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DISSERTATION

**FORMATION OF MANAGERIAL COMPETENCE IN FUTURE PHYSICAL
EDUCATION TEACHERS IN HIGHER EDUCATION INSTITUTIONS
UNDER BLENDED LEARNING CONDITIONS**

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АНОТАЦІЯ

ЧЕНЬ Жунхао. Формування управлінської компетентності майбутніх вчителів фізичної культури у закладах вищої освіти в умовах змішаного навчання. – Кваліфікаційна наукова праця на правах рукопису.

Дисертація на здобуття ступеня доктора філософії за спеціальністю 011 Освітні, педагогічні науки. – Західноукраїнський національний університет МОН України, Тернопіль, 2026.

У дисертації викладено нове вирішення проблеми формування управлінської компетентності майбутніх вчителів фізичної культури у закладах вищої освіти (ЗВО) в умовах змішаного навчання.

Актуальність теми підтверджується наявною низкою суперечностей, котрі перешкоджають формуванню управлінської компетентності майбутніх вчителів фізичної культури у ЗВО в умовах змішаного навчання. Так, це суперечності між: потребою суспільства у майбутніх вчителях фізичної культури, готових до сучасних освітніх викликів, та реально-існуючим станом їхньої професійної підготовки у ЗВО; високими вимогами до професійно-педагогічної підготовки в межах формування управлінської компетентності майбутніх вчителів та недостатнім рівнем сформованої у ЗВО управлінської компетентності у здобувачів фізичної культури для здійснення ними фахової діяльності; потребами закладів загальної середньої освіти (ЗЗСО) у вчителях фізичної культури, спроможних під час проведення занять фізичної культури ефективно зреалізовувати управлінські функції та існуючим недостатньо-організованим у цьому напрямку навчанням студентів у ЗВО до управлінської діяльності; об'єктивною необхідністю визначення з наукових позицій та впровадження певних дієвих педагогічних умов і науково-методичного забезпечення з формування управлінської компетентності майбутніх вчителів у процесі професійної підготовки в умовах змішаного навчання та емпіричним характером їх зреалізування за традиційної організації навчання майбутніх педагогів у ЗВО.

У сучасних умовах важливого значення в Україні та за її межами набуває якість фахової підготовки майбутніх педагогів фізичної культури у ЗВО в умовах

змішаного навчання. Виклики сьогодення спричинили зростаючу потребу у формуванні в процесі організації навчання майбутніх педагогів фахових компетентностей, оскільки нині недостатньо мати професійні знання. Майбутній фахівець, як компетентний учитель, повинен бути підготовленим і здатним виконувати на належному рівні професійні обов'язки. У цьому аспекті велике значення для професії вчителя фізичної культури має набуття ним у ЗВО фахових компетентностей, пов'язаних із професійним управлінням та з розширенням майбутнього досвіду управлінської діяльності. Саме привласнені майбутніми вчителями фізичної культури управлінські компетентності у ЗВО дозволяють їм вирішувати реальні педагогічні та управлінські проблеми, уміло організувати освітній процес із здобувачами ЗЗСО, виявляти у школярів лідерські якості та здійснювати оцінку рівня їхніх знань, використовуючи різні форми і методи контролю, й критично проводити аналіз власно-прийнятих управлінських рішень у сфері фізичної культури.

Основними вимогами, що ставляться до формування управлінської компетентності майбутніх вчителів фізичної культури за змішаної форми організації навчання у вищій школі є освоєння ними освітньо-професійної програми щодо дієвого здійснення у майбутньому управлінської діяльності у ЗЗСО (за умілого використання нормативно-правових документів та прийнятих управлінських рішень); оволодіння фундаментальними теоретичними знаннями в царині ефективного управління освітою, практичними вміннями і спеціальними навички з опанування управлінських методів, засобів, способів та процедур ухвалення ефективних управлінських рішень.

Визначено, що сформованість управлінської компетентності майбутніх вчителів фізичної культури у ЗВО є складним інтегральним показником професійної підготовки здобувачів освіти, який відображає їхню здатність ефективно виконувати управлінсько-педагогічні функції та належно керувати власними діями для результативного управління освітнім процесом.

До складових управлінської компетентності майбутніх вчителів фізичної культури віднесено: організацію навчального процесу школярів; забезпечення

безпекового освітнього середовища у процесі проведення занять (фізична, психологічна, комунікативно-інформаційна, екологічна, соціальна безпеки); координацію роботи з колегами-педагогами, адміністрацією закладу освіти, батьками, медичним персоналом, громадськістю; саморефлексію управлінської діяльності; спрямованість на професійний саморозвиток в межах набуття управлінської компетентності.

Сформована у ЗВО управлінська компетентність є засадничо-особистісною основою спроможності майбутнього вчителя фізичної культури до пошукування результативних способів вирішення складних як педагогічних, так і організаційно-управлінських завдань (планування та організація освітнього процесу, прийняття управлінських рішень, здійснення контролю й оцінювання навчально-результативних досягнень учнів та їх мотивація, самовдосконалення власної управлінської діяльності), що потребує ефективної підготовки фахівців-педагогів та індивідуальної відповідальності кожного за результати навчання.

Опрацювання сучасних психолого-педагогічних праць у галузі педагогічного управління та використання власного професійно-управлінського досвіду стосовно змісту і структури формування управлінської компетентності майбутніх вчителів фізичної культури за фахової підготовки у ЗВО в умовах змішаного навчання сприяло встановленню важливих для проведення нами експериментально-дослідної роботи структурних компонентів такого формування: мотиваційно-ціннісного, когнітивного, професійно-діяльнісного та рефлексивно-розвивального.

Зазначеним компонентам властиві чітко визначені критерії (особистісний, знаннєвий, діяльнісний та рефлексивний), комплексне охарактеризування яких допомогло виокремити за його показниками рівні сформованості управлінської компетентності майбутніх вчителів фізичної культури (високий (досконалий), достатній (оптимальний), задовільний (продуктивний), низький (базовий)).

Із врахуванням різнобічності проблеми формування управлінської компетентності майбутніх вчителів фізичної культури у ЗВО за змішаного навчання застосовано комплекс взаємопов'язаних теоретичних підходів

(компетентнісного, особистісно-орієнтованого, системно-діяльнісного, конструктивного, міждисциплінарного, індивідуального, проблемно-орієнтованого, аксіологічного, акмеологічного).

Результативне формування управлінської компетентності майбутніх вчителів фізичної культури пов'язуємо із виокремленням, конкретизацією та застосуванням в освітньому процесі ЗВО наступних педагогічних умов: створення мотиваційно-ціннісного освітнього середовища, що забезпечує внутрішню зацікавленість здобувачів освіти на набуття управлінських знань та навичок; спрямованість дисциплін професійної підготовки на управлінську діяльність, оскільки за їх результативного проходження управлінська складова стає органічним елементом навчального змісту; використання фахово-зорієнтованих ситуацій у процесі підготовки у контексті перенесення знань із теоретичної площини у практичну; стимулювання самоосвітньої діяльності для самостійного визначення освітніх цілей, планування власного розвитку і несення відповідальності за її результати.

Авторська структурно-функціональна модель формування управлінської компетентності майбутніх вчителів фізичної культури розроблена із урахуванням вимог Проекту Стандарту вищої освіти за спеціальністю 014.11 Середня освіта (Фізична культура) першого (бакалаврського) рівня й охоплює стратегічний, концептуально-методичний та критеріально-діагностичний блоки. Впровадження структурно-функціональної моделі в освітній процес здобувачів освіти ЗВО відбувається з урахуванням наукових принципів (науковості, системності і наступності, професійної спрямованості знань, врахування індивідуальних особливостей, варіативності, гуманізації управління, рефлексивності та інноватики).

Виокремлені педагогічні умови та структурно-функціональна модель вводилися в дію відповідно до авторської Програми покрокового формування управлінської компетентності у студентів експериментальних груп. Програма реалізовувалася здобувачами освіти II-III курсів у процесі вивчення дисциплін «Педагогіка», «Теорія і методика фізичного виховання» та у процесі

проходження занять факультативу «Управлінська компетентність як важлива складова професійного становлення педагога» у п'ять логічно-узгоджених етапів (підготовчий, мотиваційний, діяльнісний, практичний та заключний).

Результативність виконаної наукової та пошуково-дослідної роботи щодо формування управлінської компетентності майбутніх учителів фізичної культури засвідчена отриманими якісно-кількісними експериментальними даними за використання емпіричних методів і методів математичної статистики.

Порівняльні показники констатувального та підсумкового етапів експериментального дослідження засвідчили позитивну динаміку рівнів сформованості управлінської компетентності майбутніх вчителів фізичної культури за визначеними компонентами й продемонстрували сумарне збільшення сформованості досліджуваної управлінської компетентності.

Одержані кінцеві результати педагогічного експерименту продемонстрували ефективність використання визначених у дослідженні педагогічних умов та структурно-функціональної моделі формування управлінської компетентності у студентів експериментальних груп.

Наукова новизна одержаних результатів. Вперше означено й теоретично і методично обґрунтовано педагогічні умови формування управлінської компетентності майбутніх вчителів фізичної культури у ЗВО в умовах змішаного навчання, створено авторську Програму з формування управлінської компетентності у бакалаврів в ЗВО, розроблено структурно-функціональну модель формування у майбутніх вчителів фізичної культури управлінської компетентності як сукупність стратегічного, концептуально-методичного та критеріально-діагностичного блоків, які враховують динамічно-змінні вимоги до формування управлінської компетентності у майбутніх вчителів фізичної культури в ЗВО в умовах змішаного навчання; розроблено результативну методику впровадження педагогічних умов у викладання дисциплін професійної підготовки та занять факультативу; створено авторську Програму з формування управлінської компетентності бакалаврів у ЗВО. Удосконалено змістове наповнення і сутність понять «фізична культура у сфері освіти», «майбутній

вчитель фізичної культури», «управлінська компетентність», «професійна підготовка майбутніх вчителів фізичної культури до управлінської діяльності», «змішане навчання»; обґрунтовано критерії (особистісний, знаннєвий, діяльнісний та рефлексивний) і рівні (високий (досконалий), достатній (оптимальний), задовільний (продуктивний), низький (базовий)) сформованості управлінської компетентності майбутніх вчителів фізичної культури у ЗВО в умовах змішаного навчання. Подальшого розвитку набули змістове наповнення професійної підготовки із формування у майбутніх учителів ФК управлінської компетентності в ЗВО, розширено форми і методи організації навчання з метою формування даної компетентності у здобувачів вищої школи за змішаного навчання.

Ключові слова: фізична культура, заклади вищої освіти, змішане навчання, майбутні вчителі фізичної культури, формування управлінської компетентності, освітній процес, професійна підготовка, комунікація, управлінська діяльність, інформаційно-комунікаційні технології, управлінська компетентність.

ANNOTATION

Chen Ronghao. FORMATION OF MANAGERIAL COMPETENCE IN FUTURE PHYSICAL EDUCATION TEACHERS IN HIGHER EDUCATION INSTITUTIONS UNDER BLENDED LEARNING CONDITIONS. – Qualifying scientific work as a manuscript.

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The dissertation presents a new solution to the problem of developing the managerial competence of future physical education teachers in higher education institutions (HEIs) in a blended learning environment.

The relevance of the topic is confirmed by a number of contradictions that hinder the formation of managerial competence of future physical education teachers in HEIs in the context of blended learning. These contradictions include: the need of society for future physical education teachers who are ready for modern educational challenges and the actual state of their professional training in HEIs; high requirements for professional and pedagogical training in the formation of managerial competence of future teachers and the insufficient level of managerial competence formed in HEIs in physical education applicants for the performance of their professional activities; the needs of general secondary education institutions (GSEIs) for physical education teachers who are able to effectively perform management functions during physical education classes and the existing insufficiently organized training of students in HEIs for management activities in this area; the objective need to determine, from a scientific point of view, and implement certain effective pedagogical conditions and scientific and methodological support for the formation of managerial competence of future teachers in the process of professional training in a blended learning environment and the empirical nature of their implementation in the traditional organization of training future teachers in HEIs.

In today's conditions, the quality of professional training of future physical education teachers in HEIs in a blended learning environment is becoming increasingly

important in Ukraine and beyond. Current challenges have led to a growing need to develop professional competencies in the process of organizing the training of future teachers, as professional knowledge alone is no longer sufficient. As a competent teacher, a future specialist must be prepared and able to perform professional duties at the appropriate level. In this regard, it is of great importance for the profession of a physical education teacher to acquire professional competencies in HEIs related to professional management and the expansion of future management experience. It is precisely the managerial competencies acquired by future physical education teachers in HEIs that enable them to solve real pedagogical and management problems, skillfully organize the educational process with GSEI applicants, identify leadership qualities in schoolchildren and assess their level of knowledge using various forms and methods of control, and critically analyze their own management decisions in the field of physical education.

The main requirements for the development of managerial competence of future physical education teachers in a mixed form of higher education are mastering an educational and professional program for the effective implementation of future managerial activities in GSEIs (through the skillful use of regulatory and legal documents and accepted managerial decisions); the acquisition of fundamental theoretical knowledge in the field of effective education management, practical skills, and special skills in mastering management methods, means, ways, and procedures for making effective management decisions.

It has been determined that the formation of managerial competence of future physical education teachers in HEIs is a complex integral indicator of the professional training of students, which reflects their ability to effectively perform managerial and pedagogical functions and properly manage their own actions for effective management of the educational process.

The components of the managerial competence of future physical education teachers include: organizing the educational process for schoolchildren; ensuring a safe educational environment during classes (physical, psychological, communicative-informational, environmental, and social safety); coordination of work with fellow

teachers, the administration of the educational institution, parents, medical staff, and the public; self-reflection on managerial activities; focus on professional self-development within the framework of acquiring managerial competence.

The managerial competence formed in HEIs is the fundamental personal basis for the ability of future physical education teachers to find effective ways to solve complex pedagogical, organizational, and managerial tasks (planning and organizing the educational process, making management decisions, monitoring and evaluating students' academic achievements and their motivation, self-improvement of one's own management activities), which requires effective training of teaching professionals and individual responsibility of each person for the results of learning.

The study of contemporary psychological and pedagogical works in the field of pedagogical management and the use of our own professional and managerial experience regarding the content and structure of the formation of managerial competence of future physical education teachers in professional training at HEIs in a blended learning environment contributed to the establishment of structural components of such formation that are important for our experimental and research work: motivational-value, cognitive, professional-activity, and reflective-developmental.

These components have clearly defined criteria (personal, knowledge, activity, and reflective), the comprehensive characterization of which helped to identify the levels of managerial competence of future physical education teachers (high (excellent), sufficient (optimal), satisfactory (productive), low (basic)).

Taking into account the multifaceted nature of the problem of developing the managerial competence of future physical education teachers in HEIs through blended learning, a set of interrelated theoretical approaches (competence-based, personality-oriented, system-activity-based, constructive, interdisciplinary, individual, problem-oriented, axiological, acmeological) was applied.

We associate the effective formation of managerial competence of future physical education teachers with the identification, specification, and application of the following pedagogical conditions in the educational process of HEIs: the creation of a

motivational and value-based educational environment that ensures the internal interest of students in acquiring managerial knowledge and skills; focusing professional training disciplines on management activities, since their effective completion makes the management component an integral part of the educational content; using professionally oriented situations in the training process in the context of transferring knowledge from the theoretical to the practical plane; stimulation of self-education activities for independent determination of educational goals, planning of personal development, and responsibility for its results.

The author's structural and functional model for the formation of managerial competence in future physical education teachers was developed taking into account the requirements of the Draft Standard of Higher Education in the specialty 014.11 Secondary Education (Physical Education) of the first (bachelor's) level and covers strategic, conceptual-methodological, and criterion-diagnostic blocks. The implementation of the structural-functional model in the educational process of higher education institution students takes into account scientific principles (scientificity, systematicity and continuity, professional orientation of knowledge, consideration of individual characteristics, variability, humanization of management, reflexivity, and innovation).

The identified pedagogical conditions and structural-functional model were implemented in accordance with the author's Program for the step-by-step formation of managerial competence in students of experimental groups. The program was implemented by second- and third-year students in the process of studying the disciplines «Pedagogy», «Theory and Methods of Physical Education» and in the process of attending the elective course «Managerial Competence as an Important Component of Professional Development of a Teacher» in five logically coordinated stages (preparatory, motivational, activity-based, practical, and final).

The effectiveness of the scientific and research work carried out on the formation of managerial competence of future physical education teachers is confirmed by the qualitative and quantitative experimental data obtained using empirical methods and methods of mathematical statistics.

Comparative indicators of the ascertaining and final stages of the experimental study confirmed the positive dynamics of the levels of managerial competence of future physical education teachers according to the specified components and demonstrated a total increase in the formation of the studied managerial competence.

The final results of the pedagogical experiment demonstrated the effectiveness of using the pedagogical conditions and the structural-functional model of managerial competence formation in students of the experimental groups identified in the study.

Scientific novelty of the results obtained. For the first time, the pedagogical conditions for the formation of managerial competence of future physical education teachers in HEIs in the conditions of blended learning have been identified and theoretically and methodologically substantiated, an author's program for the formation of managerial competence in bachelors in HEIs has been created, a structural-functional model for the formation of managerial competence in future physical education teachers has been developed as a set of strategic, conceptual-methodological, and criterion-diagnostic blocks that take into account the dynamically changing requirements for the formation of managerial competence in future physical education teachers in HEIs in a blended learning environment; An effective methodology for the implementation of pedagogical conditions in the teaching of professional training disciplines and extracurricular activities has been developed. An author's program for the formation of managerial competence of bachelors in HEIs has been created. The content and essence of the concepts of «physical education in the field of education», «future physical education teacher», «managerial competence», «professional training of future physical education teachers for managerial activities», and «blended learning» have been improved; criteria (personal, knowledge, activity, and reflective) and levels (high (excellent), sufficient (optimal), satisfactory (productive), low (basic)) of the formation of managerial competence of future physical education teachers in HEIs in the context of blended learning. The content of professional training in the formation of managerial competence in future PE (Physical Education) teachers in HEIs has been further developed, and the forms and methods of organizing training

have been expanded with the aim of forming this competence in higher education students in a blended learning environment.

Keywords: physical education, higher education institutions, blended learning, future physical education teachers, development of managerial competence, educational process, professional training, communication, managerial activity, information communication technologies, managerial competence.

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DOI: <https://doi.org/10.5281/zenodo.15352884>

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DOI: <https://doi.org/10.5281/zenodo.15352065>

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LIST OF SYMBOLS

BL – blended learning;
CG – control group;
DL – distance learning;
DT – digital technologies
EC – entrance control;
EG – experimental group;
EP – educational process;
ER – experimental research;
ES – education seekers;
FC – final control;
FdMC – formed managerial competence/formation of the managerial competence;
FMC – formation of managerial competence
FS – future specialists;
FT – future teachers;
GSEIs – general secondary education institutions;
HE – higher education;
HEIs – higher education institutions;
ICT – information communication technologies;
KPNU – Kamianets-Podilskyi Ivan Ohienko National University;
MA – managerial activity;
MC – managerial competence;
MF – managerial functions
MSPU – Melitopol State Pedagogical University named after Bohdan Khmelnytsky;
PA – professional activity;
PC – professional competence;
PE – physical education;
PT – professional training;
UzhNU – Uzhhorod National University.

INTRODUCTION

Substantiation of the research topic choice. The need to study the process of developing managerial competence in future physical education teachers at higher education institutions (HEIs) in a blended learning (BL) environment is driven by a number of important factors, including:

Firstly, physical education (PE) is currently an important component of the general culture of civil society and an effective component of the educational system, which are primarily aimed at strengthening the health of citizens and their harmonious development in terms of physical, health-preserving, moral, volitional, and intellectual qualities. The public demand for competent PE specialists requires the formation of leadership and organizational skills in higher education institutions for the future conduct of appropriate pedagogical activities, responsible decision-making in various conditions of the functioning of secondary education institutions (being able to organize, coordinate, and control the educational process in the conditions of the educational institution and the introduction of information and communication and digital technologies), establishing constructive teamwork with students and other participants in the educational process.

Secondly, the introduction of information and communication technologies, modern teaching methods, and innovative techniques into the educational process of GSEIs raises the requirements for the professional training of PE teachers, and, consequently, requires them to acquire a high level of fundamental knowledge and managerial and pedagogical skills that facilitate the adaptation of schoolchildren to online communication and work on digital platforms, as well as the management of sports sections and competitions, which requires a high level of managerial competence in the performance of professional duties by teachers.

Thirdly, a high level of management skills development fosters a positive attitude among PE teachers towards the organisation of physical activity and a healthy lifestyle for students, and contributes to the creation of a safe and healthy educational environment during classes, especially after the pandemic and changes in learning

models, which is important for the successful implementation of innovative educational programmes and improving the quality of student learning in HEIs.

Fourth, effective management ensures the coordinated organization of the educational process and helps students successfully adapt to the learning environment. Therefore, PE teachers, as holders of high-level management skills, must rationally plan their own pedagogical activities, coordinate the interaction of students, quickly make informed decisions, and positively influence their behavior. This plays a decisive role in creating a supportive and stimulating learning environment, developing equal interpersonal relationships, improving students' health-saving skills, and thus contributes to the successful achievement of pedagogical goals.

The requirements of regulatory and legal documents designed to regulate this process are relevant to the scientific task of improving the quality of managerial competence formation of future PE teachers in HEIs.

Thus, the State National Program «Education» («Ukraine in the 21st Century») (1993) and the Laws of Ukraine «On Higher Education» (2014), «On Education» (2017), «On Physical Education and Sports» (2007), etc. describe the directions for reforming education and indicate that the competence of a specialist (including managerial competence) is a personally important quality that influences the effective performance of professional activities in the future. A valuable aid in managing the educational activities of HEIs is the «Strategy for the Development of Higher Education in Ukraine for 2022-2032» (2022), which reflects the overall plan for the development of higher education over many years. However, responsibility for achieving educational and management goals rests directly with HEI leaders, who must effectively organize the work of the educational institution and be accountable for its results.

The roadmap for improving the managerial competence of future PE teachers is the Draft Standard of Higher Education of Ukraine (specialty 014.11 Secondary Education (Physical Education) (2024)), which defines the mandatory general competencies (GC) (the ability to act in a socially responsible and conscious manner; make informed decisions; motivate people and move towards a common goal and

identify; identify and solve problems (GC2, GC11, GC12, GC14)) and professional competencies (PC) (the ability to assess and monitor student learning outcomes based on a competency-based approach; organize a safe educational environment, use health-saving technologies during the educational process; plan and organize the educational process using various types and forms of educational and cognitive activities, predict educational outcomes (PC8, PC19, PC20)) for PE applicants at the bachelor's level. These competencies reflect current trends in management training (in the direction of improving management knowledge, skills, and abilities) for future PE teachers.

The results of the analysis of the regulatory and legal framework relating to the professional training of higher education seekers, and scientific works on the subject made it possible to define the goal of professional education, which is to develop PE teachers with a high level of managerial competence, which essentially increases the effectiveness of the educational process and positively influences the comprehensive solution of pedagogical problems within the framework of future managerial and organizational activities.

Therefore, the appropriate formation of the managerial competence of future PE teachers is an important component of their professional training in HEIs under BL.

The relevance of the topic of scientific research is reinforced by the insufficient level of its theoretical and methodological justification. The results of the analysis of scientific sources on the formation of managerial competence in future PE teachers in HEIs in the context of BL indicate that this issue has not been sufficiently studied by scientists. In studies by representatives of the domestic scientific community who described the theory and practice of professional training (S. Babiuk (Babiuk S., 2018), K. Godlevska, Yu. Staroshchuk (Godlevska K. V., Kotun K. V., Postrygach N. O., & Staroshchuk Yu. M., 2022), R. Gorbatyuk, N. Bilan (Gorbatyuk R. M., & Bilan N. M., 2023), O. Danisko (Danisko O. V., 2022a), O. Dubasenyuk (Dubasenyuk O. A., 2012), V. Onipko, R. Vinnichuk (Onipko V. & Vinnichuk R., 2021), A. Protsenko, D. Garbar (Protsenko A. A., & Garbar D. O., 2024), N. Pshenychna, I. Rastorgueva (Pshenychna N. S., & Rastorgueva I. S., 2019), D. Safonov, S. Chernenko (Safonov D. A., & Chernenko S. A., 2020) and others), as well as researchers who have addressed the

issue of management training for future specialists (O. Azhippo, M. Korolyova (Azhippo O., & Korolyova M., 2020), V. Budyanska (Budyanska V. A., 2021), D. Voychenko (Voychenko D., 2023), I. Voloshchuk (Voloshchuk I. S., 2019), S. Gapenko (Gapenko S., 2020), B. Duplyichuk, Ya. Klymenko (Duplyichuk B. G., & Klymenko Ya. V., 2023), O. Zarembitsky (Zarembitsky O. Yu., 2023), A. Konokh, O. Konokh (Konokh A. P., Makovetskaya N. V., & Konokh O. E., 2022), G. Krasilnikova, S. Krasilnikov, I. Gernichenko (Krasilnikova G., Krasilnikov S., & Gernichenko I., 2023), S. Kryshchanovich (Kryshchanovich S. V., 2018), O. Kuznetsova, A. Panasyuk (Kuznetsova O. V., & Panasyuk A. S., 2021). S. Kushniruk, N. Leshchenko (Kushniruk S. A., & Leshchenko N. A., 2023), L. Rebukha, G. Zvarych (Rebukha L., & Zvarych G., 2023), etc.) present only certain aspects of solving the problems outlined in our scientific research tasks.

