerable groups. Development of cultural competence and skills for working with diverse patient groups contributes to reducing inequality in access to quality medical services.

Training specialists to work in rural and remote areas is an important factor in reducing geographical inequality in access to rehabilitation services. Telerehabilitation and mobile technologies can significantly expand geographical coverage of services.

Goal 5 “Gender Equality” is implemented through ensuring equal opportunities for men and women in the physical therapist profession, although traditionally this profession has a female character. It is important to overcome gender stereotypes and ensure equal career advancement opportunities.

Goal 9 “Industry, Innovation and Infrastructure” is supported through implementing innovative technologies in education and rehabilitation practice. Development of research competencies contributes to innovative activity and creation of new rehabilitation technologies.

Rehabilitation technologies, including robotics, virtual reality, and wearable devices, are among the most dynamically developing sectors of medical technologies. Training specialists capable of working with these technologies and contributing to their development is important for technological progress.

Based on research results, a complex of recommendations for further improvement of the rehabilitation specialist training system is proposed. Among priority directions is increasing hours for studying fundamental disciplines (human anatomy, human physiology, functional anatomy and biomechanics),

which will contribute to forming a solid theoretical base for clinical thinking.

Integration of fundamental sciences with clinical disciplines can be achieved through implementing interdisciplinary courses that demonstrate practical application of basic knowledge. Using clinical examples during anatomy and physiology study can increase student motivation and improve material mastery.

Strengthening the practical component of education can be achieved through: increasing the number of hours for practicing practical skills; expanding the network of clinical practice bases; implementing early clinical practice systems for junior course students; further development of simulation learning using virtual and augmented reality.

Creating standardized practical training protocols can ensure uniform education quality regardless of practice location. Developing clear criteria for assessing practical skills will also contribute to objectivity and fairness of assessment.

For improving junior course student adaptation, the following is recommended: further implementation of special adaptation programs; creating mentorship systems; developing time and stress management skills; psychological support under martial law conditions.

Adaptation programs can include introductory courses on basics of higher education learning, training for developing independent work skills, and group consultations with a psychologist. The mentorship system can involve assigning each first-year student to a senior course student or faculty member.

Development of research competencies in master's students can be achieved through: more active involvement of students in real research projects; cooperation with international research centers; increasing requirements for qualification works; creating opportunities for publishing research results.

Development of student scientific circles, organizing more scientific conferences, and participating in grant programs can stimulate students' research activity. Cooperation with international partners can provide access to modern research methods and opportunities for publication in prestigious journals.

Implementation of the concept of entrustable professional activities, as proposed by Ten Cate³², can become the next step in improving the assessment system. This will allow more accurate assessment of graduate readiness for independent practice and ensure education correspondence to real healthcare system needs.

Development of national EPAs for physical therapists can be based on international experience considering the specifics of the Ukrainian healthcare

³² Ten Cate O. Competency-Based Postgraduate Medical Education: Past, Present and Future. *GMS Journal for Medical Education*. 2017. Vol. 34, № 5. Article Doc69. DOI: 10.3205/zma001146.

system. This will require consultations with professional associations, employers, and regulatory bodies.

CONCLUSIONS

The conducted research demonstrates significant potential of educational innovations for achieving UN Sustainable Development Goals. Formation of qualified physical therapy specialists directly contributes to implementing Goal 3 through ensuring accessibility of quality rehabilitation services.

The competency-based approach, theoretically substantiated by Ten Cate and practically implemented at Cherkasy Medical Academy, ensures practical orientation of education. High performance indicators (4.30-4.82) and positive employer feedback indicate approach effectiveness.

Educational programs demonstrate a high degree of correspondence to WHO international standards and White Book principles. Balanced program structure ensures comprehensive specialist preparation.

Innovative teaching methods ensure quality education according to Goal 4. Program adaptability to modern challenges, including military rehabilitation components, demonstrates ability to respond to current needs.

Powerful resource base, qualified faculty, and developed clinical base network create optimal conditions for competency formation. A comprehensive assessment system ensures objective evaluation of different preparation aspects.

Identified improvement directions create a foundation for further education quality enhancement. The rehabilitation specialist training system is a strategic tool for achieving global sustainable development goals.