At the same time, foreign scientists A. Altin, & Z. Topcu (Altin A., & Topcu Z., 2025), H. Can, E. Zorba, & A. Işım, (Can H. C., Zorba E., 2025), and others have researched the professional training of future teachers, the impact of blended learning on the acquisition of competence skills in students, digital technologies and digital competence of PE teachers, and other areas of training within the framework of managerial competence formation. Altin, & Z. Topcu (Altin A., & Topcu Z., 2025), H. Can, E. Zorba, & A. Işım, (Can H. C., Zorba E., & Işım A. T., 2024), D. Daum, & C. Buschner (Daum D. N., & Buschner C., 2012), V. Demirer, & I. Sahin (Demirer V., & Sahin I., 2013), W. Dwiyoogo (Dwiyoogo W. D., 2018), G. Kaur & F. Designing (Kaur G., & Designing F., 2020), F. Mikre (Mikre F., 2011), C. Wang, ... & Y. Wang (Wang C., Dev R. D. O., Soh K.G., Nasiruddin N. J. M., & Wang Y., 2022), C. Wang, ... & X. Ji (Wang C., Omar Dev R. D., Soh K. G., Mohd Nasirudddin N. J., Yuan Y., & Ji X., 2023), and others.

An effective analysis of regulatory, legal, scientific, and pedagogical sources on the research topic allows us to conclude that there is currently an acute social and educational need to develop the managerial competence of future PE teachers in HEIs.

The situation is complicated by a number of contradictions that we identified during our research between:

- society's need for future PE teacher-managers who are ready to solve current problems in education, and their actual professional training in HEIs;
- high demands on the education system in terms of developing the managerial competence of future PE teachers and the limited opportunities for students to gain practical managerial experience during their studies;
- the needs of GSEIs for PE teachers who are able to effectively perform management functions in the educational process and the insufficiently organized training of students in HEIs in this area to carry out such activities;
- the objective need to determine, from a scientific point of view, and implement specific effective pedagogical conditions and scientific and methodological support for the formation of managerial competence of future teachers during professional training and the empirical nature of their implementation in the conditions of traditional organization of training of future PE teachers in HEIs.

Therefore, the relevance of the topic of the qualification study, which reveals the urgent need of society for PE teachers, its insufficient level of theoretical and practical elaboration, and the need to overcome the outlined contradictions contributed to the choice of the topic of scientific research **«Formation of Managerial Competence in Future Physical Education Teachers in Higher Education Institutions under Blended Learning Conditions»**.

Connection of the work with scientific programs, plans, topics.

The dissertation research was carried out in accordance with the research work of the Department of Education and Pedagogy of the West Ukrainian National University «Professional growth of an educator in an educational institution: fundamental, theoretical, technological, and practice-oriented aspects» (state registration number 0121U110855).

The research topic was approved at a meeting of the Department of Education and Pedagogy (Minutes No. 6 of 19.12.2024).

Purpose of the research is to develop, theoretically substantiate, and experimentally verify the effectiveness of specific pedagogical conditions and the

effectiveness of a structural-functional model for developing the managerial competence of future teachers PE in HEIs under BL conditions.

Purpose of the research involved solving the following **tasks**:

1. Analyze specific features, basic conceptual provisions, and modern scientific approaches to the formation of managerial competence of future PE teachers in HEIs under BL conditions.

2. Specify the components, criteria, indicators, and levels of formation of managerial competence of future PE teachers in HEIs and determine their essential pedagogical significance.

3. Identify and theoretically substantiate pedagogical conditions and create an effective structural and functional model for the formation of managerial competence of future PE teachers in HEIs.

4. Experimentally verify the effectiveness of the substantiated pedagogical conditions and structural and functional model for the formation of managerial competence of future PE teachers in HEIs.

Object of the research – professional training of future PE teachers in HEIs in under BL conditions.

Subject of the research – pedagogical conditions and structural-functional model for developing the managerial competence of future teachers PE in HEIs under BL conditions.

The research hypothesis is that the formation of managerial competence of future teachers PE in HEIs under BL conditions will be effective under the following pedagogical conditions:

- creation of a motivational and value-based educational environment that ensures the internal interest of students in acquiring managerial knowledge and skills;
- focusing professional training disciplines on management activities, as their successful completion makes the management component an integral part of the educational content;
- using professionally-oriented situations in the training process in the context of transferring knowledge from the theoretical to the practical sphere;

- encouraging self-education activities for independent determination of educational goals, planning of personal development, and taking responsibility for its results.

To solve the outlined tasks, a set of **research methods** was applied:

- *theoretical*: generalization and systematization of normative and legal acts, provisions and documents, legislative framework, scientific, pedagogical, and methodological literature on the research topic, analysis of the content of basic concepts, synthesis, comparison, classification (to establish the current state of theory and practice of forming the managerial competence of future PE teachers); modeling, generalization, systematization of the data obtained (to carry out a theoretical and methodological justification of pedagogical conditions and a structural and functional model for the formation of managerial competence of future PE teachers in HEIs under BL conditions);

- *empirical*: questionnaires, testing, observation, self-observation, conversation, self-assessment, analysis of the results of the educational activities of future PE teachers, oral and written surveys (to determine the state of the formed managerial competence of future PE teachers in HEIs under BL conditions);

- *pedagogical experiment*: constative (to identify the initial (baseline) level of managerial competence of future PE teachers); formative (to test the effectiveness of pedagogical conditions and the effectiveness of the structural-functional model of managerial competence of future PE teachers); generalizing (to compare, analyze, and interpret the experimental data obtained);

- *statistical*: methods of mathematical statistics with the calculation of Fisher's criterion (F-criterion) (to process and reflect the obtained experimental results, establish quantitative relationships between the studied phenomena, calculate the average results of the formation of managerial competence of future PE teachers in HEIs under BL conditions for all its components).

Experimental research base. The experimental work was carried out at the Ivan Ohienko Kamianets-Podilskyi National University (Faculty of Physical Education, Department of Theory and Methods of Physical Education); Melitopol State

Pedagogical University named after Bohdan Khmelnytsky (Faculty of Physical Education, Sports and Psychology, Department of Theory and Methods of Physical Education), State Higher Educational Institution «Uzhhorod National University» (Faculty of Health and Physical Education, Department of Theory and Methods of Physical Education). At various stages of the study, 85 HEI applicants participated in it.

The scientific novelty of the results obtained lies in the fact that:

– *for the first time*: the *pedagogical conditions* for the formation of managerial competence of future PE teachers in HEIs in BL conditions (creation of a motivational and value-based educational environment; focusing professional training disciplines on managerial activities; using professionally-oriented situations in the training process; stimulating self-education activities); a *structural-functional model* for the formation of managerial competence in future PE teachers in HEIs under BL has been developed and scientifically substantiated, which is a combination of strategic (including social demand for teacher-managers, goals, objectives, scientific principles of research), conceptual and methodological (including scientific approaches, content and management content of professional cycle disciplines, pedagogical conditions, technological support for the training of students, the program of the elective course «Managerial Competence as an Important Component of Professional Development of a Teacher») and criterion-diagnostic (includes components, criteria, levels of managerial competence formation) blocks that take into account the dynamically changing requirements for the formation of managerial competence in future teachers PE in HEIs under BL; created and substantiated *methodology* for the implementation of pedagogical conditions in the teaching of professional training disciplines and conducting elective classes, and the author's Program for the formation of managerial competence of students in HEIs under BL;

– improved the content and essence of the concepts of «physical education in education», «future physical education teacher», «managerial competence», «professional training of future physical education teachers for management activities», and «blended learning»; the criteria (personal, knowledge, activity, and

reflective) and levels (high (excellent), sufficient (optimal), satisfactory (productive), low (basic)) of the formation of managerial competence of future PE teachers in HEIs under BL have been substantiated;

The content of professional training within the framework of the formation of managerial competence in future PE teachers in HEIs has been further developed, and the set of forms and methods for forming this competence in higher education seekers in BL conditions has been expanded.

The practical significance of the results obtained lies in the development and implementation of the following in the educational process of HEIs:

- the author's Program for the formation of managerial competence in future teachers PE in HEIs under BL by making changes to the content of certain topics of the academic disciplines «Pedagogy» and «Theory and Methods of Physical Education» (specialty 014.11 Secondary Education (Physical Education), bachelor's level) and strengthening interdisciplinary links between them;
- the author's elective course «Managerial Competence as an Important Component of Professional Development of a Teacher», which was introduced and implemented as part of the independent work of PE in HEIs bachelors;
- a set of mind maps for informational support in the study of the discipline «Pedagogy» with the aim of clearly schematizing intra-disciplinary and interdisciplinary connections.

The results of scientific and research work can be effectively applied during the systematic professional training of future teachers in HEIs, in particular in the process of developing teaching and methodological support for the formation of managerial competence of teachers and the creation of educational components for the development of managerial skills, abilities, and aptitudes of future teachers of physical education. In the future, the proposed research materials can be adapted and implemented in GSEI professional development programs, extracurricular activities at HEIs, and the process of self-development and self-education of practicing teachers.

The research materials have been implemented in the educational process of professional training of future FC teachers at Ivan Ohienko Kamianets-Podilskyi

National University (certificate of implementation dated August 26, 2025), Melitopol State Pedagogical University named after Bohdan Khmelnytsky (certificate of implementation dated September 23, 2025), and Uzhhorod National University (certificate of implementation September 25, 2025).

Personal contribution of the applicant. The scientific results described in the dissertation research were obtained by the author independently. In joint publications, the personal contribution of the applicant consists in the fact that in a professional article (Rebukha L., & Chen R., 2024), the author presents his own understanding of the concept of «pedagogical conditions in the field of physical education» and describes in detail the fundamental pedagogical conditions for the managerial activities of future physical education teachers; in the work (Rebukha L. & Chen R., 2022) of an approbation nature, the applicant describes the theoretical foundations of the formation of professional competencies in future specialists in higher education institutions.

Approval of research results. The main scientific and research results of the dissertation study were discussed and received a positive assessment at scientific and practical conferences of various levels, namely:

- international conferences – «Innovations in Education: Realities and Prospects for Development» (Ternopil, 2022–2023), «Development of Professional Skills of Teachers in the Context of the New Sociocultural Reality» (Ternopil, 2024), «Innovative Processes in the Educational Sphere of Ukraine and Central European Countries: Status, Problems, and Prospects» (Ternopil, 2024).

- regional conferences – «Innovative approaches to the development of technology and the economy» (Svalyava, 2024).

The main provisions and results of the dissertation research were discussed and approved at meetings of the Department of Education and Pedagogy, West Ukrainian National University (Ternopil) (2021–2025).

Publications. The results of the research are presented in 13 publications by the author (11 – individual), of which 6 reflect the main scientific results of the dissertation (all publications in scientific professional editions of Ukraine, category «B»), 7 – of an approbation nature.

Structure and scope of the dissertation. The dissertation consists of an introduction, three chapters, conclusions to them, general conclusions, a list of sources used (460 titles), and appendices (8 on 31 pages). The total volume of the dissertation is 295 pages of printed text, with the main content presented on 187 pages. The work contains 11 figures and 25 tables.

CHAPTER 1

THEORETICAL FOUNDATIONS FOR DEVELOPING THE MANAGERIAL COMPETENCE OF FUTURE PHYSICAL EDUCATION TEACHERS

1.1. Basic definitions of research into the professional training of physical education teachers for professional activity

The theoretical foundations of training future PE specialists for PA in HEIs are currently at the stage of comprehensive study and rethinking. Considering this, the current conceptual and categorical apparatus on the research problem is quite rich and often used by scientists and practicing teachers (Onoprienko O. V., 2023; Stasyuk R., & Levkovets O., 2015; Turyanytsya O. O., 2020; Chepil M., 2023). However, conducting its thorough analysis allows us to state the ambiguity of the interpretation of concepts and categories by scientists, which causes certain misunderstandings, sometimes even confusion. The definition of the essential properties of key definitions applied in the study objectifies the solution to the problem of preparing bachelors of PE for the PA and makes it impossible to have content and conceptual inconsistencies (Great Ukrainian Encyclopedia, Goncharenko S. U, 2011; Pedagogical Dictionary, 2001, etc.).

Within the framework of our study, to highlight the problem of preparing bachelors of PE for PA and their acquisition of professional managerial competencies, we will clarify a number of basic concepts: «physical education», «physical education in the field of education», «physical training», «sports», «physical education teacher», «professional training of PE FT for PA», «blended learning». The scientific nature of the concept, according to the scientist V. Sergienko, lies in the fact that it indicates both the specific features of a certain subject of study and its essential properties or features (Sergienko V. M., 2022).

Let us analyze the concept of «physical education» as defined by various scientists, since the study of documents on the theme of the dissertation, dictionaries, and psychological and pedagogical literature shows its different interpretation and the

existence of significant differences (Dutchak M. V., 2009; Standard of Higher Education of Ukraine, 2019).

The concept of «physical education» was characterized and meaningfully filled by scientists V. Artemenko (Artemenko V. V., 2018), S. Karasevych (Karasevych S. A., 2018), T. Krutsevych (Krutsevich T. Yu., 2012), T. Matviychuk (Matviychuk T. F., 2015), Yu. Tanasiychuk (Tanasiychuk Yu., 2023), B. Shyyan (Shyyan B. M., 2001) and others, who substantiated and proved the statement that today PE plays a key role in the formation of the active life position of every young person.

The Law of Ukraine «On PE and Sports» states that a component of the general culture of mankind is, among other things, PE, which is aimed at strengthening health, developing a person's physical features, and increasing their moral-willed and intellectual abilities for the harmonious and comprehensive formation of a person as an individual. Its goal – harmonious (comprehensive) development of the personality – serves as a consequence of the historical development of mankind (On Physical...: Law of Ukraine, 1993).

Accordingly, we define «culture» as the accumulation of experience of human activity (a set of material and spiritual values) necessary for the reproduction of this activity in the process of human formation.

According to scientists I. Bodrenkova, A. Buts, T. Shepelenko, a physically developed person is characterized by a certain cultural level with intense motor activity, increased working capacity, a healthy lifestyle, which positively affect the environment. In their opinion, PE is an independent sphere of culture that arose and at the same time developed with universal human culture and is its integral component. In this case, PE satisfies the social needs of the individual in communication, self-expression, social activity with the involvement of everyone in motor games and various forms of sports entertainment (Shepelenko T. V., Buts A. M., & Bodrenkova I. O., 2018, p. 8). «Physical education», as written in the National Doctrine of the Development of PE and Sports, is a component of the general culture of society. Its socially important manifestations are physical training and mass sports,

which contribute to a healthy lifestyle, prevention of personal diseases, organization of meaningful-physical leisure, and also form humanistic values and contribute to the holistic and well-balanced personal development (National Doctrine of the Development of PE and Sports, 2004, Article 1.2).

Scientists I. Tymkovych (Tymkovych I., Ts'ovkh L., & Ponomaryov S., 2023) and T. Shepelenko (Shepelenko T. V., Buts A. M., Bodrenkova I. O., 2018, pp. 16–17) interpret «physical education» and as the basis for the amateur, initiative self-expression of a FS, the manifestation of creativity through the use of PE tools aimed at the process of their professional work and the acquisition of competency in PE. Scientists V. Mulyk and O. Kamayev define the concept of «physical education», putting into the content the physical development of a person and their physical training, without indicating that PE is a component of general culture (Mulyk V. V., & Kamayev O. I., 2017). Scientist M. Turyanska endows PE with properties that comprehensively and harmoniously develop all of a person's natural strengths and moral spirit (Turyanska M. M., 2018).

As a result, the content of the concept of «physical education» is ambiguous, multifaceted, but each is similar and reflects the real activity of a person in society, as well as the means, methods and results of such activity. Accordingly, the analysis of regulatory and legal documents on this problem and scientific literature on the definition of the concept of «physical education» (within the category of «culture») allowed us to distinguish four directions of its consideration by scientists today:

1. The concept of «physical education» is defined by scientists of the first direction S. Bashtan (Bashtan S., & Shapkina T., 2019), I. Grynchenko (Grynchenko I. B., 2011), D. Kalashnik (Kalashnik D., ... & Kalinin K. 2022), O. Lytvyn (Lytvyn O., 2022) and others according to the relationship between physical activity and the health of the individual, which are the basis for the formation of a value attitude towards one's own health. The definition of this concept occurs in a pedagogical sense, that is, physical exercises, training, games, etc. are involved (understanding of this concept in a narrow sense). In a broad sense, the concept of «physical education» includes health care, which is associated with the diet, sleep, rest;

personal and public hygiene; the use of natural factors - sun, air, water; the inclusion of physical exercises and physical labor to gain good physical shape. It is important for a teacher within this direction to skillfully master the system of exercises, movements, techniques and rules for their implementation.

2. Scientists of the second direction V. Artemenko (Artemenko V. V., 2018), T. Gulko (Gulko T. Yu., 2024), T. Dereka (Dereka T. G., 2015), A. Konokh (Konokh A. P., Kovalenko Yu. O., & Pariy S. B., 2024), T. Matviychuk (Matviychuk T. F., 2015), T. Spirina (Spirina T. P., 2012), Yu. Tanasiychuk (Tanasiychuk Yu., 2023) and others propose to study the concept of «physical education» in accordance with socio-pedagogical positions, that is, to consider PE within the framework of the skillful use of individuals' own motor potentials. This is done with the aim of effectively appropriating by natural qualities and abilities of a person, transformed with the help of PE. Thus, PE is a process of material and spiritual activity of a student and simultaneously serves as the result of this activity. However, in the works of scientists who worked in this direction, the social aspect of the concept of «physical education» is not fully disclosed.

3. The third direction of research included the works of scientists T. Berezhna (Berezhna T., Mezentseva I., & Pavlovykh O., 2022), D. Bermudez (Bermudez D. V., 2021), B. Dolynsky (Dolynsky B. T., & Borshchenko V. V., 2020), A. Khalaitan (Khalaitan A. P., 2014) and others, in which a description of «physical education» is carried out as one of the key areas of universal culture, since it mostly contributes to the physical growth of the individual. In this direction, scientists S. Karasevich, T. Pluzhnikova and others agree that PE contributes to the self-improvement of the individual and serves as a generalized indicator for determining the professional culture of the FS, their value and activity characteristics. With this vision, the concept of «physical education» is built around the teacher's focus on health-educational activities with students, which allows the latter to adopt the experience of a healthy lifestyle under the guidance of a teacher (Karasevych S. A., 2018, p. 41; Pluzhnikova T. V., 2024, p. 130). With this approach, PE, as a component of personality culture, is a

certain property of a person and a form of existence of physical and health-improving activity (Velichko V. S., 2023; Dudash G. V., 2024).

4. Scientists of the fourth direction (Omok G. A., 2020, Shovsh K. S., 2019, etc.), focus on PE as culture that is associated with creative activity, which is able to objectify (use) spiritual and material values previously created by humanity and is aimed at the formation of new ones. In particular, the scientist O. Filonenko puts qualitatively creative activity for the improvement of a person into the content of the concept of «physical education». Therefore, the result of PE is the «social transformation» of the individual's body itself, while on the other – PE is the process and result of a person's expansion of knowledge about such a transformation and knowledge about the ways of acquiring this transformation. Expressed differently, the PE of society is directly dependent on the personal PE of each member of this society (Filonenko O. V., 2023, pp. 65–66). The scientist Yu. Tanasiychuk bases this concept on the health of the pupil/student, and in accordance with it, the author considers «physical education» as a different kind of cultural activity which is aimed at improving health (Tanasiychuk Yu., 2023, p. 57).

Considering the legislative framework (Law of Ukraine «On PE and Sports»; National Doctrine of the Development of PE and Sports), we considered it necessary to outline the fifth direction of understanding the concept of «physical education» and call it legislative, since the concept described in these documents is valid and actively used in society.

In our understanding, the concept of «physical education» is a holistic, standardized, systemic and cultural activity, in which the fundamental knowledge, practice-oriented skills and abilities continuously acquired by specialists are aimed at developing the physical and personal qualities of the individual and strengthening and preserving the health of the population. The definition of the concept of «physical education» we have indicated expands our ideas about the directions of its consideration, which is the sixth direction of our research (Tabl. 1.1).

Therefore, PE is directly dependent on the personal PE of each member of society.

Table 1.1

Description of the definition of the PE as interpreted by scientists and the legislation

No.	Author definition	Directions of understanding	Action	Result
1.	Bashtan S.; Grinchenko I.; Litvin O.	pedagogical	- involvement in physical exercises, training, and games; - inclusion in the discipline of health care	proficiency in physical exercises, techniques, and rules for their implementation
2.	Artemenko V.; Gulko Y.; Konoh A.; Spirina T.; Tanasiychuk Yu.	socio-pedagogical	- use of motor potentials by individuals	acquisition of natural physical qualities and abilities
3.	Berezhna T.; Bermudez D.; Dolynsky B.; Khalaitan A.	general human culture	– focusing on health and educational activities	personal self-improvement and transition to a healthy lifestyle
4.	Omok G.; Tanasiychuk Y.; Filonenko O.; Shovsh K.	creative-active	- focusing on knowledge that provides information about effective methods of social transformation; - working on one's own creative activities	Strengthening and maintaining your health to feel good about your body
5.	Law of Ukraine «On PE and Sports»; National Doctrine for the Development of PE and Sports	legislative	- focus on improving health; - development of physical and motor activities; expansion of moral and intellectual aptitudes; activity-oriented approach to preserving public health - activity focus on PE and mass sports	harmonious and comprehensive personality development, disease prevention, organization of physical leisure, introduction of a health-preserving lifestyle, fostering the humanistic values
6.	Chen J.	author's specialized PE, pedagogical	- comprehension of fundamental knowledge, practical skills and personal abilities of the individual; - preserving the health of the population	readiness for effective implementation of holistic, standardized, systemic, cultural and active professional activities in the future

In the context of our study, the concept of «physical education in the sphere of education» should be disclosed. Scientists N. Moskalenko (Moskalenko N.,

Yakovenko A., Ovcharenko S., 2021), V. Sutula (Sutula V., 2016), A. Yakovenko (Yakovenko A. V., 2018) and others point to the widespread use of this term in the sphere of education and science, in regulatory and legislative and linguistic practice. In our opinion, this concept is most fully disclosed in Article 26 of the aforementioned Law of Ukraine «On PE and Sports». This definition is based on ensuring the development of the physical health of pupils (students), an integrated approach to the formation of both their mental and physical abilities as a person, and to improving their physical and psychological preparation for an active life, implementation of professional activities in the future in accordance with the principles of an individual approach, determination of priorities regarding health-improving orientation, continuity of use throughout life of various means and forms of PE, including in mass sports (On PE and Sports: Law of Ukraine, 1993, Article 26). Accordingly, in our study we will rely on this definition and understanding of the concept of «physical education in the sphere of education».

The National Doctrine for the Development of PE and Sports states that PE and mass sports are social manifestations of PE, which create conditions for the comprehensive and harmonious development of a young person (National Doctrine for the Development of PE and Sports, 2004, Article 1.2). The Regulations on the Organization of PE and Mass Sports in Higher Education state that PE is an important component of the education and upbringing of youth, and also serves as an effective pedagogical and EP, an academic discipline aimed at acquiring knowledge, skills and abilities by students in order to manage their own physical development and form a responsible attitude towards their own health and the health of others (Regulations on the Organization of PE, 2006).

Therefore, the fundamental concept of our research is «physical education». Its disclosure is associated with the understanding of the phenomenon of «education». In the encyclopedic dictionary, education is interpreted as a purposeful and transformative activity of educational institutions, where in a narrow pedagogical sense, education serves as the educational work of a teacher aimed at children acquiring certain personal qualities, their own views and beliefs, which are based on socially significant values.

In an even narrower sense, it is the solution of predetermined educational tasks (Encyclopedia of Education, 2008, p. 87).

Scientists A. Buts, I. Bodrenkova, V. Yezersky, E. Zakharina, T. Shepelenko, etc. emphasize that PE is an integral part of general education and influences the formation of a healthy lifestyle (Zakharina E. A., 2011; Shepelenko, T. V., Buts, A. M., Bodrenkova I. O., 2018). Scientist V. Yezersky notes that PE consists not only of conducting systematic and purposeful physical exercises to improve health, but is also associated with solving the problems of aesthetic, moral, gender education, helps prevent the emergence of bad habits, etc. (Yezersky V. I., 2017, p. 123). In the Law of Ukraine on PE and Sports, this concept is interpreted as A branch of physical education focused on educating individuals, providing them with the necessary knowledge and skills to utilize motor activity for holistic development, personal improvement, and preparing them for physical activity as well as active engagement in social life (On PE and Sports: Law of Ukraine, 1993, Article 2). PE is a sphere in which manifestations of basic creative values are found in various forms (Shepelenko T. V., Buts A. M., Bodrenkova I. O., 2018, p.13).

Conducting an analysis of the description of the concept of «physical education» in legislative documents and by scientists allows us to understand it as a type of holistic educational and pedagogical process; the implementation of certain professional actions of a teacher with students; a productive process and activity (Omok G. A., 2020; Prysyazhnyuk S. I., 2007; Sogokon O. A., Donets O. V., Hogots V. D., 2021; Schastlyvets V. I., & Rozhechenko V. M., 2022; Forostyanov O. I., 2020; Shiyan B. M., Papusha V. G., 2000; etc.).

So, our understanding of the concept of «physical education» is that it is a valuable component of the pedagogical process, which directs the student to perform exercises to strengthen their health, individual development of physical qualities within the framework of a personal lifestyle, and productive improvement of future activities.

Since today's PE of young people is aimed at improving their physical activity, harmonious development of the body, improving physical and spiritual qualities, and ensuring a high level of working capacity and creative longevity in the future (Karakai

I., 2023, p. 181), a competitive component is mandatory in sports. An athlete, unlike a person who does PE, always compares his results of competitions with his opponents (Ostapenko G., & Zhestkov G., 2012). Accordingly, the defining goal of PE is the formation of a healthy personality, while the priority of sports is the development of competitive qualities and achieving high results in a certain sport (Poluliakh A. V., 2023, p. 120; Stolyariv V. I., & Lubysheva L. I., 2018, p. 14).

As noted by scientist L. Kjenniksen, sport combines the physical and spiritual development of the individual (Kjenniksen L., 2019, pp. 141–142), forms social experience in the younger generation, and prepares for PA (Dutchak M. V., 2009). We include in the content of the concept of «sport» the development of personality (hardening of character, acquisition of skills to overcome difficulties and one's own weaknesses, struggle with stress, daily personal control of achievement of sports results, knowledge of oneself, etc.) and will consider it as a specific activity of a young person, which leads not only to one's own physical improvement, but also is aimed at achieving a successful result in a certain kind of sport. Therefore, we can argue that the concept of «physical education» is broader than «sport» and includes the latter.

In our study, we will consider a model of training PE teachers to work with students of general secondary education institutions (GSEIs), since during this period the foundation is formed for ensuring their various types of development and active abilities: from physical, mental, social growth to the spiritual health of each person (Danylevych M. V., 2018, p. 45). Therefore, the main concept of our study is the concept of «future PE teacher». Currently, in the scientific and pedagogical literature, this definition is considered by scientists from different positions: pedagogical, physiological and sports points of view. A teacher must have special pedagogical education and qualifications in PE and sports in order to organize and conduct effective classes, sports training, which will contribute to the improvement of students' physical qualities; knowledge of human physiology to be able to take into account the individual impact of physical activity on each student; skills to work with students as a coach of a particular sport (organize training, study techniques and outline strategies for developing sports achievements by students, etc.) (Eyvas L.F., Pylnik R.O., 2023;

Konoh L.P., 2007; Rybalko L.M., 2019; Shiyan B.M., 2001; Yachnyuk I.O., 2017; Yachnyuk I., Yachnyuk Yu., 2016, etc.).

Today, a PE teacher competently carries out not only educational activities, but also effectively performs the duties of a teacher-trainer. In addition, they draw up curricula with a perspective plan for achieving high results by students, contributes to the formation of an active and creative personality, prepare a young person for any type of work and teach to solve complex life tasks.

In the GSEIs both the teacher-trainer and the PE teacher are pedagogical workers in the educational sphere, however, there is a difference in their job responsibilities. The trainer and the teacher face different professional requirements and different tasks, since they hold positions in educational institutions of different levels and orientations (Guide to the Qualification Characteristics of Workers' Professions, 2016). According to scientists O. Donets and O. Sohokon, the PE teacher is the «creator of each lesson», the developer of effective technologies for its implementation. The success of the lesson will be facilitated by the teacher's selection of the most optimal management, technological and methodological techniques, orderly and interconnected activities with students that help the teacher in solving educational, developmental and health-improving tasks, which have a generally qualitative impact on the EP (Dictionary of Basic Terms in PE, 2020, p. 37; Sohokon O., & Donets O., 2023, pp. 16–17). Scientists I. Asauliuk and V. Kaplinsky emphasize the importance of mastering the basics of educational activity by PE FT, since without such knowledge, HEIs will form a pure subject specialist. The full value of a PE teacher is determined by their ability to go beyond the boundaries of their specialty, enriching it with the expansion of their own worldview, psychological and pedagogical competencies, such as a broad and narrow understanding of the sphere of education (Kaplinsky V. V., & Asauliuk I. O., 2014, p. 9) and management. The the scientist I. Grinchenko considers the PE FT on teacher as a motivated person to obtain qualifications in accordance with a certain educational and professional program in the process of specially organized educational activity in the conditions of the introduction of modern pedagogical technologies in HEIs to ensure a healthy lifestyle for a young person in PA (Grinchenko I. B., 2012, p. 104).

We interpret the concept of «future PE teacher» as the motivated teacher of the GSEI, who fully possesses PC (legislative, scientific-theoretical and scientific-practical knowledge; skills to navigate the information space to ensure successful educational activities and carry out an objective assessment of the personality of students in accordance with their needs, interests, individual abilities; skills in selecting and implementing optimal means and methods of activity and information and communication and DT; mastery of their own example and motivation of students for a healthy lifestyle and personal self-knowledge and introspection) and is a highly professional specialist-manager in their activities (contributes to the organization of comprehensive development of PE and sports training of student youth).

Let us consider the fundamental scientific definition for our study as «training». In the Great Explanatory Dictionary of the Ukrainian Language, this concept is defined as an action in a certain sense to prepare someone; a stock of knowledge, skills, experience, etc. acquired during education or practical activity (Great Explanatory Dictionary of the Modern Ukrainian Language, 2004, p. 767). The content of training includes a system of pedagogical knowledge, practical skills and abilities necessary for the effective implementation of professional functions by a teacher of the PE. We support the scientist O. Danysko in defining the concept of «training», therefore we will consider it as a holistic process of forming and improving the social and personal qualities of an individual, acquiring knowledge, skills, and abilities by a student for the effective performance of professional activities and self-improvement (Danysko O. V., 2022, p. 44).

An analysis of the works of scientists allows us to assert that the concept of «training» is interdependent with the concept of «professional training». Different aspects of the definition of the latter indicate the diversity of interpretations of this basic concept. Scientists define PT of FS as:

- a process that is scientifically and organizationally and methodologically interconnected with the aim of forming PC in HE applicants in accordance with the requirements of the modern labor market (Andrus O., 2011; Sushchenko L. P., 2003);

- a process that includes learning and the result as readiness for activity (Bubnova M. Yu., 2010; Naumchuk V. I., 2009; Trotsenko V., & Dolinin G., 2023);
- a system of planned and targeted measures to form a professional orientation, acquire knowledge, skills, abilities, and therefore the professional readiness of the student for future activities, which will generally ensure professional success in a certain profession (Zabiyako Yu. O., 2013; Loboda Yu. G.; Kolesnikov K. V., 2023; Shapovalova I., 2015).

Thus, by professional training of future HE graduates we will understand an integrative, continuous and multi-level process of forming professionally important fundamental knowledge, practical skills and abilities with the effective use of methodological and resource techniques and innovative teaching technologies by the teacher in order for the FS to acquire the necessary competencies.

At the same time, an element of professional training (PT) is the PE FT PT for PA, which has been studied by many scientists: S. Atamanyuk (Atamanyuk S., 2021), I. Grinchenko (Grinchenko I. B., 2012). T. Gulko, O. Kosyak, B. Romanenko (Gulko T., & Kosyak O., 2023; Hulko T. Yu., & Romanenko BV, 2024), Yu. Zabiyako (Zabiyako Yu. O., 2013), S. Karasevych, M. Karasevych (Karasevych S. A., 2018; Karasevych S. & Karasevych M., 2023), V. Naumchuk (Naumchuk V. I., 2009), G. Omok (Omok G. A., 2020), B. Shiyan (Shiyan B. M., 2001), I. Yachnyuk (Yachnyuk I. O., 2017) and others.

In scientific literature, the concept of «PT of FT of PE» is mainly defined as a system and process:

- a pedagogical system that is structurally built in accordance with the purpose of training, the features of the model of a competent teacher as a reference model, the result-oriented technology of PE and the inclusion of interaction subjects in the EP (Batechko N., 2014, Stepanchenko N. I., 2017, Chornoshtan A. G., 2002); implemented organizational and pedagogical measures that guide the FT to obtain fundamental knowledge, relevant skills and abilities in the field of PE, necessary for the application in the future phase of diverse forms of classes, teaching tools and

methods to achieve and maintain effective physical condition of students (Maslyuk R. V., 2015, p. 41).

- a scientifically based organizational and methodological system of subject-subject interaction between students and scientific and pedagogical workers of an educational institution, which is aimed at forming PC in FS during the study process (Arzyutov G., 2000);

- a process that includes: scientifically and methodologically substantiated measures aimed at the formation of PC in students throughout their studies in HE, sufficient for the organization and conduct of PE with different segments of the population and effective PE (Sushchenko L. P., 2003, p. 13); the formation of an independently active personality capable of professional self-improvement, creative thinking, creative use of acquired knowledge, self-development and self-analysis in the process of PE (Shapovalova I., 2014, p. 205); a complex of substantiated scientific, educational, methodological, organizational and managerial measures aimed at the formation of the ability and readiness to perform specific professional functions in accordance with the requirements of the State Standards of Higher Education (Mytskan T., Yedinak G., Potapchuk S., 2022); personality formation in accordance with professional and pedagogical activity (Kotova O., Tsybulska V., & Sukhanova G., 2022, p. 97); implementation of a system of actions to solve educational and health-promoting and preventive tasks to form immunity in the younger generation to a fast-paced way of life and other important patterns of life on a motivating non-authoritarian basis (Tabinska S. O., 2014, p. 313); reflection of substantiated scientific and methodological measures taken in HE institutions aimed at forming throughout the entire period of training the readiness of FS for PA in properly organized PE of students (Grinchenko I. B., 2012, p. 105).

Our own work experience shows that the integral PT of PE FT is an important element of the professional education system and is defined by us as a structured pedagogical process for the acquisition of knowledge, skills and abilities by students. Those enable, on the basis of the competencies formed in the HEI, the effective implementation of PA in the field of PE. In addition, the concept of «professional

training of PE FT for working with school-age children» means the integrative and personal characteristics of a GSEIs teacher, who has specific activity features of a PE teacher, a teacher-trainer and acquired pedagogical, psychological and sports-professional knowledge, skills and abilities in conducting PE classes, which contributes to the effective implementation of PA with GSEIs students by a FS.

Therefore, the issue of high-quality PT of PE FT in HEIs is particularly acute for academics-teachers of universities, since the future teacher of this specialty must fully possess PC and demonstrate in their activities the skills and abilities related to:

- revealing one's own creativity, critical thinking, and managerial ability to solve complex tasks;
- making balanced, effective decisions;
- conducting negotiations on a parity basis;
- implementing teamwork (being proactive, independent and responsible);
- introduction of innovative technologies into the EP (Pshenichna N. S., & Rastorgueva I. S., 2019, p. 120). In addition, the PT of PE FT in HEIs must take into account new social conditions that are constantly emerging due to modern international and national requirements for the training of such specialists.

Scientists D. Harbar, Yu. Dolynny, O. Oliynyk, A. Protsenko, O. Chernenko distinguish in the PT the theoretical and practical components of such training in HEIs (Dolynny Yu. O., Oliynyk O. M., & Chernenko O., 2020; Kovalenko Yu. O., ... & Sokolova L. O., 2023; Protsenko A. A., & Harbar D. O., 2024). The concept of «theoretical training» serves as the process of mastering special fundamental knowledge by FT of PE, which will be used in the process of work to solve professional problems, while «practical training» is the process of mastering the means of this activity, which forms in FS in the field of PE professional skills (Bermudez D. V., 2018). It is important that practical training is a mandatory component of the educational and professional program in obtaining a specialty and provides for the acquisition of professional skills and abilities by students in HEIs (Knysh S. I., 2019, p. 102). During theoretical and practical training, FS study the theory and methodology of PE, the theory and methodology of the chosen sport, as well as pedagogy and

psychology. Since the profession of a PE teacher integrates pedagogical, teaching or coaching activities, in addition to the ability to conduct educational and training classes, this specialist must have skills in conducting organizational, managerial and cultural and educational work (Protsenko A. A., & Harbar D. O., 2024, p. 123).

Under the current conditions of training PE FS for PA, the scientific definition of «blended learning» is important for our study. In these conditions, the concept of a blended form of organizing education in HEIs has acquired special importance. Its peculiarity lies in the development of best educational practices that integrate traditional face-to-face learning and online (distance) learning, which currently serves as the most effective educational combination for the specified goals and objectives of education (Danysko O. V., 2022, p. 65). Accordingly, BL allows to form a harmonious balance in the lesson between indirect (online) access to the knowledge system and direct interpersonal educational interaction in the process of classroom teaching by the teacher. In the current conditions and for various reasons, the blended form of organizing learning is the most optimal and guarantees FS of HEIs training in a safe environment. The key tool for implementing BL, as noted by the scientist M. Gobble, is DT (Gobble M. M., 2018), which are able to simultaneously change the organization of the traditional model of intersubjective interaction and expand the physical boundary of the classroom, allowing students to study at a convenient time for them and be in any place.

In regulatory documents on the implementation of BL in educational institutions, «blended learning» is considered as an approach, pedagogical and technological model, and methodology that, thanks to online technologies, is based on direct interaction between students and teachers in the classroom (Recommendations on the Implementation of Blended Learning, 2020). In addition, the Recommendations on the Implementation of BL outline the current problems of this education, such as accessibility and inclusiveness, flexibility, and individualization of learning with the possibility of a dual form of its acquisition.

Ukrainian and foreign scientists (Herasymova O., 2023; Gumenyuk S. V., 2025; Kashuba O., ... & Turchyn A., 2023; Rashevskaya N. V., 2010; Dziuban C. D., Hartman

J.L., Moskal P. D., 2004; Marciniak R., & Cáliz Rivera C. A., 2021; Collis B., Moonen J., 2001; Sun Z., ... & Shi C., 2017; Vo H. M., ... & Diep N. A., 2017 and others.) consider BL as an innovative educational model characterized by:

- transition from reproductive presentation of educational material to students to interactive, student-centered learning;
- growth and expansion of interaction between subjects of the EP as digital educational content is involved in the educational subject;
- use of integrated mechanisms for ongoing and summative assessment of students by teachers.

Given the different approaches to defining the concept of «blended learning» by scientists, it can be summarized that it aims to mix face-to-face learning with computer-assisted learning. That is, a blended form of learning organization is a hybrid of traditional face-to-face and online learning (learning with Internet access), in which the EP of students takes place both in the classroom and outside it. It is important that the online component of such learning is able to expand the traditional classroom EP.

The outlined characteristics of BL provide HEIs teachers with a flexible approach to developing an educational and professional program, and accordingly, students do not lose contact with teachers even when studying independently. The effectiveness of this learning format is influenced by the proper technical support of the HEIs and the skills of teachers to work with information and communication technologies (ICT).

In our understanding, the concept of «blended learning», which is introduced into the practice of teaching PE students, is a system of using traditional and innovative educational practices of PE, which determines the formation of a global information-oriented educational model of PE of FT of this specialty and contributes to their professional innovative and competent development.

So, the legislative documents and works of scientists that we analyzed allowed us to include such concepts as: «physical education», «physical education in the field of education», «physical education», «sport», «future PE teacher», «training», «professional training», «professional training of PE FT for professional activity»,

«professional training of PE FT for work with school-age children», «blended learning» among the basic concepts of the conceptual and categorical apparatus of training future PE and sports specialists for professional activity.

1.2. Management competence of future physical education teachers as a result of professional training

Global transformations in the world create a necessity for modern societies to adapt to the rapid changes taking place across all areas of human activity. Education is one of the fundamental systems affected by these processes. According to the Law of Ukraine «On Education», education is defined as «the foundation for the intellectual, spiritual, physical, and cultural development of the individual, their effective socialization, economic well-being, and a key factor in the development of a society united by shared values, culture, and the state (Law of Ukraine «On Education», 2017), which is especially important for modern Ukrainian realities.

Back in the late 20th century, the State National Program «Education» («Ukraine of the 21st Century») (On the State National Program «Education», 1993), and now the Laws of Ukraine «On Higher Education» (Law on Higher Education, 2014), «On Education» (Law «On Education», 2017) and other regulatory documents describe the directions for reforming education, which is built on competency-based principles. Therefore, the practical implementation of reforms of the HE system of Ukraine is aimed at creating suitable and favorable conditions for PE competitive in the labor market of the Ministry of Higher Education according to world and European educational standards. Modern challenges have necessitated the need to direct the EP to the formation of PC in HE applicants, improving the intellectual and cultural development of the individual, and acquiring the ability to quickly respond to various types of professional problems.

PT of FT, in particular FT of PE, in the new conditions of the functioning of civil society is currently one of the pressing problems of pedagogical science, since the health status of each young person and the level of their physical development directly

depend on the quality of university training. A significant contribution to the development of the problems of PE was made by scientists (Babyuk S., 2018; Danisko O. V., 2022; Zabiako Yu. O., 2013; Gumenyuk S., & Konoch A., 2024; Ivanova L. I., & Omelchuk O. V., 2017; Lynets M. M., Chychkan O. A., & Jimenez X. R., 2017; Maslyuk R. V., 2015; Shiyan B. M., 2001; Tsyna A. Yu., 2009; Yachnyuk I. O., 2017; Krychivska O., Tsaryk O., & Pysarchuk O., 2024; Khrystova T., 2020; Wang, X., 2017; Xu, Z., Zhao, Y., & Kogut, A., 2023; Zhang, X., & others, 2021; Zhao, C-x., Wang, Z-j., & others, 2024 etc.), who detailed the issues of theoretical and methodological foundations of the PT of PE FT and noted in their scientific works that the training of specialists in HEIs should promptly respond to the needs of applicants for the GSEIs, society as a whole, and be carried out in advance.

At the same time, PE in HEIs is able to evolve along with views on the outlined goal of training and education of the younger generation, ideas about the professional characteristics and individual qualities of FT (Godlevska K. V., ... & Staroshchuk Yu. M., 2022, p. 12). However, now it serves as a holistic process for the formation of a specialist (comprehensively familiar with scientific theory and well versed in modern educational methods), since it is carried out in accordance with the industry standard of HE according to a certain educational and professional program of this specialty (Savchenko N., 2015, p. 283) and is provided by a system of organizational and pedagogical measures that help PE FT acquire special knowledge, skills, abilities, competencies and professional experience (Karasevych S. A. & Karasevych M. P., 2023, p. 66). As noted by scientists S. Karasevych and M. Karasevych, PT includes psychological and pedagogical, theoretical and methodological, practical, physical training and is characterized by essential features and levels of activity inherent in this profession, has a certain structure and performs certain functions (Karasevych S. A. & Karasevych M. P., 2023, p. 69). The educational and PT of a modern teacher was studied by the scientist A. Tsyna, to which he attributed socio-humanitarian, fundamental, professional and specialist training (Tsyna A. Yu., 2009, p. 79). The main requirement for PT is its practical component, which provides for practical training of students and serves as a supplement to the

theoretical and fundamental knowledge obtained during the period of study (Kovalchuk O. M., 2013, p. 205).

The PT of PE FT to PA is presented in scientific research, which revealed the essence of their further health work with students (S. Babiuk (Babiuk S., 2018)); PA (P. Rybalko (Rybalko P., 2019)); health-preserving competence and its acquisition by FS as the basis of personal culture and an important component of PT (N. Bashaves (Bashavets N. A., 2015; Gakman A. V., ... & Medvid A. M., 2024); coaching activities (O. Komotska, S. Karasevych (Karasevych S., & Karasevych M., 2023; Komotska O., 2021); J. Liu (Liu J., 2013); H. Vo, C. Zhu, N. Diep (Vo H. M., Zhu C., & Diep N. A., 2017)); implementation of health-preserving technologies in the training of FT of the pedagogical profile (V. Uspenska (Uspenska V., 2015)), etc.

Scientists O. Kotova, G. Sukhanova and V. Tsybul'ska, M. Kintu & C. Zhu associate the formation of the personality of a teacher of PE during the years of study at the university with the awareness by students of the significance of their own achievements and achievements in this field of knowledge, the prospects for personal spiritual and professional growth (Kotova O., Tsybul'ska V., & Sukhanova G., 2022, p. 97; Kintu M. J., & Zhu C., 2016). At the same time, PE teachers learn to organize organizational and MA in the relevant field, acquire skills in taking into account the psychological and pedagogical characteristics of each student and understanding the functioning of their individual cognitive development (Tabinska S., 2017, 232). The formation of a FS during study occurs through the mastery by students of the skills of scientific and research work, which are manifested in the preparation of essays; writing course and diploma theses, first publications for student scientific and practical conferences; contacts with scientists (Khristova T. E., & Abdullaev A. K., 2021; Altin A., & Topcu Z., 2025; Demirer V., & Sahin I., 2013; Huang R., Ma D., & Zhang H., 2008; Kaur G., & Designing F., 2020; Tsaryk O., Krychkiiv'ska O. & Pysarchuk O., 2025).

The PT of PE FT is mutually conditioned by the specifics of PE in GSEIs. Therefore, the combination of professional knowledge and skills with individual

physical potential enables the teacher to introduce creative developments into modern PE lessons, extracurricular PE and health classes, and mass sports events.

The next feature of the PT is the addition of the functions of a modern teacher of PE in their activities in the informationized educational space. Modern ICT and their integration have ensured the emergence of a new type of educational activity of students of GSEIs - informational and educational with a focus on information interaction between the student, teacher and ICT tools. The problem has found a solution in the modern PT of FT, since the EP in HEIs has been supplemented by active types of learning using ICT tools. For FT, ICT serves as a research tool and helps in the construction, measurement and acquisition of knowledge in the field of PE (Lozytska S. Yu., 2004, pp. 29–30). Let us consider the significant interactions of the hierarchies of the three substructures of the professional orientation of FT training.

Professional education, within which the PT of PE FT takes place, is based on the interaction of three substructures of the professional orientation of the training of a PE FS, which are characterized by a certain number of special features, essential qualities (Tsyna A. Yu., 2009, p. 81):

The first substructure concerns the professional orientation of PE FT training, which is largely determined by the level of the degree. The quality of professional training at different stages (junior bachelor's, bachelor's, and master's degrees) depends on the design and technological orientation of the educational program in HEIs, significantly influencing the teacher's readiness to expand the scope of students' physical training. Modernization of the PE sector, as a crucial element in implementing the concept of the New Ukrainian School in GSEIs, is facilitated in HEIs through the integration of professionally oriented academic disciplines. This approach contributes to the fundamentalization of students' knowledge, which is a distinctive feature of this training. Successful completion of state certification at the end of professional training grants PE FT the right to teach in public or private educational institutions. Additionally, the differentiation of training content through elective specializations ensures a clear professional orientation for PE applicants. The key requirements for structuring the content of PE FT training are standardization, diversification, and

variability, which collectively address the objectives of modern higher education and provide students with greater autonomy in selecting elective academic disciplines (Danysko O. V., 2022, p. 87; Ogienko O. I., 2016, p. 364).

The second substructure. The professional orientation of the PE FT training is close to European educational norms and standards. The peculiarity of such an approach is the introduction of a credit-modular organization of the EP in HEIs with a focus on individual training of HE applicants, the introduction of an assessment of the success of educational achievements according to the ECTS scale, and the implementation by the teacher of modular current and final control of the knowledge acquired by students.

Third substructure. The professional orientation of the PE FT's training takes place in accordance with modern trends in the informatization of the EP. The essential properties of such training are the introduction of ICT into student education by organizing purposeful interaction between students, the teacher and ICT tools. Modern ICT contribute to the construction of professional knowledge and enable the formation of professional skills and abilities.