Future prospects are related to implementing innovative technologies, expanding international cooperation, and adapting to new challenges. Development of student competencies in rehabilitation is an important contribution to achieving sustainable development goals, ensuring health and well-being for all people.

SUMMARY

This chapter is devoted to studying the development of student competencies in rehabilitation as an important factor for achieving UN Sustainable Development Goals, particularly Goal 3 “Good Health and Well-being” and Goal 4 “Quality Education”. The theoretical foundations of the competency-based approach in medical education and global experience in training rehabilitation specialists are analyzed, including WHO recommendations, European and American education standards. An empirical study was conducted at Cherkasy Medical Academy involving 177 participants in the educational process (110 students, 19 faculty members, 5 employers), which confirmed high effectiveness of

the competency-oriented approach. Results showed balanced educational programs, high student performance indicators (4.30–4.82 points), and positive employer assessments regarding graduate preparation. Program adaptability to modern challenges through including military rehabilitation components and innovative learning technologies was revealed. Promising improvement directions were identified: strengthening fundamental preparation, developing research competencies, and implementing modern learning technologies. It was proven that the rehabilitation specialist training system based on the competency-based approach is a strategic tool for achieving global sustainable development goals through forming qualified specialists capable of ensuring quality rehabilitation services for broad population groups.

Bibliography

1. A Vision for Excellence in Physical Therapy Education: Culmination of the Work of the Education Leadership Partnership. American Council of Academic Physical Therapy, American Physical Therapy Association, APTA Academy of Education. Alexandria: American Physical Therapy Association, 2021. 31 p.
2. Cieza A., Causey K., Kamenov K., Hanson S. W., Chatterji S., Vos T. Global estimates of the need for rehabilitation based on the global burden of disease study 2019: A systematic analysis for the global burden of disease study 2019. *The Lancet*. 2020. V. 396. Iss. 10267. P. 2006–2017.
3. Holubnycha L., Shchokina T., Soroka N., Besarab T. Development of Competency-Based Approach to Education. *Educational Challenges*. 2022. Vol. 27. P. 54-65.
4. Rehabilitation Competency Framework: World Health Organization. Geneva: WHO, 2020. 36 p.
5. Ten Cate O. Competency-Based Postgraduate Medical Education: Past, Present and Future. *GMS Journal for Medical Education*. 2017. Vol. 34, № 5. Article Doc69. DOI: 10.3205/zma001146.
6. Transforming our world: the 2030 Agenda for Sustainable Development. Resolution adopted by the General Assembly on 25 September 2015. *United Nations*. URL: <https://sdgs.un.org/2030agenda> (дата звернення: 11.09.2025).
7. White Book on Physical and Rehabilitation Medicine in Europe. European Physical and Rehabilitation Medicine Bodies Alliance. *European Journal of Physical and Rehabilitation Medicine*. 2018. Vol. 54, №. 2. P. 125-155.
8. World Physiotherapy. *Policy statement: Education*. London, UK: World Physiotherapy; 2023. URL: <https://world.physio/policy/ps-education> (дата звернення: 11.09.2025).
9. Крупа В. В. Визначення сутності та змісту формування професійної компетентності майбутніх фахівців фізичної реабілітації. Збірник наукових

праць Національної академії державної прикордонної служби України. *Педагогічні та психологічні науки*. 2014. № 4 (73). С. 176–187.

10. Стандарт вищої освіти за спеціальністю 227 «Фізична терапія, ерготерапія» для першого (бакалаврського) рівня вищої освіти. Затверджено Наказом Міністерства освіти і науки України 29.10.2024 р. № 1541.

11. Стандарт вищої освіти за спеціальністю 227 «Фізична терапія, ерготерапія» для другого (магістерського) рівня вищої освіти. Затверджено Наказом Міністерства освіти і науки України 30.10.2024 р. № 1549.

12. Фастівець А. В. Теорія і практика підготовки фахівців з фізичної терапії та ерготерапії у процесі вивчення природничих дисциплін : дис. ... д-ра пед. наук : 13.00.04. Полтава, 2024. 566 с.

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