The PT of a PE teacher is manifested directly in their activities, including proper organization of the EP; expansion of their own socio-pedagogical and psychological-pedagogical knowledge; mastering new practical skills and abilities; creative initiative; and general and methodological culture. In this context, B. Shiyani noted that such training should be based on the completeness and appropriate level of fundamental knowledge obtained during the learning process, its depth and flexibility, motivation for future activities, and the personal qualities of the FT (Shiyani B. M., 2001). The EP in HEIs influences the entire future PA; therefore, as an important component in the development of personal professionalism, it is built on humanistic principles, methodological orientation, and integrative coherence, allowing PE FT to realize the significance of proper organization of the PT.

Scientist I. Yachnyuk outlined the requirements for the organization of the PT of PE FT in the HEIs. It is characterized by a number of important features, which are manifested in:

- a systematic approach to teaching and education;
- professional orientation of training;
- compliance of the PT's goal with its tasks;
- consistency of educational and methodological material with the trends of the activity development of specialists in this area in accordance with the social development of civil society (Yachnyuk I. O., 2017, p. 317).

The conducted analysis of scientific literature shows that scientists have considered the problems of theoretical and methodological principles of PT of FT. As a result of the implementation of an effective EP in HEIs, HE applicants develop:

a) humanistic worldview and internal motivation for PA through problem-oriented study of disciplines;

b) clear ideas about the structural elements of the EP in the GSEI, namely about the content line of the lesson, its structure, means, methods, types, forms of conduct and implementation technologies;

c) harmonious unity of the functioning of the mental and somatic nature of FT with proper study of psychological, pedagogical and subject disciplines and completion of pedagogical practice;

d) reflection on one's own educational activities, which contributes to the process of continuous professional improvement, involvement in independent and creative educational, cognitive and research work;

e) the foundations of pedagogical skills in the process of stimulating and developing didactic talents and constant growth of students' pedagogical skills and abilities during their studies at HEIs (Maksymchuk I., 2016, p. 30; Sohokon O., & Donets O., 2023, p. 16).

At the same time, the PT of PE FT to conduct effective work with students in GSEIs is carried out in several directions:

- to form the readiness of the PE teacher to work in the specialty directly in the HEIs;

- to promote the acquisition of fundamental knowledge and practice-oriented skills and abilities by FTs for the proper organization of professional interaction with students of the GSEIs in the future;
- to deepen students' own skills in creating a professional image of a teacher/trainer;
- to instill students' individual skills of self-assessment of their own results and the ability to exercise self-education and self-control;
- to promote, during the successful implementation of the EP, the mastery of modern innovative technologies (including ICT) by students, practical skills in their PA and in the conditions of a blended form of learning organization (Bida O. A., ... & Kuchay O. V., 2018, p. 21; Sogokon O., & Donets O., 2023, p. 15).

Nowadays, the PE FT's PT is based on a modern model of educational and PA of FT and is characterized by a certain number of features:

- a high level of professional awareness and culture among ES;
- search-transformative style of thinking;
- the development of intellectual and logical abilities, which are reflected in the ability to analyze, prove, highlight, focus on the main point, lead, etc.;
- a problematic vision of the educational situation and managerial and creative imagination;
- personal and professional qualities, manifested in love for students, selflessness, purposefulness, perseverance, and enthusiasm;
- specific motivation as the need to realize one's own professional «I», the desire to be recognized, the interest in the creative and professional process and one's work, the desire to achieve an activity result;
- communicative abilities and abilities for self-management of continuous learning (Antonova O. E., 2011, p. 45).

With effective PT, students develop in-depth individual and collective abilities necessary for the teacher to solve mature professional tasks (Australian Institute, 2012).

Therefore, the PT of PE FT serves as an important component of systemic continuous professional HE and a holistically structured pedagogical process, which

involves a complex of effective scientifically based cognitive, methodological, organizational and managerial educational measures, which together purposefully form in students the competence abilities and professional readiness to perform professionally specific functions in accordance with the requirements of the State Standards of Higher Education (Dyshko O. L., & Denysenko N. G., 2023, p. 47; Mytskan T., Yedinak G., & Potapchuk S., 2022, p. 78).

The level of professional readiness of a FS in HEIs affects the effectiveness of conducting lessons and classes of PE in GSEIs. Professional success can be achieved only with the acquired PC of FT. That is why civil society values a competent specialist who quickly and effectively produces appropriate and balanced solutions in complex professional situations, possesses a fundamental level of knowledge and is able to apply them in practice, has experience skills to generate and express innovative ideas, is ready to act responsibly and adequately and effectively when necessary, and establishes further continuous self-education and self-development in order to improve themselves in the profession and society as a whole.

Let us clarify the content of the concept of «competence» according to Ukrainian and foreign legal documents and outline the range of competencies necessary for ES for their successful self-realization in the future.

At the legislative and national level, the Law of Ukraine «On Education» characterizes «competence» as a dynamic integration of knowledge, abilities, skills, ways of thinking, personal views, values, and other individual traits that determine a person's capacity for successful socialization, as well as professional and/or further educational activities (Law of Ukraine «On Education», 2017). A similar understanding is presented in the National Qualifications Framework (On Approval of the National Qualifications Framework, 2011). According to the Law of Ukraine «On Higher Education» (edition of February 26, 2021), «competence» reflects a person's ability to actively participate in civil society, pursue learning effectively, and engage in professional activities, which emerges from the dynamic application of acquired knowledge, skills, abilities, ways of thinking, personal beliefs, life values, and other individually significant qualities (Law of Ukraine «On Higher Education», 2021).

These documents highlight that personal qualities of the FS are essential for developing competence, with some of these qualities being formed during training at HEIs.

More briefly, the concept of «competence» is defined in the National Standard of the State Standard of Ukraine, which is a translation and prototype of the international ISO standard, and is defined as a personal «ability to apply knowledge and skills to achieve desired results» (ISO, 2014). The European Qualifications Framework provides a detailed definition of this concept, which is presented as a confirmed ability of a person to apply acquired knowledge and skills and personal, social or methodological abilities in work/study, professional/personal development (The Council of the European Union, 2017, p. 7). This definition emphasizes the need for a specialist to be able to practically evaluate the results of his activities, to demonstrate them thoughtfully and to test his own professional skills.

The International Council on Standards for Learning, Performance and Education defines the concept of «competence» as the ability to competently carry out activities, to implement assigned tasks/work. At the same time, this concept includes knowledge and a set of skills and attitudes that enable a specialist to effectively act or perform assigned functions to achieve the standards outlined by them, which take place in a professional field or a separate activity (The International Board of Standards for Training, Performance and Instruction (IBSTPI)).

In the scientific and reference literature, a number of definitions of the concept of «competence» have been proposed. Thus, in the dictionary of vocational education, competence is considered as the main feature of effective PA, characterized by a set of skills and abilities that are manifested in the ability to analyze, predict activity results and apply the information obtained (Professional Education, 2000, p. 74). In the national educational and scientific glossary, this definition is consonant with the one specified in the Law of Ukraine «On Higher Education» (2014, art. 1) (National Educational and Scientific Glossary, 2018, p. 43).

At the same time, the nature of competencies was studied by Ukrainian and foreign scientists: A. Altin & Z. Topcu (Altin A., & Topcu Z., 2025), M. Baumgartner (Baumgartner M., 2022), Yu. Boychuk, Yu. Taymasov (Boychuk Yu. D., &

Taymasov Yu. S., 2015), O. Braslavska, M. Pashchenko (Braslavska O., & Pashchenko M., 2023), O. Dubaseniuk (Dubaseniuk O. A., 2010), O. Nozdrova (Nozdrova O. P., 2022), V. Lunyachek (Lunyachek V. E., 2013), O. Ovcharuk (Ovcharuk O. V., 2004), O. Popova (Popova O. I., 2012), L. Rebukha, V. Salko (Rebukha L., & Salko V., 2021), G. Tereshuk (Tereshuk G., 2006), J. Holmes (Holmes G., Hooper N., 2000), J. Raven (Raven G., 2001) J. Wallace, D. Scanlon, A. Calderón (Wallace J., Scanlon D., & Calderón A., 2023) etc. The content of the definition of «competence» by scientists is listed in Table 1.2.

Table 1.2

The concept of «competence» as interpreted by Ukrainian and foreign scientists

O. Avdeeva, O. Anichkina, O. Kaminsky, S. Pysarenko	Competence is the ability of a specialist to use their own knowledge, acquired skills, personal qualities, and individual experience in the process of PA (Avdeeva O. Yu., & Pisarenko S. V., 2022, p. 31)
V. Basarab, S. Kryshchanovich, Y. Prystupa	Competence is a personal quality important for the effective functioning of each specific field, which makes it possible, if an individual has specialized knowledge, specific skills, and thinking activity, to take responsibility for their actions and/or deeds. According to scientists, a competent specialist can always play the role of an expert (Prystupa Y. et al., 2019)
O. Braslavska, M. Pashchenko	Competence is a type of organized acquired competencies (including a system of knowledge and cognitive and practical skills, parity relationships, emotional attitude, professional values and ethics, motivation, etc.) necessary for the implementation of PA (Braslavska O., Pashchenko M., 2023)
Y. Boychuk, Yu. Taymasov	Competence is a component of the personality structure that focuses on the person's life experience gained in the process of education, PA and interaction with the social environment; it combines relevant knowledge, experience, and abilities that enable informed judgment about the professional sphere and effective action in it (Boychuk Yu. D., & Taymasov Yu. S., 2015, p. 39)
O. Popova	Competence – experience in a certain professional field, awareness, authority; ability to competently and successfully perform professional activities, implement tasks or work (Popova O. I., 2012)
I. Ivany	Competence is an integrated acquired characteristic-quality of a person, which serves as the result of the PE of ES for the purpose of carrying out activities in professional, social or personal spheres, which is supported by the necessary amount of knowledge and a certain level of experience in PA (Ivanii I. V., 2012, p. 43)

The concepts of «competence» presented by scientists differ only in the orientation of the integral personality trait formed in HE to a specific field of knowledge or sphere of its activity. At the same time, competence serves as a comprehensive indicator of an individual's own development and readiness to carry out a separately defined type of activity. Competence is not opposed to knowledge or skills. This concept is broader, as it includes both knowledge and skills, and combines intellectual (thinking activity, reflection, self-assessment, etc.) and skill (mastery of skills, methods and means of activity, innovative technologies, etc.) components of education.

In our study, we will use the concept of «competence» in the interpretation of the scientist I. Ivaniy, who defined it as an integrated characteristic of acquired personal qualities, which is the result of training students in HEIs to perform activities in certain professional and socio-personal subject areas, supported by the necessary volume and level of knowledge and experience in the specified type of activity (Ivaniy I. V., 2012, p. 43).

Let us define the views of scientists on the PC of a teacher. Scientists I. Zyuzyun, L. Kaldalova, D. Penkovets, associate the PC of a teacher with the combination of their personal and professional excellence, which contributes to the independent and effective achievement of goals in the EP; knowledge of the subject of teaching, pedagogy, age psychology, logic; symbiosis of theoretical and practical readiness to conduct effective pedagogical activities with the involvement of mastered educational technologies and communication skills in teaching (Zyuzyun I. A., 2005; Kaydalova L. G., 2009; Penkovets D. V., 2015). The PT of competency-based pedagogical specialists is considered today by scientists (A. Vitchenko (Vitchenko A. O., Vitchenko A. Yu., 2019), O. Gerkerova (Gerkerova O. M., 2021), R. Gorbatyuk, N. Bilan (Gorbatyuk R. M., & Bilan N. M., 2023), B. Dolynskyi, V. Borshchenko (Dolynskyi B. T., & Borshchenko V. V., 2020), O. Dubasenyuk (Dubasenyuk O. A., 2008). S. Knysh (Knysh S. I., 2019), O. Lokshina (Lokshina O. I., 2006), M. Mykhailichenko (Mykhailichenko M. V., 2011), V. Onipko, R. Vynnychuk (Onipko V., & Vynnychuk R., 2021) and others) from different points of view.

Scientific discourse is often associated with the PC of PE teachers and is comprehensively analyzed by scholars. Their research aims to study:

- international experience of European countries, the USA and China regarding the PT of PE FT in accordance with the competency approach (Grinchenko I. B., 2014; Safonov D. A., & Chernenko S. A., 2020; Harkins-Brown A. R., Gillon N., & Schanbacher A., 2024; Chen R., 2024 a; Zhao C-x., Wang Z-j. & others, 2024);
- the implementation of innovative technologies in the PT of FT (Gumenyuk S., 2015);
- general pedagogical aspects of the professional development of PE specialists, which meet modern requirements for such training both from the perspective of civil society and the specifics of the formation of its content (Vitvytska S. S., 2015; Kaplinsky V. V., 2019);
- management of an educational institution from the perspective of health preservation (Rybalko P. F., 2019; Stepanchenko N. I., 2017);
- work of PE teachers with students who, according to their health status, belong to a special medical group (Ivanova L. I., & Omelchuk O. V., 2017), etc.

PC belongs to dynamic-personal formations, the content and quality level of which depend on many factors: the proper development of psychology, pedagogy, cultural studies, as well as existing socio-economic conditions. At the same time, it is currently endowed with various features, which is manifested in the ability of the PE FT to effectively implement PA and manage it (Komotska O., 2021; Hristova T. E., ... & Abdullaev A. K., 2021):

- unity of theoretical and practical readiness of FTs to perform their professional functions (Boychuk Yu. D., & Taymasov Yu. S., 2015);
- a characteristic with inherent integrative-content, complex-structured (Sharlovich Z. P., 2017), integral professional-personal (Pasechnyk S. V., 2021; Sudareva G. F., 2017) features that combine knowledge, skills, abilities with the formation of professional and personal values in ES;
- a set of professional and special properties (Bodnar A. O., & Ostapov V. O., 2022);

– readiness to carry out professional activities (Zaitseva Yu. V., ... & Taranenko I. V., 2021).

The formation of PC of the PE FT occurs through the «immersion» of students in the profession. Without such a process, students are not fully able to use and transform the knowledge, skills and abilities acquired into specific practical actions. This, in turn, makes them academic, formal, and therefore ineffective (Maksymchuk I. E., 2016, p. 118). Scientists V. Bondarenko and O. Kornosenko emphasize an important component of the PT of the PE FT – the formation of PC (general and special-professional), which are realized in pedagogical organizational-managerial and scientific-research activities for the effective solution of professional tasks (Bondarenko V., & Kornosenko O., 2013, p. 7).

Modern teachers are competent specialists, but many of them do not have properly formed management skills, which is manifested in errors in solving complex pedagogical tasks, ineffective management of ES, inability to prevent and effectively resolve conflicts, etc. Therefore, a high level of MC is an important component of further professional development and successful future activity of every HE seeker.

The study of the process of formation and development of MC during the PT of applicants for HEIs was carried out by scientists O. Azhippo (Azhippo O. Yu., 2013), A. Bondar, I. Petrenko, O. Tomenko (Bondar A., Petrenko I., & Tomenko O., 2021), O. Gatsulya (Gatsulya O., 2015), O. Kotova (Kotova O. V., 2011), O. Marmaza (Marmaza O. I., 2004), L. Polovenko (Polovenko L., 2015), T. Hristova (Hristova T. Ye., 2015), K. Silva, J. Bucek (Silva C. N, & Bucek JL, 2016), O. Soroka (Soroka O., 2017) and others. Thus, scientists O. Oleksienko and A. Raskazov considered MC as a significant component of professional competence, which constitutes a system of intra-personal resources of a specialist, which, according to the purpose of PA, are aimed at effectively achieving both personal and organizational goals (Oleksienko O. G., & Raskazov A. G., 2021, p. 129). According to O. Maraz, MC serves as an integrative characteristic of a person, which helps to plan and make effective decisions, form one's own strategic behavior in certain managerial situations, take responsibility for management results, and carry out effective professional

organizational and MA with the establishment of communicative feedback (Maraz O. I., 2017, p. 78). At the same time, the FMC in FT in HEIs, according to I. Shebalkov, should be built on the principles of the manageability of the EP, its integration, structure and integrity (Shebalkov I. L., 2019). The orientation of ES' training in this direction forms the fundamental basis for understanding the FMC in FS as a holistic and multi-component pedagogical phenomenon.

Let us consider the content of the concept of «managerial competence». We will reveal the nature of this phenomenon through the prism of modern concepts of building management activities in general. Scientists include:

- functional management model (reveals the connection between management decisions and management actions) (Golubnychyy D., & Savelyev A., 2021);
- model of management activity (covers management from design, development and adoption of a decision to control its implementation) (Kosteniuk N. I., 2020);
- a comprehensive management model (combining management planning, organization, and control) (King W. R., & Cleland D. I., 1983);
- management model according to its main stages (includes the diagnostic stage as cognitive, the creative stage as making a reasoned decision and developing an ideal action program, and the organizational stage) (Prashar A., 2017);
- a model of effective leadership (demonstrates the ability to manage people and achieve the set goal) (Berman L., ... & Goldin A., 2018).

Management serves as a sequential process with six interconnected and repetitive phases of the manager's functional activity, which characterize their MC and form a cycle of functions for effective management of the EP by a teacher:

Phase 1. Announcing goals and justifying their significance.

Phase 2. Effective planning to solve the outlined pedagogical problems.

Phase 3. Creating the necessary conditions for the organization to function in order to implement the management decision.

Phase 4. Providing reliable feedback.

Phase 5. Control over the implementation of the management decision.

Phase 6. Displaying gratitude and encouraging subordinates.

Therefore, the basis of MA, which includes motivation, planning, organization, and interaction at the «means - results» level, is the manager's ability to effectively develop, adopt, purposefully influence the object of management, and properly implement these decisions, which serves as an indicator of his MC and professional success (Bila N. D., & Drach I. I., 2012; Voychenko D., 2023; Gula V., & Dzyavoruuk A., 2021, etc.).

The concept of «managerial competence» is interpreted by scientists from general (as the ability of a specialist to carry out MA) to narrowly professional definitions. Let us consider the views of scientists on the understanding of the concept of «managerial competence». This category is defined as:

a) a system or/and a set of knowledge, skills, experience, and personal characteristics necessary for effective management activities (Gula V., & Dzyavoruuk A., 2021; Kryshchanovich S., 2018; Kushnir V., 2022);

b) the ability and willingness to reveal, identify and consider management tasks (problems) and find effective ways to solve them; the ability to independently make appropriate management decisions and organizationally prepare subordinates for their implementation (Kereksha -Popova O. V., 2020; Petrunya Yu. E., 2020).

c) individual-professional education, which integrates theoretical-professional knowledge, practical skills, standardized skills, personal-professional values and special-professional qualities that fully ensure the competent implementation of MA with the performance of administrative-managerial functions and the conscious choice of models of managerial behavior (Lutskyi O., 2012; Oleksienko O. G., & Raskazov A. G., 2021).

Therefore, managerial competence reflects the ability and professional readiness of the FT to apply the competencies acquired in the training process in emerging managerial situations for the effective solution of managerial tasks for the purpose of their professional and personal managerial development.

Recognition of the value of managing the EP of PE FT as a teacher, organizer of the EP generates the need for them to have PT for MA: the development of appropriate

managerial knowledge, skills, and personal professional and managerial characteristics.

Successful FMC in FT of PE is a guarantee of:

- solving professional tasks and a significant condition for the HEIs to fulfill its purpose - training competent pedagogical workers, as it includes mastering effective methods and techniques for organizing one's own activities, effective implementation of the EP of students, class in in-class / extracurricular activities (Hunka K. O., 2023, p. 23);
- expanding one's own competencies with the use of certain means of managerial and pedagogical influence on the processes of learning, upbringing, training and aimed at various high-quality professional work with groups of students of different ages who have different personal levels of physical fitness and health (Dubrevsky Yu. M., 2012, p. 40);
- carrying out pedagogical activities in an effective manner and focusing PA on self-development, self-improvement, and self-knowledge of a teacher-specialist for the ability to perform various professional roles and functions (Kotegova L. I., 2015, p. 78).

The improvement of students' education content is achieved through the application of effective innovative methods, tools, and forms in the EP (Kryshtanovych S. V., 2018, p. 122), which enables the effective management of PE and health-related activities (Bezcopylny O. O., 2020, p. 116). The use of professional functions involves mobilizing both creative physical and intellectual potential, as well as a high level of organizational, business, and personal qualities, to ensure the efficient management of students' EP (Gaponenko S., 2021, p. 82). In summary, the MC of a PE specialist is directly influenced by the outcomes of their preparation for future professional activity at HEIs, as well as by their personal qualities and upbringing. Consequently, PE FT must not only possess strong MC but also be capable of applying acquired knowledge accurately, flexibly, and effectively in practice, along with maintaining a set of professional motivational and value-based attitudes (Voinar Yu., ... & Glazyrin I., 2005, p. 124). Thus, the MC of PE FT aligns with the objectives set before the specialist

in their PA. According to N. Andrushchenko, Y. Dubrovsky, O. Kondur, O. Nozdrov, and S. Yashchuk, the indicators of managerial competence of PE FT comprise a set of competencies – social-personal, personal-individual, educational, analytical, evaluative-control, economic, social, psychological, communicative, and informational – which include: a system of fundamental knowledge in management theory; the ability to plan management activities and define its goals and objectives; organization of activities within designated sports facilities; motivation of students and staff; analysis of management outcomes; identification and resolution of operational problems; and the introduction of innovations into professional management practices (Andrushchenko N., 2007; Dubrovsky Yu., 2008; Kondur O. S., 2018; Nozdrova O. P., 2022; Yashchuk S., ... & Kushnir R., 2023).

The outlined competencies are interrelated, complement each other and manifest themselves during the solution of important managerial tasks by the PE FT, which contributes to the identification of an individual style of activity and guarantees the FMC in them, which serves as a holistic and integrative personal characteristic (Kryshtanovich S. V., 2018).

Content of PE bachelor's MC is presented in the Project of the Standard of Higher Education of Ukraine of the first (bachelor's) level, field of knowledge 01 Education/Pedagogy in the specialty 014.11 Secondary Education (Physical Education) (2024) and is determined by general and PC (GC and PC, respectively):

- the ability to make informed decisions (GC 11);
- the ability to motivate people and move towards a common goal (GC 12);
- the ability to generate new ideas (GC 13);
- the ability to identify, pose and solve problems (PC 14);
- the ability to model the content of learning in accordance with the mandatory learning outcomes of students (PC 3);
- the ability to select and use modern and effective methods and technologies for teaching, educating and developing students (PC 6);

– the ability to plan, organize the EP using various types and forms of educational and cognitive activity, to predict the results of the EP (PC 20) (Project of the Standard of Higher Education of Ukraine: first (bachelor's) level, 2024).

Accordingly, the process of forming MC in the structure of the PT of FT (PE future bachelors) in HEIs is reduced to solving important tasks, the essence of which includes:

a) responsible implementation by PE bachelors of the organizational and pedagogical activities in planning goals and solving outlined management tasks and conducting reflection on the development of personal management activities;

b) development of one's own professional readiness to distribute the proposed tasks among students and fellow teachers involved in the EP, to coordinate their actions, to control and motivate the GSEIs students in the process of fulfilling the tasks set by them;

c) growth of individual abilities in order to form one's own professional values, achieve professional results that meet the goals and objectives of management activities.

Analyzing MC in the field of PE, we found that it is determined by the set of abilities of the FT to find ways of purposeful and planned influence on the objects of educational management; organization and coordination of professional activities; implementation of managerial knowledge in educational activities to achieve a specific managerial result - acquisition by students of sports skills, full-fledged physical development, proper preparation for PA in the best traditions of PE (Dubrevsky Yu. M., 2012; Singaevsky S. M., ... & Zubal M. V., 2002). In addition, the effectiveness of the FMC in the FT of PE directly depends on the educational environment in which specialists are trained, the material and technical base of the educational institution and the psychological and pedagogical support of their training. For HE students, personal skills of consciously choosing one's own behavior model when establishing effective relationships and operational and technological skills of adequately assessing the achieved results and successfully implementing management decisions into the EP of students are necessary (Kereksha -Popova O. V., 2020, p. 52;

Oleksiyenko O., & Rozskazov A., 2021, pp. 131–132; Rebukha L., & Zvarych G., 2023, pp. 120–121; Rebukha L., & Salko V., 2021, pp. 115–116).

Thus, the managerial competence of the PE FT is a relatively stable, integral-individual personal characteristic and the result of one's own continuous professional development, which includes independent and responsible solution of tasks to ensure optimal relationships between teachers and students who implement joint educational activities in accordance with the legislation and regulatory obligations of each party. The MC, the formation of which is a consequence of PT, serves as a fundamental-personal basis for the ability of students (who study in the specialty «Physical Education») to comprehensively developed, creative-prognostic thinking, systemic analysis, generalization of PE experience for the purpose of its effective implementation; readiness to master innovative pedagogical methods and modern educational technologies; acquisition of decision-making qualities and methods of solving complex managerial tasks; ability to motivate students and activate their sports activities; the ability to self-develop and professionally improve at every stage of career growth.

1.3. Professional training of future physical education teachers for management activities in blended learning environments

Ukraine's entry into the European educational space requires high-quality training of specialists. In accordance with international requirements, the reforms carried out recently in the HE system contribute to increasing the level of PT PE FT. The effectiveness of training educators in the field of PE is assessed by the high level of their subject-professional competence, the ability to take a productive, active and managerial position in pedagogical activity (Stepanchenko N., 2014; Yachnyuk I. O., 2017, p. 316).

At the same time, the education system and its development have been significantly affected, first by the Covid-19 pandemic, and now by the current conditions caused by martial law (Polianovskyi H., ... & Liutyi I., 2021; Rebukha L.,

& Polishchuk V., 2020). Accordingly, HEIs, represented by scientific and pedagogical workers and students, have faced many problems:

- the impossibility of ensuring safety education for the implementation of regular student education (viral infection, constant air-raid alarms, lack of power supply do not allow FT and HEIs teachers to be in constant contact);
- the impossibility of conducting classes in a synchronous mode (some students are abroad and study according to individual schedules, which complicates the assessment of their academic achievements);
- emotionally unstable mental state of all persons involved in training (affects the effectiveness of classes and the formation of low stress tolerance of participants in the EP);
- the general low digital literacy of both students and educators.

The first three problems mentioned do not fully depend on their solution by the educational institution, but they have become current challenges for the education system as a whole (Melnyk M. Yu., & Malynoshevska A. V., 2022; Slyusarevsky M. M., 2022). However, the issue of digital literacy directly concerns HEIs. This problem appeared in many countries of the world in connection with the emergence of quarantine restrictions during the Covid-19 pandemic, and later with military operations currently taking place on the territory of Ukraine. Education in HEIs during the first and second challenges was temporarily suspended. For the first time, the need arose to conduct training sessions in a non-traditional format.

In response to Covid-19, the Ministry of Education and Science (MES) of Ukraine developed in 2020 «Recommendations for the Implementation of Blended Learning in Institutions of Professional Pre-Higher and Higher Education» (Recommendations for the Implementation of Blended Learning, 2020). The recommendations aimed to introduce into the EP of students such a form of organization of learning that includes a small number of classroom classes, maintains a high level of accessibility and flexibility of education, and offers students the opportunity to receive education according to an individual educational trajectory.

To achieve effective professional growth during the quarantine period, the concept of the PT of PE FT provided for the introduction of a distance learning form in the EP with intensive use of opportunities online ICT (Vezkopylnyi J., ... & Ostapenko H., 2020; L. V. Denisova, 2020, p. 33; Denysova L, Stepanenko O, Shynkaruk O, Kharchenko L, Vyshnevetska V., 2020; Chao L., 2012). The Law of Ukraine «On Education» (Article 57) states that the in a special period state (martial law, emergency situation or state), state guarantees the organization of the EP for all its participants in a distance form, since it is safer than the traditional one (On Education, 2017). Distance learning (DL), as one of the current forms of organizing education in HEIs, «...should be understood as conducting the EP in conditions where participants are at a distance from each other and usually communicate interactively using modern educational and information and communication (digital) technologies» (Holyardyk N., & Gevko O., 2023, p. 61).

DL in HE consists of participants in training and educational content, the study of which is psychologically accompanied; contains software and hardware and a center for managing and adjusting the system of such training (Sherman M., 2022). The introduction of DL in HE has allowed students to quickly respond to today's challenges: to continuously study independently, regularly update and enrich their own knowledge with free access to educational materials, exchange educational information; participate in discussions, electronic scientific and scientific-practical conferences of young scientists; cooperate with students of other HEIs and students of GSEIs, sports organizations and federations (Denysova L. V., 2020, p. 367; Liu J., 2013).

However, since the beginning of full-scale war on the territory of Ukraine, the issue of ensuring the possibility of functioning of HEIs during martial law and their stability after the end of the war has again arisen. The normative document of the Council of Europe Action Plan for Ukraine for 2023-2026 «Resilience, recovery and reconstruction» describes ways out of the situation that has developed in Ukraine and indicates support for educational reforms that are being implemented in accordance with European education standards in order to provide all students with equal access to quality education (Action Plan, 2022, pp. 15–16).

In the conditions caused by martial law, the «Strategy for the Development of Higher Education in Ukraine for 2022-2032» has become a significant aid to the management of educational activities of HEIs, reflecting the general plan for the development of HE during the specified years (Development Strategies, 2022). However, the choice of methods for achieving the educational and managerial goal is entrusted directly to the head of the HEI, who, to the extent of his professional powers, must properly ensure the organizational management of the educational institution and be responsible for its work as a whole (On Higher Education, 2014).

It should be noted the importance of proper management of education by the Ministry of Education and Science in the period from 02/24/2022 to the present. In the education of Ukraine, at the beginning of full-scale war, there was a temporary suspension of education in educational institutions of all levels. However, in some regions of Ukraine, the EP was resumed in a distant learning format from 03/14/2022 according to the recommendation of the Ministry of Education and Science of Ukraine (On the Organization of the EP, 2022) subject to the security situation and with the approval of military administrations (Lytvyn O. V., 2022). In other regions, the DL in HEIs became possible in April, as the intensity of military operations and shelling decreased.

During this period, modern educational models of organizing student education were introduced throughout Ukraine, depending on the military situations in a particular region. Each of them (the traditional education model; the education model intensively enhanced by distance learning technologies; the blended learning (BL) model, which includes a significant part of DL technologies; DL model («online learning»)) is characterized by different interaction between all participants in the EP and the ways in which they obtain educational content (Elaine A., & Seaman J., 2011, p. 7). At the same time, through the prism of education system management, these models remain predicted; equipped with modern innovative learning tools; capable of providing appropriate learning conditions and satisfying the educational, personal and professional needs of FS; contributing to the organization of the acquisition of professional knowledge, professional skills and abilities by ES (Bachynskyi M., 2024;

Pasichnyk O., 2018; Tkachenko V., 2023; Bhadri G. N., & Laxmikant R. P., 2022; Dziuban C., ... & Sicilia N., 2018).

Accordingly, a way out of this difficult situation (during a pandemic, a large-scale war) was found, since each of the above models is capable (taking into account different social and public conditions that are the safest for participants in the EP) to be independently implemented in HEIs and be effectively used by. Given this, HEIs have the opportunity to choose the educational model that provides for full-fledged student learning and professional communication between all participants in the EP (face-to-face and distance-out-of-classroom with the help of technical and resource support and effective ICT) (Rudynskyi V., 2022; Chen R., 2022).

Since the beginning of Covid-19, HEIs have begun to actively implement the latest technologies (Blended Learning, 2024). The technological nature of education, as its rigid organizational and managerial algorithmization, contributed to the fact that in the EP of ES began to actively use modern innovative technologies (Mikre F., 2011). The formation of education under such conditions required its informatization to solve fundamentally new didactic tasks and approaches to learning, access to information, etc. (Chen R., 2025 a; Watson D. M., 2001).

Training in the implementation of innovations has strengthened the preparation of ES and made it especially significant for the process of forming the readiness of the PE FT for activity. We consider the concept of «innovation» from the semantic positions indicated in the dictionaries, i.e.:

- purposeful, theoretically based and professionally oriented innovation that leads to the expected changes (Zvereva I. D., 2012, p. 217);
- designing something new (modern practice-oriented ideas, tools, technologies), which contributes to the comprehensive growth of educational indicators and generally ensures the transition of the educational system to a variable qualitatively new state - innovative (Kremen V. G., 2008, p. 338).

Scientist O. Plahotnik believes that the teacher himself must be ready to implement innovations in order to successfully reveal the educational and professional potential of HE students (Plahotnik O., 2015).

So, pedagogical innovations today, together with the implemented educational and innovative technologies, will lead the HE teacher to creative search and solving pedagogical problems in an original, non-standard way.

Various ICT tools are developing rapidly in HE. The following platforms of DL are currently dominant in the European, Asian and American continents: Canvas, Blackboard, Brightspace, Moodle, MOOC (China University), Chaoxing Learning Pass. However, the platforms Moodle, Sakai, Canvas, MOOC (Polianovskyi H., ... & Liutyi I., 2021, p. 604) are currently available to all users. In Ukrainian HEIs, the most common is the Moodle system, which serves as a software package for organizing effective online learning, as it is able to maintain a balance between theory and practice and various types of educational tasks. Learning using this system opens up many opportunities for both the teacher and the student:

- for the teacher: control over all settings, including restrictions for other teachers; editing the educational text; a full report on the login and activity of each user; writing messages on forums; defining your own system for evaluating forums and tasks; individual entry into the online journal of each student group; control over the attendance of ES, etc.;

- for students: choice of academic disciplines according to the schedule and week of conduct, discussion themes; flexibility of educational activities (passing test control, individual study of additional theoretical material, completion of independent work tasks, etc.); display of the latest changes on the student's home page; editing completed academic tasks; viewing grades for tasks, etc. (Bolyubash N. M., 2012; Nedilko S. M., Chumak O. O., & Plachynda T. S., 2017; Schleicher A., 2020). The main advantages of using Moodle in organizing the EP for students' DL include the flexibility of the system, ease of use, its modularity and interactivity, ensuring accessibility to learning, a variety of forms of knowledge control, technological activity of participants in the EP, visual visualization of educational material, planning of necessary events, the possibility of obtaining education without separation from production, etc. (Osadcha K., ... & Kruglyk V., 2021, p. 42). Thus, as a result of DL, students' knowledge, skills and standardized skills are formed in the acquired network

culture (Kuchay O., & Dem'yanyuk A., 2021, p. 83; Yashchenko E., & Levandovska I., 2021, p. 128).

However, with the gradual easing of quarantine and restrictive measures, full-fledged training and professional educational activities of ES have become important, both in-person and with the help of technical support and ICT, respectively, the distant form of training of ES has changed to a mixed one, since live communication and a high level of in-person motivation of all participants in the EP are extremely important for effective learning.

The idea of BL has a foreign origin (late 20th century). Such training initially served to test the acquired knowledge, for which little time was allocated for its completion (Huang R., ... & Zhang H., 2008). At the beginning of the 21st century in the scientific community, there were different approaches to the description of BL. Thus, the study of the main content principles of BL and its practical application has become a study of both Ukrainian scientists (B. Besedin, G. Vagner (Besedin B., & Vagner G., 2017), R. Gurevich, G. Gordiychuk, L. Konoshevsky, M. Drachuk (Gurevych R., ... & Drachuk M., 2023), A. Stryuk (Stryuk A. M., 2012), V. Kukhareno (Kukhareno V., 2015; Theory and practice of BL (Ed. V. M. Kukhareno), 2016), O. Korotun (Korotun O. V., 2016), I. Mintiy (Mintii I. S., 2023), V. Rudynskyi (Rudynskyi V., 2022), G. Tkachuk (Tkachuk G. V., 2017), I. Shevchenko, D. Kostenko, O. Molchanyuk, M. Veresh, Yu. Klanichka (Shevchenko I., ... & Klanichka Yu., 2023) and others), as well as foreign scientists (P. Arnold, L. Kilian, A. Thillozen, G. Zimmer (Arnold P., ... & Zimmer G. M., 2018), N. Bizami, Z. Tasir, S. Kew (Bizami N. A., ... & Kew S. N., 2023), L. Halverson, K. Spring, S. Huyett, C. Henrie, C. Graham (Halverson LR, ... & Graham C. R., 2023), C. Lim, H. Jalil, A. Ma'rof, W. Saad (Lim C. L., ... & Saad W. Z., 2020), M. Kintu, C. Zhu (Kintu M. J., & Zhu C., 2016), P. Traxler (Traxler P., 2024), Z. Xu, Y. Zhao, J. Liew, X. Zhou, A. Kogut (Xu Z., ... & Kogut A., 2023), which suggest that BL is an effective and productive process for students to obtain professionally-oriented knowledge, effective skills and abilities.

At the same time, the introduction of BL in HEIs as an innovative form of organizing the EP of students and a qualitatively new approach in education to changing the traditional roles of a teacher and a student was characterized by scientists O. Tsyuniak and G. Rozlutska (Tsyuniak O. P., & Rozlutska G. M., 2021); the features of the BL, its advantages and disadvantages compared to the traditional form are described in the works of K. Bugaychuk, O. Pyvovarova, T. Sobchenko (Bugaychuk K. L., 2016; Sobchenko T. M., & Pyvovarova O. M., 2021); conducting BL during the onset of crisis conditions is disclosed in the publications of scientists N. Dira, V. Kornyat, L. Cherednyk (Kornyat V. S., Cherednyk L. M., & Dira N. O, 2022); The effectiveness of using various platforms for implementing a distant learning form was examined by scientists V. Hrytsenko, M. Sarbash, O. Syvak, A. Solodovnikova, T. Utytskykh, I. Yustyk (Hrytsenko V., & Yustyk I., 2015; Syvak O. A., & Sarbash M. V., 2018; Utytskykh T. O., & Solodovnikov A. S., 2020); the prospects for the implementation of distant learning were revealed by scientists L. Antonyuk, O. Bodnar, G. Mykhaylyuk (Antonyuk L., Mykhailiuk G., & Bodnar O., 2022); the BL approach, its impact on optimizing teaching and learning of PE students in HEIs, students' perception of this form of learning and their evaluation of their own educational experience are characterized by scientists C. Dziuban, C. Graham, P. Moskal, A. Norberg, N. Sicilia (Dziuban C., ... Sicilia N., 2018); the current situation in PE and modern trends in the development of education in this direction are described by scientists C. Wang, R. Dev, K. Soh, N. Nasiruddin, Y. Wang (Wang C., ... Wang Y., 2022). etc.

The very concept of «blended learning» serves as a synonym for the concepts of «combined, hybrid, flipped, inverted, and flexible learning». According to scientists (Besedin B., & Wagner G., 2017; Bugaychuk K. L., 2016; Kashuba, O., ... & Turchyn A., 2023; Gray K., & Tobin J., 2010; Dwiyo WD, 2018; Lockyer J., ... & Fleet L., 2006; Kaur G., & Designing F., 2020), it is an integrative combination of:

- educational strategies of traditional, distance and mobile learning, which together are capable of holistically shaping program learning outcomes through the implementation of an educational and professional program;

- formal resource learning (work in classrooms to study theoretical material and solve practically-oriented tasks) with informal resource learning (discussion of theoretical material using e-mail, video conferences and consultations using the Internet, consolidation of the studied material through the use of multimedia tools, etc.);
- traditional offline communication with mixed online interaction.

BL is considered an effective approach, an important pedagogical and at the same time technological model, a learning strategy, an effective methodology, a form of learning, a program, which, together with online technologies, are based on direct interaction between the teacher and students in the classroom (as stated in the Recommendations for the Implementation of Blended Learning, 2020). We consider it appropriate to present various approaches to the definition of the concept of «blended learning» by national and foreign scientists in Tabl. 1.3.

Therefore, each scientist interprets and fills the concept of «blended learning» in their own way. A typical characteristic for its definition is a type of learning, which is outlined as:

- the process of mastering knowledge, skills and abilities;
- education model;
- the process of active involvement of all subjects of the EP in learning;
- the system of education and teaching;
- integration of e-learning and traditional learning in the classroom;
- formal curriculum, etc.

In our study, we use the concept of BL in an expanded version, which was first defined in 2006 by the authors of the «Blended Learning Handbook» S. Bonk and S. Graham (Bonk C. J., & Graham C. R., 2006), therefore we will consider «blended learning» as a holistically directed EP that combines traditional face-to-face learning technologies with innovative electronic and distance learning technologies and modern technical means of learning with the aim of harmoniously and effectively combining its theoretical and practical educational components.

Table 1.3

**The essence of the definition «blended learning» as interpreted by
scientists**

No.	Definition author	The meaning of the concept of «blended learning»
1.	B. Besedin, H. Wagner (Besedin B., & Wagner G., 2017)	A form through which knowledge is acquired through independent study and face-to-face (together with a teacher).
2.	S. Bonk, S. Graham (Bonk C. J., & Graham C. R., 2006)	A learning system that is able to mix face-to-face learning and learning with the active involvement of the computer in it.
3.	A. Litvinov (A. S. Lytvynov, 2019)	Combining online and offline learning in one learning process that can form a «learning experience» and a self-sufficient logical course/subject in students.
4.	D. Garrison, H. Kanuka (Garrison D. R., & Kanuka H., 2004).	Thoughtful (deliberate) integration of face-to-face learning activities with online activities.
5.	C. Maxwell (Maxwell C., 2016)	An educational program in which students study partially online and independently control the time and place of study, as well as the educational route and pace of learning.
6.	I. Minty (Mintii I. S., 2023).	A planned, pedagogically balanced, adaptively combined form of organizing the EP, which includes the integration and interpenetration of technologies for face-to-face, distance, formal, informal, real, virtual, individual and collective learning and means of intellectual technologies.
7.	T. Sobchenko, O. Pyvovarova (T. M. Sobchenko, & O. M. Pyvovarova, 2021)	The process of acquiring knowledge, skills and abilities, which is accompanied by various interconnected learning technologies.
8.	H. Staker, & M. Horn (Staker H, & Horn M., 2012).	A formal curriculum in which learning takes place in an electronic, online format, with elements of control and pace of learning.
9.	G. Tkachuk (Tkachuk G. V., 2017).	A purposeful process aimed at transferring and acquiring knowledge, skills, abilities, and ways of knowing and based on a combination of educational technologies, which include traditional, electronic, distance, and mobile learning.
10.	J. Chen	A learning process that combines traditional face-to-face learning technologies with innovative electronic and DT, the goal of which is a harmonious and effective combination of its educational theoretical and practical components.

Two types of BL are optimally combined in HEIs, namely traditional (classroom) and distance (out-of-classroom) and two forms of its organization are practiced – synchronous and asynchronous. The first of them involves training in simultaneous direct communication between the teacher and students, while in the second form, the study of educational material and the solution of practically-

oriented tasks take place at different times. In addition, distance learning is determined by contact and non-contact (i.e. online) hours, where the first involves direct interaction of all participants in the EP in HEIs, while the second involves indirect interaction between teachers and students using online technologies in the classroom or outside the classroom (i.e. outside its borders) (Chychuk V., 2023, p. 71–72).

The fundamental task of BL is the methodical design by the teacher of their academic discipline as a sequence of actions and experiences that the student receives during the course (Recommendations for the implementation of blended learning, 2020, p. 34). As scientists prove (Romanovska O. O., ... & Romanovsky O. O., 2020), high-quality education is made possible by the competent use of online technologies and appropriate methodological approaches in the learning process, which together ensure an effective combination of direct and indirect forms of interaction between students and their mentors in BL. Despite the different forms of BL, its use in working with students has greater opportunities for meaningful implementation of the acquired theoretical knowledge into professional practice (Demirer V., & Sahin I., 2013; Chen R., 2023 a), flexibility of the EP (Diep A. N., ... & Blicek Y., 2016), one hundred percent involvement in learning (Steen-Utheim A. T., & Foldnes N., 2017), differentiation of learning (Boelens R., ... & De Wever B., 2018), and also contributes to improving the quality of interaction between teachers and students and increasing the number of such interactions (Müller C., & Mildemberger T., 2021).

In addition, foreign scientists in their works described different types of interaction when using BL (Kuo Y.-C., ... & Walker A. E., 2014), which is very important to take into account the PE FT; they distinguished interaction at the student – student level (as support for each other within the framework of joint learning), student – teacher (where assessment, student motivation, EP management and operational-effective feedback are important during interaction) (Liu M., 2013), student – online educational content (as a holistic process of intellectual and individual interaction of the student with the proposed educational material)

(Zimmerman T. D., 2012), the learner is the interface (within this interaction, a connection is established between students and educational technologies that deliver educational content) (Mladenova M., & Kirkova D., 2014).

According to scientists C. Buschner, L. Hsia, D. Daum, N. Nasirudddin, Y. Yuan, X. Ji, C. Lin, R. Dev, K. Soh, C. Wang, etc., the problems of BL in the preparation of PE FT related to the design of training regarding the diversity of its content still remain unresolved; competent support of the process of combining diverse educational technologies in student learning; self-regulation, isolation, beliefs (Chen R., 2022 a; Wang C., ... & Ji X., 2023); inept management of one's own time (Hsia L. H., ... & Lin C. J., 2019); a feeling of detachment of teachers from students, which is associated with the potentially small number of established social connections and limited learning opportunities in a virtual environment (Daum D., & Buschner C., 2012).

Despite certain problematic issues that occur in the mixed form of organizing education, today the educational and innovative pedagogical process of the PE FT in HEIs is carried out within the framework of theoretical and practical training of students, which effectively affects their self-improvement, self-educational development (including in the direction of MA) and professional self-realization in the future. Three main components of BL are successfully implemented in HEIs:

- traditional face this face learning, characterized by conducting regular traditional classes in the classroom, directly supervised by a teacher;
- self-study learning, which includes independent work of students with the performance of practical and laboratory work; individual search, analysis and study of educational information; work in cloud environments and online services;
- collective online learning (online collaborative learning), which is carried out through joint interaction of teachers and students in an online environment synchronously (Shevchenko I., ... & Klanichka Yu., 2023, p. 825).

The modern implementation of BL is relevant and promising, as it ensures that HE applicants acquire a certain amount of professional knowledge, thinking and management skills, leadership qualities in rapidly changing conditions of today, etc.

The effective functioning of BL is influenced by the electronic educational and information environment of HEIs, therefore its creation is an important process. Scientists N. Golyardyk and O. Gevko identified the requirements without which such an environment cannot be properly created (Golyardyk N., & Gevko O., 2023, p. 62). They include systematicity in the use of ICT, accessibility, openness, multifunctionality, modularity, adaptability, expediency, orientation to international educational standards, multilingualism, interactivity and individualization of the learning process (Fig. 1.1).

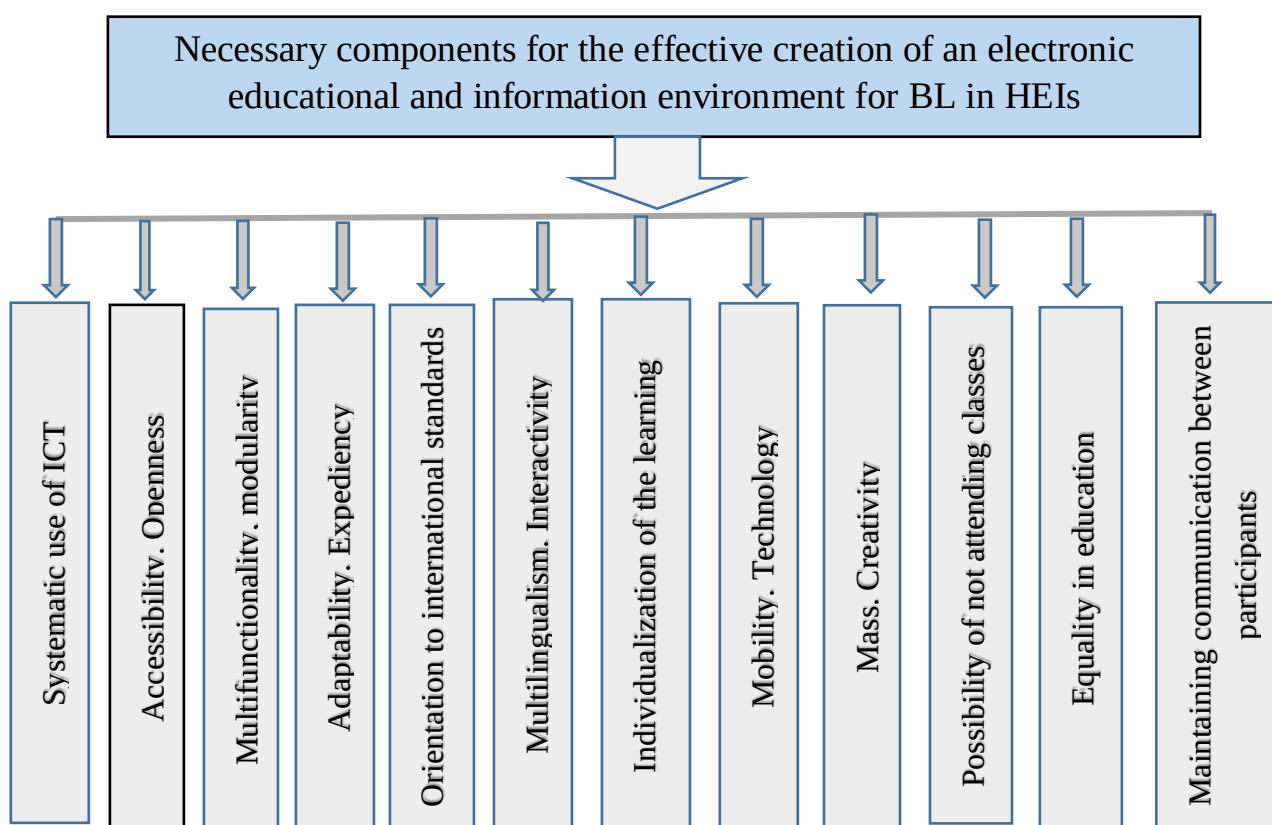


Fig. 1.1 Mandatory components of the electronic educational and information environment of HEIs necessary for the successful functioning of the educational institution

Since traditional training of PE students in its «pure» form is almost not carried out today, and since the main requirements for modern education are its modernization

and improvement, the outlined training requirements have been supplemented by the following components:

- Mobility. According to the BL, it is carried out regardless of the location of students: geographical or temporal.
- Technological. In the field of education, it is important to integrate new educational and information technologies and innovative methods into the EP of the PE FT.
- Mass. An unlimited number of students participate in the BL, while there can be only one teacher.
- The possibility of not attending classes. BL offers students online learning using ICT.
- Creativity. BL creates comfortable conditions for students' creative self-realization and self-expression.
- Equality. BL makes it possible to receive education regardless of social factors and individual status.
- Maintaining communicative connection. Throughout the entire period of study, effective communicative interaction takes place on a parity basis between teachers and PE students.

Currently, the EP of the PE FT using BL effectively combines various ICT, which allows to significantly strengthen learning outcomes and implement new educational ideas. However, when choosing forms of such training, the teacher must fully take into account the specifics and features of the academic discipline proposed for study by students, the location of students in the lesson (in the classroom or outside it), the material and technical support of both the educational institution and the own electronic equipment of all training participants, the level of their digital competence, the schedule according to which the lessons are held. Accordingly, the teacher's skill is manifested in the skillful selection of the most effective ICT, educational programs and electronic applications to them – educational resources with a characteristic high level of clarity, information structure, illustration (including video lectures, thematic educational sites, legislative documents related to vocational education, information

and educational materials, etc.). It is the teacher who is assigned a leading role in finding the optimal ratio in combining different learning technologies and maximally ensuring a high methodological level of integration of traditional in-person (within the classroom) and electronic extracurricular learning into a single educational system, which contributes to the improvement of the professional development of PE FT.

The peculiarity of training students of the specialty of PE for management activities in the conditions of the BL is that by designing the EP in a certain professional discipline, the teacher of HEIs fills its content and forms the volume of practice-oriented tasks of a managerial nature, which must be effectively performed by students, relying on the theoretical and interdisciplinary knowledge obtained. At the same time, it is important for each FT to master the educational material that is presented by the teacher in the classroom and that which is offered for study in the system Moodle. The teacher's task in training FS in HEIs includes a clear definition of the types of activities that will be performed by students, outlining the teaching methods used, skillfully designing various forms of organizing educational work, monitoring and controlling the knowledge of students, etc. Within the framework of BL, the teacher is obliged to consciously control the process of FS fulfilling the tasks set for them, direct the student's activities to acquire professional knowledge and skills, and motivate them to study. At the same time, BL requires a high level of internal control in the PE FT themselves, and therefore their ability to self-learn, because not all participants in the EP show personal readiness to work independently (Tkachuk G. V., 2017, pp. 145–146).

The main feature of BL is the increasing importance of the personality of the PE FT in the EP, as his emotions become expressive and regulated, motivational and professional boundaries expand, attentiveness and self-regulation take place, learning becomes manageable, effective and successful, which determines the growth of students' academic success and the formation of readiness for professional management activities (Hodges C., ... & Bond A., 2020). Such professional training of PE students in the conditions of BL forms knowledge and skills in management:

- educational goals and ways to achieve them;

- the EP in the future, namely the pedagogical content of the academic discipline (with the aim of qualitatively filling the educational content of the course) for effective implementation of individualized learning with students;

- a virtual learning environment (including subject management), which includes a learning platform consisting of a diverse set of tools for conducting training with students using a computer;

- the functional state of students in lessons and their sports results;

- a safe educational environment created for this discipline, etc.

The preparation of PE FT for MA in conditions of BL includes the implementation of professional and managerial functions by them: solving managerial problems that arise in the process of studying PE; managerial ability to interact at many social levels; generation of managerial ideas and proposals; management of personal development in the formation of leadership and business qualities, managerial culture, stress resistance, communication on a parity basis, non-conflict, etc. The content of the preparation of FT for pedagogical MA in general includes organizational and managerial skills of strategic and analytical thinking; communication skills, skills of managing students of GSEI, team (head of GSEI, namely pedagogical and student teams) skills, skills with an orientation towards final results in solving professional problems.

So, in today's difficult conditions (from the beginning of the Covid-19 pandemic to the present), issues related to the informatization of HE are becoming significant. This form of the EP in HEIs makes it possible to ensure the accessibility of ES to quality education. A significant role in this process belongs to BL, which essentially, under the existing situational conditions, prevails over traditional and distant learning forms. The implementation of BL in HEIs is associated with the use of various forms of learning and the introduction of modern methods, tools and educational technologies, which are characterized by interactivity and innovation, parity in interaction and manageability of the educational activities of ES. BL combines pedagogical and technological aspects and has changed approaches to the activities of both PE FT; to the structure and content of the EP, which affects the effectiveness and

quality of educational services, and therefore the PT of HE seekers. Therefore, the BL makes it possible to organize training in HEIs at the proper level and take into account all aspects of preparing the PE FT for MA in the GSEI.

1.4. Features of managerial competence formation of future physical education teachers through information and communication technologies

Currently, the MC of the PE FT is directly related to the tasks that the PA sets for each specialist. Accordingly, the acquired MC is the set of key competencies that cover:

- a system of fundamental knowledge about management theory. This knowledge concerns planning both one's own activities and the effective functioning of an educational organization; relates to acquiring the skills to form a goal and outline current educational tasks and for the future; concerns the skills of motivating the team and analyzing personal results and the results achieved by the assigned team;
- a system of practice-oriented knowledge that leads to the ability to identify and eliminate problematic situations in PA; acquiring skills in the process of learning to implement innovative and activity approaches in the profession, which are effective in solving professional tasks (Kryshtanovich S. V., 2018, p. 121).

However, in today's conditions, the preparation of the PE FT is aimed at the formation by specialists (with proper pedagogical activity) of a holistic subject of the European process – the personality of a student with characteristically directed and deep knowledge and culture, who in the near future will become a bearer of humanism, will adhere to high moral principles and universal human values and will properly implement them in the European and world living space (Kushnir V., 2012). Therefore, PT of PE FT in HEIs should be carried out according to a single accepted scale, built on jointly developed European fundamental cross-cultural values (Pedagogical Constitution of Europe, 2013).

Accordingly, professional competence, including MC, acquired by PE FT in HEIs is that system-forming property of the personality that is formed in HEIs during

the dynamic mastering of academic disciplines and passing practices in relevant educational institutions. A competent teacher is a subjective carrier of the main professionally significant qualities that integrate professional abilities to carry out activities according to program-targeted settings for the development of the child/schoolchild's personality in a holistic pedagogical process (Lazarenko N. I., 2018). Accordingly, the effective implementation of PA by PE FT requires special, effective, psychological and pedagogical training, which is implemented through the development of both special subject knowledge and modern knowledge in the field of psychological and pedagogical sciences, acmeology, inclusion, educational technologies, etc. This, in turn, forms students' readiness to perceive, evaluate, and implement pedagogical innovations and make effective management decisions (Dubasenyuk O. A., 2004, p. 3).

Currently, the preparation of students for MA is a component of the entire PE system, which includes attitudes towards a full awareness of managerial tasks, designing one's own model of probable managerial behavior, the need for knowledge of specific methods of MA, the importance of assessing one's own managerial abilities, etc. (Kuznetsova O. V., & Panasyuk A. S., 2021, pp. 41–42). Therefore, the MA of a PE teacher should combine both pedagogical and personal and organizational components of educational activity. The MA of a teacher cannot be successful without the following components:

1. Organization of the EP. The main goal of the PE teacher is to organize a health-creating educational environment in which it is possible to involve students in sports sections and competitions during lessons and thereby effectively form a healthy lifestyle in students through PE (Denysovets T., & Kvak O., 2021, p. 128–129).

2. Ensuring a safe educational environment during classes, which indicates a high level of personal responsibility of PE teachers for children, their health and safety. The process of PT of FT in HEIs with such a managerial component includes the formation of integrated skills and holistic personal qualities in designing, creating and maintaining appropriate safety conditions, which in the future PA ensure the safety of

students during PE classes. Ensuring a safe educational environment includes the following types:

- physical safety (creation of a barrier-free educational space; assistance to students in learning the rules for responding to unforeseen emergency situations; provision of appropriate first aid to students, if necessary, etc.);

- psychological safety (maintaining a positive psychological state of students; developing special exercises to reduce/overcome psychological stress; using physical and psychological techniques to stabilize negative emotions, and thus developing students' socio-emotional skills; participating in psychological trainings that teach teachers to maintain emotional stability and develop their skills in providing psychological support to students in various adverse circumstances/situations, etc.);

- communicative and informational safety (development and conduct of explanatory conversations with students to counteract asocial information attacks, refute inaccurate information, ensure conditions for students to acquire knowledge of media literacy and the possibility of personal fact-checking, which contributes to the development of critical thinking in them);

- ecological safety (formation of practice-oriented training in PE lessons to familiarize students with the rules of environmentally safe behavior, basic requirements for the correct handling of hazardous materials; formation in students of skills in recognizing unforeseen risks and skills of conscious behavior in life-threatening situations);

- social security (conducting dialogues with students on the theme of social integration of various categories of young people into the educational system; use by teachers in the process of integrating students into the educational environment of personally acquired knowledge in HEIs on individual support approaches and effective mechanisms for social adaptation of students to the educational environment) (Belyaeva N. P., 2024).

3. Coordination of work with fellow teachers, the administration of the educational institution, parents, medical personnel, the public. The performance of the role of leader by the PE teacher assigns them the mission of properly supporting the

psychosocial development of the student body by creating a trusting atmosphere in classes, during sectional classes, in the process of organizing competitions. Such support stimulates positive relationships and supports the desire of students to take an active part in the EP designed by the PE teacher. A teacher who effectively cooperates with their colleagues, the administration of the institution and the parents of students creates a clearly positive educational experience for students. The combination of these aspects helps the PE FT effectively manage and motivate students to an active, initiative and healthy lifestyle (Shchekotilina N. F., 2024, p. 201).

Therefore, the future PA of PE teachers is integrally connected with the process of activity management, the proper performance of managerial functions by them, starting from strategic planning of educational activities, implementation of its purposeful organization, up to motivating students, constructive interaction between all participants in the EP, monitoring and control of management results. Management competence serves as a fundamental competence in the PA of PE specialists, as it affects ensuring their readiness for productive and effective performance of their duties in the future.

Scientists meaningfully fill the MC of PE FS with the formed special characteristics, which are manifested in the teacher's PA, namely in their:

- the ability to think strategically and analytically, generate ideas; demonstrate leadership qualities, a high level of communication, flexible behavior, business and organizational and managerial qualities, and management culture (Zgalat-Lozynska L., & Holovach N., 2018, p. 70);

- abilities to solve management tasks and problems according to the system of professional values, professional and personal abilities and operational-educational, technological and managerial skills learned in HEIs, which ensure the adoption of balanced effective management decisions (Kerekesha-Popova, 2020, p. 52);

- personal organizational and managerial skills to be a leader, business qualities, management culture, stress resistance, sociability, conflict-freeness, etc. (Oleksienko O., & Rozskazov A., 2021, p. 131);

– mastering value-based goal-setting, forward planning, forecasting management results, and reflecting on management activities (Rebukha L., & Zvarych G., 2023, p. 118).

At the same time, the MC of PE FT is formed on the basis of special characteristics inherent in the PT - integration of knowledge of various sciences. The formation of the FT (as a manager of the EP) is significantly influenced by the knowledge obtained in HEIs from:

a) pedagogy and psychology. During the study of these subjects, the pedagogical orientation of the FT personality occurs, which is manifested in their value orientations, possibilities of pedagogical influence, purposefulness for effective pedagogical activity, pedagogical and communicative abilities, sociability, professional predictability, empathy, optimistic forecasting, pedagogical intuition, etc. (Mozolev O. M., 2025, p. 12);

b) the basics of management and leadership. In the process of studying the disciplines of this cycle, PE FT form knowledge and attitudes towards acquiring managerial and leadership qualities and developing practical experience, which is implemented in various ways within the framework of training in HEIs, namely during pedagogical practice, developing their own educational path, participating in research projects and extracurricular activities, etc. (Titova G. V., 2016, p. 15);

c) subjects of medical and biological cycles (anatomy, physiology and valeology, etc.). Medical and biological disciplines in the training of PE specialists serve as the basis for understanding the physiological processes that occur during physical exertion in the student's personality. The study of these subjects enables the teacher to have a comprehensive idea of the state of health of students, their individual characteristics and allows tracking the adaptation mechanisms characteristic of physical training for each student. The acquired knowledge and skills are the basis for the ability of PE teachers to prevent physical injuries; providing recommendations to students on a healthy lifestyle; designing lessons, taking into account the age, physical and psychophysiological properties of children (Livak P. E., 2024; Yeroshenko G. A., ... & Hryhorenko A. S., 2022, p. 183);

d) regulatory and legal framework concerning labor protection, safety, etc. PE as an academic discipline is based on the laws of the educational, general developmental direction and laws related to PE and sports. Therefore, regulatory and legal documents are a general concept and legal basis for ensuring a holistic approach to the provision of pedagogical services for the physical development of the student's personality. Their study by the FT provides an individual approach to the organization and content of PE of students in the process of conducting lessons, develops their physical abilities, promotes the popularization of PE among students and helps in mastering the abilities for physical self-development and self-improvement (Maksymchuk B. A., 2019, p. 109).

Currently, educational reforms give teachers freedom in preparing for classes, but they also put forward new contemporary requirements. Forming in students the competencies that are established by law (the Law of Ukraine «On Education» (On Education, 2017)) requires the PE FT to constantly modernize and improve their own professional and MC. The PC acquired in HE leads a person to the professional performance of scientific and pedagogical functions in accordance with the adopted educational standards and educational norms.

However, mastering managerial skills and practical technological skills in HEIs affects the effective performance of certain managerial functions by teachers. The scientist L. Urwick notes that the emergence of MF (managerial functions) is associated with the scientist G. Fayol, who studied them from the perspective of the tasks of the manager (Urwick L., 1937, p. 115).

In order to fulfill the planned management task, MF are implemented by teachers. periodically or as needed. However, the content of the functions depends on the management approach they use in a specific situation (Nemchenko S. G., ... & Golik O. B., 2020, p. 88–89).

For our study, the functions that ensure success in the PA of the PE FT are important. According to scientists G. Zvarych and L. Rebukha, such functions are motivational-purposeful, prognostic, research and regulatory-corrective (Rebukha L., & Zvarych G., 2023, p. 118–119).

To implement the first, motivational-purposeful function of management in the PA, the FT must acquire knowledge and skills in setting personal and educational goals in an educational institution. Later, integrate the acquired skills into the process of solving managerial and professional tasks. In addition, this function provides:

- organization of appropriate (on a parity basis) relationships with students, a group of ES, and a team of specialists;
- establishing a humanistic educational environment within a group or individuals;
- motivation of students for various types of educational work;
- the need for FTs to be involved in group affairs and group problem-solving;
- own managerial position, personally significant role in management, value attitude towards management subjects.

The second, prognostic management function, is realized in the activity on the skills acquired in HEIs in forecasting the development of the future profession, planning the goals of one's own professional activities and the activities of students in accordance with the mission and development strategy of the educational institution. Forecasting skills are useful in the development of educational documentation, the use of ICT and technical means in management activities.

The use of the third, research function in management activities, requires the PE FT to have the skills to effectively apply effective techniques, proven methodologies, innovative educational technologies for proper management of both fellow teachers and students, as well as for the distribution and evaluation of all existing resources which allow to achieve educational goal.

The fourth, regulatory-corrective management function, is associated with the skills of FT, which allow them to control the implementation of the tasks set, provide feedback to teachers and students, make necessary adjustments to the functioning of educational activities, contribute to the achievement of the planned educational goal, and present the results of the activities of the student and teaching staff to civil society.

At the same time, we include the following as necessary functions of managing the EP:

- organizational function. Its effective implementation in the EP of students requires the PE FT to directly involve them in various types of organization of the school team's activities: from the proper organization of socially oriented ethical, environmental, labor, aesthetic, health-preserving, sports and educational affairs-actions to the development of initiative in students regarding joint work planning, skills in effectively distributing assignments, conducting clearly motivated instruction, coordinating group work with students, etc. (Mozolev O. M., 2025, p. 39).

– information and creative function. To plan, effectively organize and skillfully control the EP and one's own professional activities (with the aim of achieving the maximum predicted learning outcome) requires FT to master modern ICT skills for searching and systematizing the necessary pedagogical information, which serve for rational and effective development and adoption of management decisions (Kondur O., 2018, p. 97). Therefore, the ability to implement the information and creative function directly depends on the knowledge obtained in HEIs both in organizing the information selection system, its processing for subsequent use and analysis of the results of educational activities, and knowledge in the formation of creative and original solutions to management tasks. This function is implemented throughout all stages of the teacher's MA, as the effective management of the subjects of the educational institution depends on it;

- conflict resolution function. Mastering conflict resolution skills by students helps them find constructive solutions in order to achieve a mutually beneficial solution to a problem situation, reconcile opponents for further resolution of conflict situations or their avoidance (Bate P., 1994). The ability to resolve conflicts triggers the mechanism of social and psychological protection of the individual (Kostyunina Yu., 2023, p. 44);

- the function of self-development and self-improvement. The formation of skills and abilities from conscious self-development and self-improvement of oneself as a teacher implies a specific internal MA of the individual. This function allows the FT to self-know, self-analyze, self-evaluate and self-create, and therefore to model, structure and personally carry out effective MA (Khlebnikova T. M., 2013).

Proper management decision-making with effective implementation of the above functions by PE teachers allows for the introduction of innovations in the education of students (Bodnar O. S., & Horishna O. M., 2021, p. 9).

Therefore, we consider the successful management activity of the PE FT within the framework of FMC in HEIs as the implementation of the following MF in the EP: motivational and target-oriented, prognostic, research, regulatory-corrective, organizational, informational-creative, conflict-resolution, self-development and self-improvement. Mastering these functions has a direct impact on the formation of this competence in students in HE.

We consider the managerial component of professional competence not only at the level of basic skills for the implementation of MF. It includes the ability of a specialist to plan, organize, control the EP and self-monitor their own profession in order to achieve the planned result, specify the goals for studying academic disciplines and educating the younger generation. The FMC is fully manifested in HE students both in the process of conducting classes and in the organization of self-study and research work. Mastering MC by students allows them to fully skillfully organize the EP for GSEIs education students in the future, identify leadership qualities in students and assess the level of their knowledge, using various forms and methods of control.

Therefore, it is now so important that with a mixed form of organization of the EP in HEIs, MC is fully formed in the PE FT with the inclusion of competencies related to the ICT sphere. These competencies cover knowledge and skills related to the use of modern integrated ICT. A teacher who thoroughly possesses the formed ICT competence is able to effectively use the mentioned technologies in managerial and professional activities and integrate them into work processes, while adding the acquired communication skills.

MC, built on technological foundations, encompasses knowledge of characteristic technological tools and special approaches to their use. Thus, information and digital competence in the management of the EP allows the teacher to combine information and digital competence. It can be seen in the skillful operation of information resources and during the use of DT, namely in the process of solving

various educational problems, including the management of the EP and versatile and acceptable communication (involves communication that occurs both inside and outside the educational institution). It is information and digital literacy that serves as the basic level of mastering computer skills and covers complex communicative and integrative aspects.

An important component of MC is e-competence, which refers to the acquisition of e-learning skills in the use of electronic learning tools, various tools and educational platforms to achieve educational or professional goals through the use of digital devices and networks. Thus, e-competence emphasizes the importance of students acquiring skills in the use of electronic resources in future pedagogical activities.

Another important component of the educational and MC of the PE FT is media competence, which is focused on the skills acquired in HEIs for the effective use of multimedia resources in PA. This competence is actualized during the education of students and during work with their parents. It is provided by the knowledge and skills of creating and analyzing media content, necessary for effective pedagogical activity, namely for the effective conduct of PE classes and the organization of sports competitions. Such work of the teacher with students is built on interactive technologies and includes video/audio tools.

Therefore, technological and digital literacy of the PE FT directly affects the FMC, since it is associated with the acquired ability of students to understand, successfully apply and assess the effectiveness of the used technological innovations, which currently occupy a significant place in education. The outlined competencies form critical managerial thinking during their studies in HE (in the process of working with information, during the practical implementation of ICT and DT, in solving problematic issues of ensuring an effective Internet environment, etc.).

The FMC in the FT of PE under BL in HEIs is influenced by theoretical approaches.

1. Competency approach. Provides holistic professional development of students and is aimed at mastering technical skills for working with modern ICT, which are integrated holistically both in PA and in pedagogical practice. The essential

significance of the competency approach for BL is to focus on the combination of knowledge, skills, abilities, personal qualities and ICT in the field of PE. FT successfully use ICT in teaching, creating, processing, storing and distributing educational materials. The competency approach enables the use of ICT as a tool for students' own professional self-expression and is an effective means of interaction with the audience. The competency approach determines the learning of PE FT through activity, since students solve real professional tasks (cases) in classes, improve their skills in independent management decision-making, develop critical thinking and form creative approaches to solving problems. According to this approach, MC is considered by us not only as a set of skills and abilities, but also serves as an integral characteristic of the personality of the FT, which contributes to future interdisciplinary cooperation, effective pedagogical activity, and the effective use of modern digital platforms in PE classes.

2. Person-oriented approach. Focuses the attention of the HEIs teacher on the individual characteristics of each FT. It allows to adapt the EP to their needs and capabilities: increases students' motivation, improves learning outcomes, creates conditions for receiving individual support for the development of managerial competencies (Serhiychuk O., & Sembrat A., 2024, pp. 39–40).

3. System-activity approach. Orients the teacher to the practical application of ICT in real pedagogical situations in order to activate students' activities within the framework of their acquisition of theoretical knowledge and practical skills. Adaptation to the requirements of modern pedagogical practice, mastery of the latest technological tools by students and their own reflection on the results obtained is a defining feature of this approach, since its implementation helps the PE FT to understand and improve personal professional and managerial competencies in depth. This approach ensures criticality in assessing the pedagogical activity of a HEIs teacher and allows them to make changes to the EP in order to increase the effectiveness of the formation of students' managerial knowledge, skills and abilities. The system-activity approach strengthens educational interdisciplinarity, develops students' ability to self-analysis and thinking educational and professional activities.

4. Constructive approach. Emphasizes the active and initiative role of the student in the process of creating their own knowledge through interaction with ICT. Within this approach, students are not just consumers of information, they become active participants in a holistic EP (they learn independently, quickly adapt to changes in the modern technological environment, have the opportunity to constantly update their knowledge, etc.).

5. Interdisciplinary approach. Combines knowledge from different academic disciplines with the use of ICT for effective conduct of PE classes. With an interdisciplinary approach, the use of modern methods and teaching aids stimulates professional creativity and imagination in PE teachers, and also enables the use of ICT to integrate PE knowledge with other fields of knowledge.

6. Individual approach. Helps the teacher take into account the individual characteristics of students: the level of their physical fitness, developed leadership qualities, the need for management knowledge, motivation for pedagogical activity, etc. It usually helps reduce conflict, develop mutual respect, establish communication on a parity basis, increases the effectiveness of learning, forms clear feedback and is aimed at the personal and professional growth of each student.

7. Problem-oriented approach. Allows PE FT to solve real pedagogical and managerial problems using ICT, and thereby develop their own practical skills in the changing conditions of pedagogical activity.

8. Axiological approach. Focuses the teacher's attention on the moral and ethical aspects of using ICT in teaching and forms in the PE FT a responsible attitude to the use of technologies in the EP. Axiological approach in teaching emphasizes the meaning of the value-humanitarian content of the PE, the upbringing of the personality within the framework of value orientations - professional and social; sets the direction of movement of the PE teacher from understanding to mastering humanistic values and values of the profession (Yevtodyuk A. V., 2024).

9. Acmeological approach. The close connection of this approach with the axiological approach allows us to track the growth of the personality of the FT, its value sphere of self-knowledge and creative self-actualization. This approach to student

education provides reinforcement of professional motivation and stimulates and develops their creative potential, reveals productive and ready-to-use personal and professional resources that lead the FT to success in PA and creates the necessary conditions for professional self-realization and self-development (Sazonenko G. S., & Prystupa V. V., 2013).

Thus, theoretical approaches to the formation of MC in the PE FT allow the HEIs teacher to immerse themselves in their own PA organization and practically implement conscious pedagogical actions in the training of ES. The theoretical approaches structured by us allow to determine a strategy for students to acquire MC and to predict the acquisition by students of objective, professionally significant managerial knowledge, skills and abilities.

The process of FMC of the PE FT in HEIs using ICT is complex, as it involves the integration of the PT with modern DT and is focused on the development of professional and, at the same time, managerial skills and abilities in students. Accordingly, the features of this process are the integration of ICT into PA of FT. Thus, the skillful use by the teacher of electronic educational resources, priority for HEIs online platforms (Moodle, Google Classroom, Canvas, Blackboard, Brightspace, MOOC, Chaoxing Learning Pass, etc.), video materials of lectures and practical classes, virtual simulators, etc. allows FT to independently model management situations of various types within the PE process. It is the effective integration of ICT changes the approaches and learning process and provides students of the specialty «Physical Education» with new opportunities: enables visualization of management actions, allows for video analysis of PE classes, contributes to the creation of a simulation of making balanced decisions in problematic pedagogical situations, changes the structure of cognitive activity of PE, affects the content of HE, demonstrates a significant update of forms, methods and principles of learning (Stoyka O. Ya., 2022, p. 261).

With the help of ICT, students create their own digital projects in classes (electronic methodological developments of PE lessons, sports interactive diaries, virtual sectional classes, etc.), learn to work with electronic documents on the theme

of the class, master the skills of working with online testing tools, which develops their managerial thinking, helps them perform various professional roles: being an organizer, manager, analyst, performer, etc. So, today ICT is a necessary organic component of each PE class, as it allows the teacher to explain the educational material in an unconventional format, interest students in the necessary way, and skillfully develop their own professional and managerial thinking (Boychuk V., Kovalchuk O., & Umanets V., 2024, p. 171).

At the same time, ICT tools allow each student to create their own individual educational trajectory, which they adapt to their level of management abilities; contribute to the development of readiness for self-determination and self-education; motivate students to independently improve managerial competencies throughout their lives and ensure the successful solution of educational, research and management tasks (Grytsko V. V., & Kotubey V. F., 2021; Sapogov M. V., Dyachenko M. O., & Saliy R. V., 2024).

Therefore, the FMC in PE teacher in HEIs using ICT is a priority area of the PT in the conditions of the BL and educational reform. The MC of the PE teacher includes the knowledge, skills, abilities and value orientations necessary for effective planning of classes, their organization and control over their implementation, and also, if necessary, involves correction and analysis of the EP. The MC formed in the PE is a fundamental condition for effective management of sports events, sections and clubs in the GSEI. It contributes to the establishment of effective interaction with students, parents, colleagues and school administration.

The use of ICT in the process of forming students' MC serves as a modern effective tool for the development of professional qualities of FT. This technology provides broad opportunities for modeling complex managerial situations, visualizes the necessary educational material, facilitates the assessment of students' knowledge; establishes feedback in the «teacher – student» and «student – student» systems and helps to monitor the effectiveness of the EP as a whole.

Individualization of learning through DT contributes to the identification and development of the managerial potential of each student, provides flexible planning of

the educational trajectory and activates reflective activity. At the same time, the use of ICT in teaching PE FT optimizes the entire EP and forms a new management style associated with mobility, adaptability, and innovation.

Particularly important for the FMC are practice-oriented tasks, students' work in projects on sports and health-preserving themes, online communication, simulation training models, etc. These ICT tools form key managerial qualities in FT such as initiative, responsibility, sociability, flexible professional thinking, professional team skills and skills in making a balanced managerial decision. Therefore, the effective FMC in FT of PE in HEIs by means of ICT is system-structured, result-oriented, personally and practically-oriented and cannot do without the integration of modern ICT into the content, forms and methods of the PE. Only under such conditions will the PE FT be comprehensively prepared for conducting MA in the HEIs.

Conclusions to the first chapter

In modern civil society, questions have arisen regarding the improvement of PT of FT of PE in terms of developing their MC in HEIs. Its formation in PE bachelors is designed to ensure a high level of pedagogical activity, which manifests itself in the development of physical data in schoolchildren, strengthening their health, and the growth of moral, volitional, and intellectual abilities. Within the framework of the study, a number of fundamental concepts that characterize, explain in detail, and reveal the content of MC have been identified and disclosed, and their author's interpretation has been given.

PT of FT of PE is based on the interaction of three substructures of professionally-oriented training of future PE specialists with a characteristic set of unique features and qualities: the step-by-step nature of PT, its approximation to European educational norms and standards, and the use of modern educational and information technology trends in the FT EP. The formation of MC in FT of PE occurs through properly formed management skills in HEIs. Accordingly, we consider a high level of FdMC to be an important component of professional development and

successful activity in the future. We have determined that MC of FT of PE serves as a stable, integral, individual personal quality/characteristic that is the result of one's own continuous professional development. It ensures independent and responsible decision-making aimed at ensuring optimal relations between teachers and students who carry out joint educational and MA in accordance with current legislation and the regulatory obligations of each party.

Since the beginning of Covid-19, pedagogical innovations have been introduced into student training, which have strengthened their preparation and made the EP particularly significant for PA. With the gradual easing of quarantine and restrictive measures, the distance form of training for students has been transformed into a blended form, which we consider in this work as a holistic-oriented EP that integrally combines traditional classroom teaching technologies with modern innovative electronic and DL technologies, effectively combining educational theoretical and practical components. Two types of BL are considered: traditional (classroom) and distance (outside the classroom), two forms of BL organization: synchronous and asynchronous, and two forms of contact: contact and non-contact (i.e., online interaction). BL includes traditional learning (face-to-face learning), self-study learning, and online collaborative learning, and directly depends on the skill of the teacher: their ability to select the most effective ICT, educational programs, and electronic applications – educational resources.

It has been determined that the characteristic features of PT of FT of PE in management activities in HEIs under BL conditions are that the teacher fills the content of the academic discipline and forms the volume of practice-oriented tasks (tasks to be solved are proposed by the teacher both in the classroom and in the Moodle system) with a management focus, which students must effectively complete, relying on their own theoretical and interdisciplinary management knowledge and skills; students perform professional MF in the PT process and, accordingly, acquire organizational and management skills while solving management-oriented tasks.

The MA of a PE teacher combine pedagogical, personal, and organizational components of educational activities (organizing the EP, ensuring a safe educational

environment during classes, coordinating work with fellow teachers, the administration of the educational institution, parents, medical staff, and the public). The FMC in FT of PE is based on the integration of knowledge from various sciences: pedagogy and psychology, the basics of management and leadership, medical and biological subjects, and the regulatory and legal framework. The functions of EP management necessary for FT of PE are classified as follows: organizational, informational and creative, conflict resolution, and self-development and self-improvement. MC covers knowledge of technological tools characteristic of education and specific approaches to their use, and includes information and digital, electronic, and media competences. The use of ICT in the FMC process of students serves as a modern effective tool for the development of professional qualities of FT.

Taking into account the multifaceted nature of the problem, a number of theoretical approaches to FMC of FT of PE under BL conditions have been identified (competence-based, personality-oriented, system-activity, constructive, interdisciplinary, individual, problem-oriented, axiological, acmeological), which enable students to immerse themselves in their own PA organization and practically implement conscious pedagogical actions in the education of students.

FMC of FT of PE is defined as a purposeful and systematic process of developing a set of fundamental knowledge, professional skills, abilities, values, and personal and managerial qualities in HEIs bachelor's degree students that can ensure the effective organization, coordination, and regulation of the EP in the field of PE. As a result, the FMC in FT of PE is manifested in the proper organization of the EP in GSEIs, the desire to find leadership qualities in schoolchildren, the ability to assess the level of students' knowledge using various forms and methods of control, effective conflict resolution, and the establishment of effective interaction with students, parents, colleagues, and school administration.

The main results of the section are reflected in the author's scientific works:

Chen R., 2022; Chen R., 2022 a; Chen R., 2023 a; Chen R., 2024 a; Chen R., 2025 a

CHAPTER 2

SUBSTANTIATION OF PEDAGOGICAL CONDITIONS AND STRUCTURAL AND FUNCTIONAL MODEL FOR THE FORMATION OF MANAGERIAL COMPETENCE IN FUTURE PHYSICAL EDUCATION TEACHERS UNDER BLENDED LEARNING CONDITIONS

2.1. Components, criteria, indicators, and levels of managerial competence formation in future physical education teachers

Nowadays, modern society places high demands on HEIs. The Concept («The New Ukrainian School»), which implements the state policy for comprehensive reform of general secondary education, emphasises the orientation of the EP toward identifying the personal interests of each child, their inclinations and abilities, with the aim of targeted development and focus on a successful professional future (The Concept of the New Ukrainian School, 2016, p. 20).

To accomplish these tasks PE teachers in GSEIs must align with the profile and specialisation of the educational institution and provide theoretical and practical training to students in accordance with the academic curriculum. The practical focus of the classes becomes effective when interactive, research-experimental, managerial, communicative and other teaching methods are included in the pedagogical practice, as they contribute to the successful choice of both individual educational trajectories and future professions in the chosen field by students.

Effective pedagogical and MA of PE teachers require appropriate training professional in HEIs. The new goals set for HE graduates calls for the search for new opportunities to achieve them. The issue of improving the PT of FT of PE within the framework of FMC remains a central focus of reserchers.

The results of the study by researcher H. P. Gryban indicate that the competence of a PE specialist contributes to the solution of important management tasks, and the management activity of the Ministry of Education and Science is directly related to the organisation of PE and health work in student groups (Gryban H. P., 2022, p. 107).

According to this researcher, students' acquisition of special management competencies involves:

- the formation of knowledge among students majoring in 014.11 Secondary Education (PE) regarding the practical use of the basic conceptual and categorical framework of management theory in the field of PE;
- mastery of MF, their specific manifestations, and the internal functional processes that ensure their implementation;
- the development of skills and abilities for implementing regulatory and legal documents in PA, promotion of the creation of social, resource, and managerial prerequisites for the development of PE;
- familiarising students with the material, technical, managerial, personnel, scientific, legal, medical, methodological, informational and other aspects of PE;
- introducing students to modern theoretical concepts of management and requirements for mastering the profession and its development (Gryban G. P., 2022, p. 108).

At the same time, managing the EP is a purposeful activity of PE teachers in preparing students to master sports and health-saving technologies and is based on conceptual interrelated theoretical approaches that are relevant to our research (competence-based, personality-oriented, system-activity-based, constructive, interdisciplinary, individual, problem-oriented, axiological and axiological approaches (section 2.4)) and the functions of competence-based management (goal-setting, motivational, organisational, prognostic, communicative, decision-making, control and diagnostic, corrective and regulatory (section 1.2)).

Since the current development of school and university education is characterised by substantial transformations and educational reforms, the issue of improving the competence-based knowledge, skills and abilities of PE teachers has become particularly relevant. (Kushniruk S. A., & Leshchenko N. A., 2023; Krasilnikova G., Krasilnikov S., & Gernichenko I., 2023; Rebukha L., & Zvarych G., 2023; Trachuk S., Dedukh M., Brychuk M., Ivanik O., Yefanova V., & Wang E., 2024; Tsui L., 2022; Wang X., 2017; Wang X., 2019).

Proper conduct of PE classes requires teachers to have appropriate training in HEIs. Accordingly, the FdMC in FT of PE is transformed into their readiness to perform managerial functions in the PA process. It is this readiness, as noted by scientists B. Duplyichuk and Ya. Klymenko, is a fundamental condition for the successful performance of professional and pedagogical activities (Duplyichuk B. G., & Klymenko Ya. V., 2023, p. 195) and is the goal and result of the FMC in HE students. Scientist L. Kalinina considers the formation of readiness for PA (including the MA of PE teachers) as a dynamic process structured according to a logical scheme, which includes need, professional knowledge, MA, the results of these activities, and, if necessary, corrective actions (Kalinina L. M., 2005, p. 93).

In this regard, the FdMC in FT of PE serves as their preparedness for PA. This preparedness is manifested in the personal qualities, theoretical training, practical skills and abilities that students possess, which allow them to successfully perform professional tasks and duties. For our study, the theoretical and practical FMC for future pedagogical activity are interrelated and mutually dependent. However, it should be noted that in the process of training masters in HEIs, the greatest attention is paid to theoretical training, which serves as the basis for future PD.

Scientist S. Korolyuk considers competence formation to be:

- broad professional suitability;
- improvement of existing and acquisition of new experience in cognitive activity, professional self-determination;
- complex personal-dynamic education (Koroliuk S. V., 2007).

According to scientists B. Duplyichuk and Y. Klymenko, competence formation is the result of the process of preparing HEIs applicants for professional and pedagogical activities (Dupliichuk B. G., & Klymenko Ya. V., 2023, p. 197). In this context, researchers have identified personal, praxeological, psychological, and methodological components of developing this readiness, as they believe that these components reflect the holistic nature of the vocational education system and ensure the successful functioning of PA.

When researching the problems of FT of PE's professional readiness for pedagogical activity within the framework of acquiring PC, scholars defined the formed readiness as a holistic manifestation of personality and the outcome of education and upbringing, which includes a set of necessary knowledge, skills, abilities and aptitudes of FS. Accordingly, we consider the readiness in FT of PE for MA in GSEIs as an integrative personal quality developed in HEIs with a characteristic focus on:

- a conscious desire to implement effective activity-based management within the educational institution;
- effective PA forecasting and assistance to students in independently choosing their individual learning path during PE classes;
- self-realisation of pedagogical reflection and a high level of mastery of knowledge of management theory, acquisition of practice-oriented skills and abilities to manage the EP, which ensure the successful performance of professional MF.

In the structure of readiness of FT of PE to PA, scientists distinguish between different numbers of components and, depending on the different types of this activity, which is determined by its complexity and multifaceted nature, fill them with different content. Scientists O. Bezkopilny, O. Polishchuk, and A. Matusevich, having carried out a detailed analysis of many psychological and pedagogical publications, emphasise the lack of a consensus among scientists regarding the structure of PC in FT of PE, and therefore their managerial readiness for pedagogical activity in the future.

At the same time, in their research, scientists highlight various *components in the structure of* formed competencies, and therefore the readiness of FT of PE for multi-directional PA:

- psychological, scientific-theoretical, practical, physical and psychophysical (as a holistic manifestation of the personality of a PE specialist) (Kiselev V. O., 2018, p. 29; Rybalko P., 2019, p. 238);
- cognitive-reflective, motivational-orientational, and operational-activity-based (as a result of PT in FT of PE) (Ishchuk V., 2013, p. 121);

- motivational, cognitive, procedural and reflective structural components (Ostanpenko G. O., 2013, p. 8).
- motivational, cognitive, practical-activity-based, reflective (Shurhal I. A., 2015, p. 267);
- motivational-value, cognitive, activity-based and personal (Atamas O. A., 2015, p. 7);
- axiological, gnoseological, praxeological and personal (Bezcopylny O. O., Polishchuk O. L., & Matusevich A. M., 2018, p. 24);
- motivational, cognitive, operational-activity, personal (Ivanenko O. O., 2023, pp. 40–41);
- motivational-value, content, activity-behavioural and personal (Kravchenko Yu. V., 2017, p. 103).

Thus, the analysis of the structure of the competencies formed by FT of PE in HEIs, which prepares them for various types of professional activities, indicates the importance of scientists defining structural components that are of significant theoretical and practical importance for the effective performance of professional functions by FT.

Within the scope of our scientific research, attention is focused on publications that reflect the FMC in FT of PE in HEIs under BL conditions (Chen R., 2024c; Chen R., 2024d), an analysis of the application of theoretical approaches to the FMC in FT of PE (Chen R., 2025b) and described pedagogical conditions for the formation of readiness to the MA in FT of PE (Chen R., 2024).

The FdMC in FT of PE is acquired in HEIs through complex structured professional education. We have identified the main components of the FdMC in FT of PE as their managerial readiness for future PA as motivational-value, cognitive, professional-activity, and reflective-developmental. A personal vision of the FdMC in FT of PE under BL conditions is presented in Fig. 2.1, in which the four components are interrelated and interdependent.

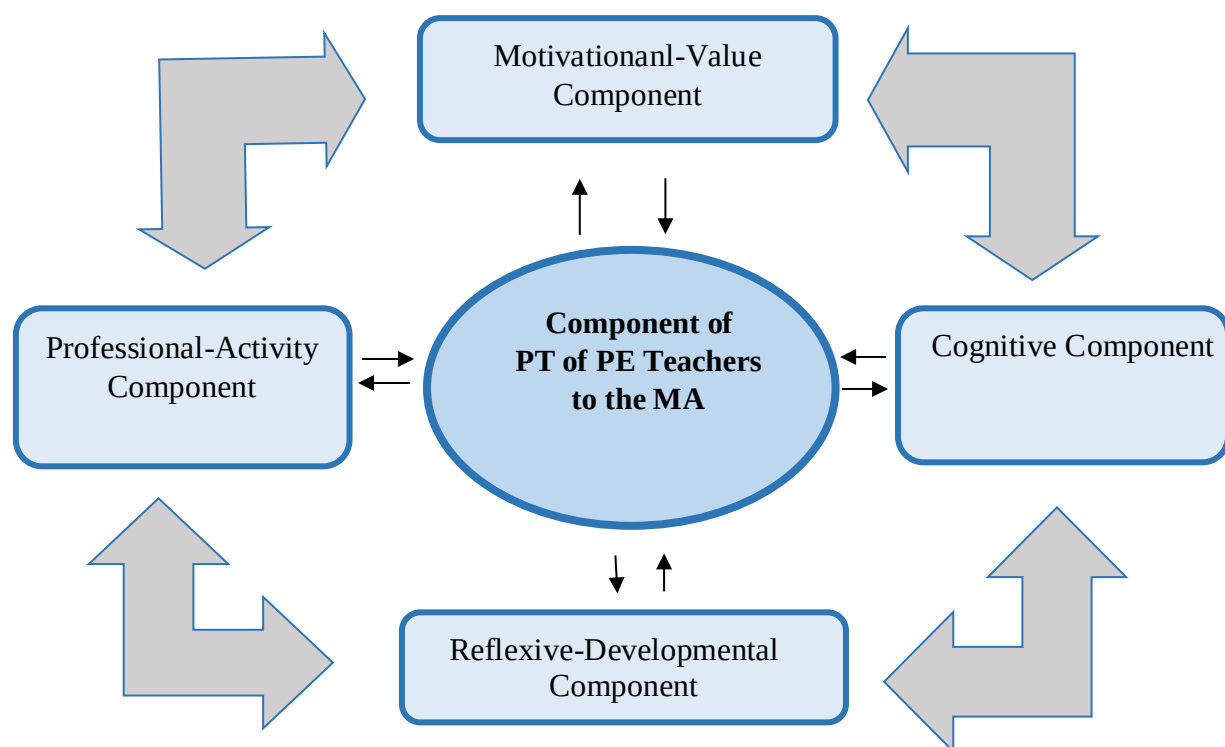


Fig. 2.1 Components of FMC in FT of PE in HEIs

1. The motivational-value component is system-forming, as it provides a reliable structure for the basic value qualities in FT of PE as specialists; it determines their motives, intentions, needs, positive attitude to their chosen profession, and focus on PA (PA). At the same time, this component encourages students to interact (at the teacher-student and student-student levels), achieve professional self-realization as a teacher-manager, and career growth in management (Pocheptsova N., & Bezushko S., 2025, p. 129). The formation of this component is determined by the personal criterion in FT of PE readiness for MA in GSEIs, while the indicators of FMC are identified as follows: interest, need, desire, and ability to conduct MA with students in GSEIs (see Tabl. 2.1).

The motivational and value component produces students' professional and pedagogical orientation and FMC necessary for the skillful conduct of PE classes with their focus on the values of this profession for civil society. FS, mastering the system of methods, means, and techniques for effective PA with GSEIs students helps define the main content of PE lessons, preserve the management experience gained during HEIs studies, and further reproduce it during classes and extracurricular activities.

Table 2.1**Structure of FMC in FT of PE as a result of PT in HEIs**

№ f/b	Component	Criteria	Indicators	Pedagogical Conditions
1.	Motivational-Value	Personal	1. Interest in PA. 2. Need for MA. 3. Aspiration for MA. 4. Ability to conduct effective MA.	Creating a motivational and value-based educational environment
2.	Cognitive	Knowledge	1. Knowledge of management theory. 2. Knowledge of pedagogy and other sciences. 3. Knowledge of management technology. 4. Knowledge of PE management.	Focus of PT disciplines on management activities
3.	Professional Activity	Activity	1. Ability to use regulatory and legal acts related to PE in GSEIs. 2. Ability to plan lessons and sports events. 3. Ability to make management decisions. 4. Ability to resolve non-standard professional situations.	The use of professionally oriented situations in vocational training
4.	Reflexive-Developmental	Reflexive	1. Ability to self-analyze. 2. Ability to self-assess management actions. 3. Creating your own image as a teacher-manager. 4. Creative approach to finding ways to eliminate shortcomings in PA.	Stimulating self-education activities

The motivational-value component takes into account the personal abilities of students, as it is important for teachers to learn self-awareness, reflection, and self-assessment of their activities in their management work. At the same time, the motivational-value component of the FMC is effectively ensured by the participation of FT in offline and online activities (interactive lessons; free training courses on managing lessons, sections, educational institutions; scientific and practical student conferences, etc.), which motivates FT of PE to FMC and, therefore, reflects a positive attitude towards the profession and the need to carry out MA in general.

The FMC based on the motivational-value component contributes to the effective use of active learning methods by HEIs teachers (group and, which are

determined by effective methods and techniques for conducting future PE classes and motivating FT to acquire theoretical knowledge for the possibility of its effective use in practice (Fig. 2.2).

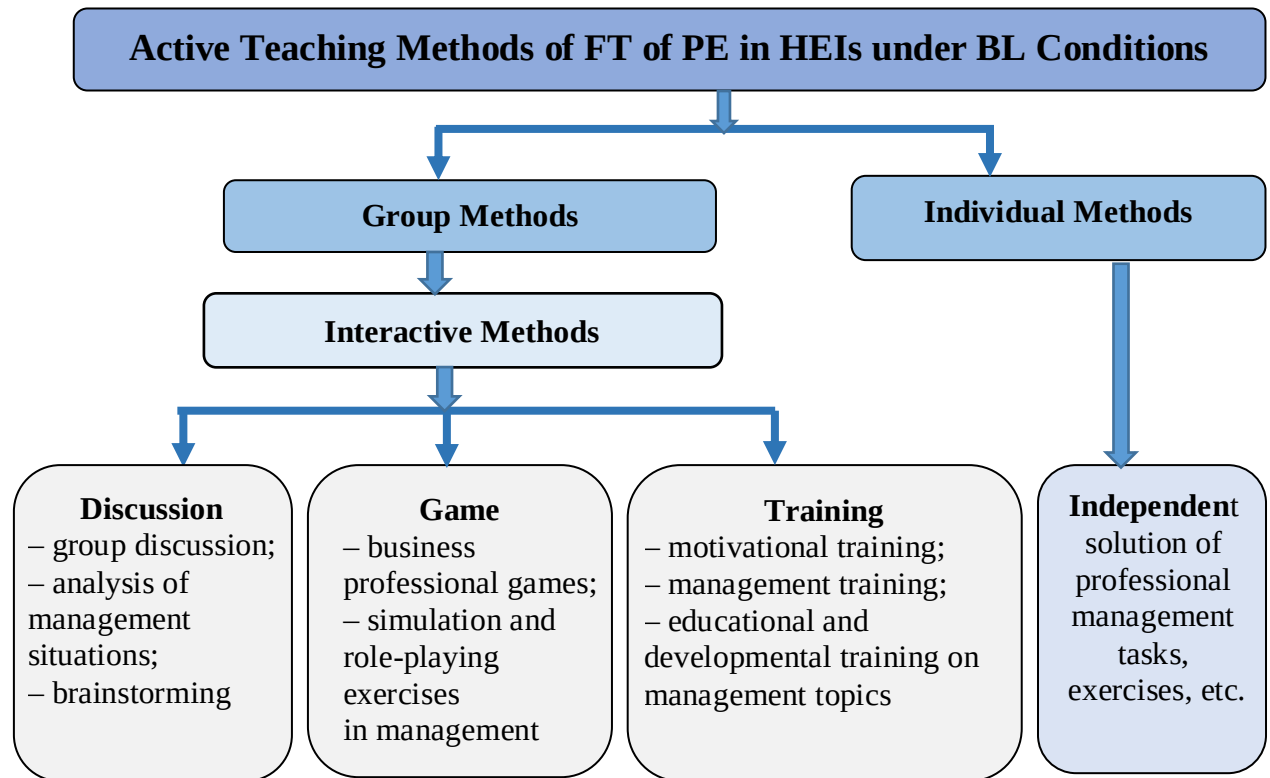


Fig. 2.2 Introduction of active teaching methods into the EP of FT of PE under BL conditions

The purpose of professional motivation of FT of PE under BL conditions is aimed at the effective use of ICT tools and students' awareness of professional and managerial values that are consistent with their personal interests, needs, aspirations, and abilities.

2. The cognitive component with a knowledge criterion reflects FT's educational readiness to perform professional and MA and their personal self-realization in the direction of FMC. This component serves as a measure of students' mastery of the system of knowledge (in management theory; pedagogy, psychology, and other sciences; management technology; PE management) that they inevitably need to carry out effective managerial PA. This component determines the formation of FT of PE

knowledge of the theoretical and conceptual foundations of management and the level of skills and abilities they have acquired in the field of educational management.

As noted by researchers N. Bashavets and K. Starikova, PE teachers are carriers of professional knowledge, effective skills and abilities, and are characterized by a high level of pedagogical mastery. This is due to the fact that their responsibilities include coordinating and managing activities related to the implementation of the PE plan in GSEIs, organizing student learning in PE classes and conducting extracurricular sports events, as well as establishing proper interaction with fellow teachers, the public, and parents to create optimal conditions for conducting PE lessons to promote health-preserving behavior among students. That is why knowledge is a decisive element and an effective outcome of PT of FS of PE in HEIs (Bashavets N. A. & Starikova K. V., 2021, p. 143). They are capable of holistically shaping the worldview of every educator (Myronchuk N., 2014, p. 21).

The cognitive component of learning organization under BL conditions introduces students to the importance of knowledge about research methods of management processes that occur in the work of a PE teacher and the skills to use them effectively in working with students, colleagues, and other participants in the EP. The role of the cognitive component in PT is to form a system of theoretical, methodological, and professional management knowledge that is fundamental to the teaching profession, as it enables an understanding of the conceptual and categorical apparatus, the construction of management relationships, and other related processes. At the same time, this component ensures the conscious and purposeful activity of the teacher in the education and development of HE seekers:

- intellectual and fundamental skills (effective command of mental and managerial operations through detailed analysis, synthesis, and comparison);
- information and communication skills (independent work with of scientific and reference literature, effective use of ICT for learning and management purposes, and the establishment of communication and managerial links between all participants in the EP);

- diagnostic skills (effective application of management methods in PA methods including observation and surveying applications of management methods in PA participants in educational management to improve MA);
- interpretive skills (providing objective assessments of pedagogical management situations and recording them in tables, figures, and diagrams).

Cognitive processes serve as internal regulators for FT of PE, helping to obtain, interpret, and store necessary information and reproduce it when needed.

Thus, we reveal the cognitive component of the FMC in students using a knowledge criterion, which ensures timely diagnosis and monitors students' PT in acquiring the specified competence. This component is determined using the following indicators: the formation of knowledge in management theory, pedagogy, and other sciences, management technologies, and PE management itself (Table 2.1). The cognitive component with the knowledge criterion is implemented in the EP of students who participate in professional management seminars, trainings, webinars, round tables, etc., during which management knowledge ready for use in PT is acquired and independently designed pedagogical and management activities are activated. ICT under BL tools contribute to the creation of suitable conditions in HEIs for the acquisition of fundamental knowledge of managing the EP in FT of PE in GSEIs. At the same time, FT awareness of the specifics of management activities is a decisive condition for their effective readiness for this type of PA.

3. The professional-activity component reveals the readiness for continuous professional and managerial development in the pedagogical activity of a FT of PE. It is closely related to the development and change of the student's own qualitative characteristics, which affects the conduct of the EP in the future and the purposefulness of the teacher. Thus, the professional-activity component combines the pedagogical and managerial-sports activities of FT and covers the sports and pedagogical skills acquired in HEIs, which relate to the implementation of modern methods of PE in the EP of GSEIs; project and MA; modern techniques, methods, and innovative educational technologies for effective teaching.

The professional-activity component is related to addressing the educational and training tasks and contributes to the effective organization of sports and mass work management at the level of the educational institution. It reveals awareness of one's own PA, determines the personal capabilities in identifying the ways to effectively manage the EP in FT of PE, and clarifies the identification of one's own skills in monitoring the results of the future physical development of students and their personal achievements.

Thus, the professional-activity component can highlight the possibilities for effective testing of professional and managerial knowledge and skills acquired in HEIs in practice of FT of PE, with the aim of effective planning of the EP, its organization and management; generating new ideas; introducing new methods, scientific approaches, and modern educational technologies.

The activity criterion and its corresponding indicators, which reflect the ability of FT to use regulatory and legal acts when conducting classes, plan lessons and sports events, make management decisions, and resolve non-standard professional situations, allow determining the level of FdMC in students in HEIs and, consequently, their readiness for MA in PE in GSEIs. The involvement of FT in various activities during their studies (participation in scientific, educational, and sporting events, which are held with the active participation of students as organizers of these events) forms this competence in them, which allows them to successfully solve complex pedagogical and managerial situations in the future and carry out MA at the appropriate level.

At the same time, the activity criterion can ensure positive professional and practical outcomes in FT in simulated management situations and is related to the students' ability to personally reflect on their professional actions and deeds through their in-depth understanding in order to respond to unresolved problems as promptly as possible. The level of development of the socio-professional management position in FT of PE provides an insight into the degree of their internal acceptance of both a new social role and awareness of social requirements for PA.

Scientist V. Tsaruk notes that currently, a number of requirements are imposed on PE specialists related to their acquired scientific and practical knowledge,

professional skills, and expertise. These requirements relate to future pedagogical activities (which include professional management activities), namely:

- Design activities. Ensures that students master the skills of independent planning of PE work, selection of necessary innovative pedagogical technologies that are appropriate for conducting effective PE classes and organizing physical and mass work of schoolchildren.
- Didactic activities. Ensures the high quality of the EP aimed at the harmonious development of students and the formation of their skills in adopting a healthy lifestyle.
- Analytical activity. Leads to the necessary analysis and evaluation of EPes and the results of PA; serves as a fundamental basis for self-analysis and the development of personal management skills.
- Communicative activity. Helps to implement managerial decisions in one's own practical activities.
- Organizational activity. Contributes to the successful implementation of educational, practice-oriented, and MA of students in various sociocultural conditions and in an intercultural environment.
- Diagnostic activity. Allows to diagnose (observe student behavior; conduct surveys, tests, interviews with students and their parents; keep a pedagogical diary to track the dynamics of behavioral changes) manifestations of deviant and antisocial behavior in students. (Tsarkuk V. P., 219, p. 172)

The specified types activities and the requirements for FT of PE and their professionalism in terms of the professional and activity component contribute to the proper formation of a favorable microclimate in the classroom by the teacher, support communication with students on an equal basis, and encourage them to communicate positively with each other; help students analyze and personally evaluate the physical abilities acquired in GSEIs; support the effective management of the process of completing tasks set for students and colleagues, etc.

Thus, the FdMC within the professional-activity component allows FT of PE to effectively use various management methods and techniques in pedagogical activities, and the management knowledge, skills, and abilities acquired during the period of

study at HEIs are a prerequisite for the effective implementation of critical analysis of the final management results of professionally conducted work in the field of PE.

4. The reflective-developmental component reveals in the personality of the future teacher a set of important professional qualities necessary for the proper implementation of management activities in GSEIs. Scientist O. Soltik associates the formation of a PE specialist as the teacher's activity aimed at both personal growth and the development of students. Thus, an important task addressed in PE lessons is the education of well-rounded and healthy personalities, as PE strengthens the health of each student and contributes to the development of their physical, moral, intellectual, and volitional abilities. Accordingly, this component ensures the PA of the teacher, focused on fostering an active life position in every student (Bogatov A. O., 2016; Soltik O., 2017, p. 77). The reflective-developmental component promotes the individual professional self-development and self-realization of FT of PE based on universal human values and solves the problems of internal development, which manifests itself in students' desire for self-analysis of PA, broad generalization and structured understanding of their own management experience, as well as in providing an objective assessment of the work carried out with schoolchildren both during and beyond classroom activities, etc.

To determine the level of FMC in FT of PE to PA within GSEIs, a reflective criterion was chosen, characterized by the ability to perform self-analysis of PA, self-assessment of management actions, creation of one's own image (portrait) of a teacher-manager, finding ways to eliminate shortcomings in PA, using a creative approach to overcoming professional mistakes. Based on this criterion, we evaluated the teacher's professional skills and abilities to determine the effectiveness of their own pedagogical and self-educational activities, as well as determined the level of awareness in managerial decision-making and the ability to correct actions after self-analysis, aimed at stimulating professional and personal growth.

Thus, the readiness for effectively carrying out MA within GSEIs of FT of PE can be seen in the formation of this competence in students and manifests itself in their sustained motivation to properly carry out management activities in the future;

effective acquisition of knowledge in the field of PE management; ability to maintain feedback and constructive interaction with students, colleagues, and parents, capacity to make informed managerial decisions; and ability to conduct an objective assessment of their own pedagogical and managerial performance. Altogether, these qualities serve as the key condition for the professional and personal development of PE teachers in GSEIs and as the main prerequisite for their managerial advancement.

The criteria for the FMC, and thus for the readiness of PE teachers for pedagogical activities, are the degree of manifestation of personal, cognitive, activity-based, and reflective components. These criteria make it possible to determine the effectiveness of the FMC in students in the process of PT in HEIs and, together with the corresponding indicators, to define the levels of its development. Therefore, we distinguished four levels of FMC in accordance with the defined criteria and indicators:

1) Low (basic) level. This level implies the absence or presence of insignificant manifestations of individual and personal management qualities determined by the nature of the future PA; low interest in the activities of the PE teacher; intuitive implementation of MA without any creative approaches to solving problematic tasks; lack of understanding of the need to FMC; lack of desire for reflection and self-assessment of one's own PA; insignificant desire for self-development in this professional field.

2) Satisfactory (productive) level. Determines FT's conscious desire to use acquired knowledge of management theory and technology and PE management within the framework of management activities in an educational institution. This level of management competence is characterized by individual mistakes, which indicate that students have a low level of systematic thinking regarding the skillful use of regulatory and legal documents and management decision-making, while management activities themselves are based on examples, facts, and models. However, FT students show a desire to fill in the gaps in their knowledge related to management activities.

3) Sufficient (optimal) level. Demonstrates independent selection of managerial decisions and implementation of PA based on the theoretical management knowledge present in FT and the corresponding level of practical skills in the effective use of

pedagogical tools, techniques, and methods of action, which are an important condition for the successful solution of managerial tasks. The sufficient level is characterized by high motivation for MA; the ability to plan lessons and sports events using, if necessary, management levers of influence to resolve non-standard professional situations; the ability to focus on oneself for self-analysis; the creation of one's own image as a teacher-manager, taking into account professional interests and personal abilities; the ability to find ways to optimize and eliminate professional mistakes in pedagogical activities. FT of PE who have reached this level are characterized by motivation to update, produce, apply, and enrich managerial knowledge in PA.

4) High (perfect) level. Reflects the FT's desire to effectively solve managerial tasks and successfully apply the knowledge of management theory, practice-oriented management skills and abilities acquired during PT in order to properly organize the educational environment. FTs who meet the high level of FMC in HEIs demonstrate a consistent need for MA, the ability to self-assess managerial actions, and active management self-development and creative cognitive search in the field of PE management. These developed management qualities in FT are manifested in satisfaction with the management activities performed and their high effectiveness.

Thus, the FMC in FT of PE in HEIs under BL conditions occurs in the process of interaction between such components as: motivational-value, cognitive, professional-activity, and reflective-developmental. This formation affects one's own motivation, need, and desire for MA and manifests itself in the effective mastery of fundamental knowledge of management theory and technology, pedagogy, and management in the field of PE; the ability of PE teachers to use regulatory and legal documents in PA and make informed managerial decisions in various professional situations; the ability of students who perform the functions of a teacher-manager and are in this role during PT to self-analyze and self-evaluate personally accepted managerial decisions; the ability to creatively approach finding ways to eliminate shortcomings in PA.

The scientific and theoretical justification of the structure of FdMC in FT of PE in HEIs under BL conditions and its schematic representation create conditions for the

substantive content of this competence and make it possible to substantively fill this competence, since there is a need for it in order to conduct effective PA.

The structure of FdMC, which contains components, criteria, indicators, and levels of such formation, is a key prerequisite for determining the pedagogical conditions for its effective formation.

2.2. Pedagogical conditions for developing the managerial competence of future physical education teachers in higher education institutions

The concept of «condition» in pedagogy is considered a basic category that denotes a set of circumstances on which the course and outcome of a particular process depend. In a broad sense, conditions are external and internal factors that directly influence the formation of knowledge, skills, and personal development. As researcher N. Nychkalo emphasizes, conditions cannot be reduced to just the environment or context – they encompass the patterns of the pedagogical process, its organizational and methodological components that determine the effectiveness of PT (Nychkalo N. G., 2010). It is important to note that the concept of conditions in pedagogy is always related to the goals of teaching and education: it reflects the parameters that make it possible and effective to achieve the set educational goals. This approach allows us to reveal the systematic nature of the category of «conditions» and emphasize its dependence on the scientific and methodological foundations of pedagogical activity (Nychkalo N. G., 2010).

The concept of «pedagogical conditions» in scientific research is multidimensional and is interpreted as an integrative formation that combines factors, principles, methods, forms, and resources of the EP. As noted by researcher O. Dubasenyuk, pedagogical conditions are a complex of external and internal factors purposefully created by the teacher to achieve certain educational results, in particular the formation of competencies or the development of personal qualities (Dubaseniuk O. A., 2012). This definition emphasizes the active role of the teacher, who not only reacts to circumstances but also purposefully constructs them.

Researchers S. Sysoieva and O. Savchenko add a systemic dimension to this concept, considering pedagogical conditions as a set of factors, principles, and methods that ensure the optimal course of learning and education. (Sysoieva S. O., 2011; Savchenko O. Ya., 2018). This approach to interpreting the concept allows us to consider pedagogical conditions as a system of interrelated components that ensure the achievement of the goals of the EP.

It is also important that pedagogical conditions differ from general conditions precisely in the presence of purposeful pedagogical activity. If general conditions can be considered as background factors (social, cultural, material), then pedagogical conditions always have the characteristic of special organization. As emphasized by scientists L. Luzan and L. Osipova, it is the purposefulness of pedagogical activity that ensures the effectiveness of the EP and distinguishes pedagogical conditions from general ones. (Luzan L., 2014; Osipova L., 2016). We will examine the FMC of FT of PE in HEIs under BL conditions through the prism of a complex of scientific approaches (described and characterized in subsection 1.4) that ensure the integrity of the pedagogical process. This allows us to see the differences in the interpretation of the category, identify common features, and determine classification emphases that will form the basis for further generalization (see Tabl. 2.2).

An analysis of the data summarized in Table 2.2 shows that most researchers view pedagogical conditions as a specially organized system of factors aimed at achieving educational goals. As emphasized by researchers N. Nychkalo and S. Sysoieva, in this context, the emphasis is placed on the methodological and systemic nature of conditions. (Nychkalo N. G., 2010; Sysoieva S. O., 2011). At the same time, researchers O. Dubasenyuk, L. Luzan and O. Pelekh focus on their organizational and content characteristics. (Dubaseniuk O. A., 2012; Luzan L., 2014; Pelekh O. V., 2015), whereas researcher L. Osipova emphasizes the dynamism and managerial orientation of pedagogical conditions. (Osipova L., 2016). This discrepancy allows us to conclude that pedagogical conditions are an integrative concept that combines methodological, organizational, content, and activity components. This is precisely what gives us reason

to interpret them as a multidimensional entity that ensures the effective FMC in FT of PE.

Table 2.2

Approaches to defining the concept of «pedagogical conditions» in scientific research

Author	Definition	Key accents	Classification feature
Nychkalo N. G. (2010)	Conditions are the patterns of the pedagogical process, its organizational and methodological components, on which the effectiveness of training depends.	Systematicity, methodological determinism	Methodological
Dubaseniuk O. A. (2012)	A set of external and internal factors purposefully created by the teacher to achieve results.	Active role of the teacher, purposefulness	Organizational and subjective
Sisoeva S. O. (2011)	A set of factors, principles, and methods that ensure the optimal course of education and upbringing	Systemic approach, comprehensiveness	Methodological and content-related
Savchenko O. Ya. (2018)	Components that create optimal conditions for student learning and development	Optimization, personal development	Content and organizational
Luzan P. G. (2014)	A system of organizational and substantive decisions aimed at training specialists	Role model, special organization	Organizational and substantive
Osipova T. Yu. (2016)	Dynamic conditions that change in response to the challenges of the educational environment, aimed at FMC	Dynamism, focus on management	Operational and organizational

Thus, «conditions» is a general category that reflects the set of factors on which the effectiveness of the EP depends, while «pedagogical conditions» are specially organized, scientifically based, and practically implemented components of the educational environment that ensure the effective formation of competencies and the development of the personality of the learner. The theoretical justification for the choice of pedagogical conditions is a key stage, as they determine the logic and FMC process effectiveness in FT of PE. Each of the selected conditions is based on scientific and pedagogical principles and reflects a systematic approach to the organization of the educational environment.

International scientific literature is paying increasing attention to pedagogical conditions, in particular the motivational environment, integration of disciplines, practice-oriented methods, and self-education, especially in teacher training and HE in general. As emphasized by researcher J. Botha and his colleagues, self-directed learning is directly related to the motivational attitudes of students under BL conditions, which indicates the importance of internal motivation and autonomy in the learning environment (Botha J., et al., 2023). A study by Y. Zhao and his colleagues shows that internships or practical work during FT (field teaching practice) training has a significant impact on the formation of professional identity, motivation, and beliefs about the profession (Zhao Y., Zhang H., et al., 2023). In particular, the integration of theory and practice through practice-oriented tasks and mentoring enhances awareness of managerial and pedagogical functions and adds specificity to the content of disciplines. Other studies concern self-education, self-regulation, and learning management. Thus, researchers Y. Zhao, R. Ren, W. Yang, et al. argue that student self-management correlates with their academic achievement through the mediating role of self-efficacy, and find that high levels of self-management and self-assessment skills significantly increase learning effectiveness (Zhao Y., Ren R., Yang W., et al., 2024). This confirms that the condition of stimulating self-educational activity is not a secondary but a key component of the EP.

International studies that go beyond the immediate PT of FT also pay considerable attention to the learning environment – elements such as recognition, interaction between students, and a sense of belonging, which shape motivation and belief in the acquisition of practice-oriented knowledge. As noted by researchers S. Cwik, K. Whitcomb, and C. Singh, a study of the learning environment in PE courses at a US university found that perceived recognition significantly influences students' motivation, belief in themselves, and their abilities (Cwik S., Whitcomb K. M., & Singh C., 2020). A similar opinion is held by researchers Y. Li and C. Singh, who proved that a sense of belonging is an important predictor of students' academic success and significantly shapes their interest and confidence in their own abilities (Li Y., & Singh C., 2023).

In light of the above-mentioned studies, it is useful to compare the practical strategies used in different countries to implement motivational environments, integrate disciplines, practice-oriented methods, and self-education (see Tabl. 2.3).

Table 2.3

Examples of foreign practices for implementing pedagogical conditions in teacher training in higher education

Country / author(s)	Pedagogical condition	Examples of practice	Consequences/results
SAR (Botha, J., et al..)	Self-education activities / motivational environment	Application of <i>scale/self-directed learning</i> modules, organization of learning activities, independent work by students, support for internal motivation to set goals independently	Improving students' perception of their own abilities, better self-esteem, increased confidence and responsibility for the learning process
China (Zhao, Y., Zhang, H., et al...)	Practice-oriented methods / integration of disciplines	Field teaching practice, mentoring, assignments with elements of practical application of theory; disciplines that include management tasks within the scope of pedagogical training	Growth of professional identity, more realistic assessment of the profession, increased motivation focused on the intrinsic value of the profession
USA (S. Cwik, K. Whitcomb, C. Singh.)	Motivational environment	Emphasizing student recognition, creating a supportive community, working on a sense of belonging, interaction between students; laboratory and other practical components of disciplines	Improving motivational beliefs, increasing interest and self-confidence, reducing the gender gap in the perception of the subject
Different countries / university (Li Y., & Singh C.)	Integration of disciplines / content components	Interdisciplinary courses that combine educational administration, pedagogy, and psychology; themes within disciplines that require a management perspective; collaboration between departments	Strengthening understanding of the links between theory and practice, readiness for complex activities, deeper assimilation of knowledge

A review of foreign studies shows that throughout the world, pedagogical conditions such as a motivational environment, integration of disciplines, practice-

oriented methods, and stimulation of self-education activities are not considered optional additions, but serve as key factors in the effectiveness of educational programs. Practical examples prove that the implementation of these conditions contributes to the enhancement of professional identity, motivation, internal value orientation, and greater readiness for managerial and pedagogical activities. Therefore, it is important that pedagogical conditions include these elements as integrated components that are theoretically sound and empirically proven.

Thus, foreign and domestic experience presented in scientific studies confirms the need for a comprehensive approach to the selection of pedagogical conditions, where each component plays a decisive role in the FMC. The generalization of the results obtained creates the basis for a more detailed consideration of each condition separately, which makes it possible to identify their specifics, features of their practical implementation, and expected results in the process of PT of FT of PE in HEIs under BL conditions.

Firstly, the creation of a motivational and value-oriented educational environment is a basic prerequisite, because without the internal interest of students, management knowledge and skills remain formal. As noted by researcher V. Zaritska, it is precisely a value-oriented environment that can activate students' internal motivation and direct it toward the development of management qualities, which ensures not only the acquisition of knowledge, but also the formation of stable professional attitudes (Zaritska V. V., 2017). A similar opinion is held by scientist I. Voloshchuk, who emphasizes that the FMC requires an environment where students are involved in active activities and see personal value in their future managerial role (Voloshchuk I. S., 2019). Therefore, this condition is decisive for ensuring FT's subjective position.

The practical implementation of a motivational and value-based educational environment in HEIs involves the introduction of tools such as student projects, interest clubs, mentoring and tutoring programs, which create space for the development of leadership and management skills. Scientific and practical conferences, participation in grant or social initiatives play an important role in forming a sense of responsibility

and involvement in a common cause among students. It is precisely the involvement of students in such activities that allows them to realize the value of their own contribution to the development of the professional community, which strengthens their internal motivation and forms stable value orientations, without which MC would remain purely declarative.

Secondly, the focus of PT disciplines on management activities directly correlates with the concept of a competency-based approach. As noted by researcher S. Gapenko, management competence cannot be formed spontaneously, as it requires the purposeful selection of educational content, where pedagogical disciplines integrate a management component (Gaponenko S., 2021). Scientist O. Pelekh emphasizes that it is pedagogical disciplines that should create the right conditions for the formation of PC, and their content should be oriented toward future management practice. (Pelekh O. V., 2015). This approach allows FT to comprehend the training material through the prism of MF and gradually integrate them into its own activities.

On a practical level, this condition is implemented through the integration of management modules into traditional pedagogical courses. In some universities, interdisciplinary programs are effective, where management competencies are developed in conjunction with psychological, sociological, and legal knowledge. This allows students not only to master MF within the framework of abstract theory, but also to see their connection with future practical activities in schools and sports organizations. Thus, PT disciplines become an environment where the management component becomes an organic element of the educational content.

Thirdly, the use of professionally oriented situations in the training process contributes to the transfer of knowledge from the theoretical to the practical plane. As emphasized by researcher T. Osipova, modeling professional situations in training is an important factor in the FMC, because it is in problematic or conflict situations that FT gain experience in decision-making (Osipova T. Yu., 2016). Scientist S. Gapenko emphasizes the effectiveness of management training, which directly depends on the creation of conditions that are as close as possible to the realities of the educational and sports environment (Gaponenko S., 2019). The use of case studies, role-playing games,

training sessions, and analysis of specific situations allows students to gain experience in strategic and tactical thinking, which is an integral part of MC.

The implementation of this condition in the EP includes the widespread use of simulations, role-playing games, and case studies that reproduce real management challenges in an educational or sports environment. Students have the opportunity to try out different decision-making models, evaluate their effectiveness, and learn to act in conditions of uncertainty or conflict. Internships in schools or sports clubs are also an important way to implement this condition, as they allow FT of PE to encounter management tasks in practice: organizing competitions, allocating resources, interacting with parents and colleagues. Such experience not only enriches students with practical skills, but also builds confidence in their own abilities.

Fourth, encouraging self-education is particularly important in the context of dynamic educational changes. As noted by researcher T. Kaliuzhna, it is precisely the ability to engage in continuous professional self-development that is the key to successful teaching (Kaliuzhna T., 2021). She emphasizes that without developing self-education skills, FT risk remaining at the level of reproducing knowledge, while MC requires the ability to quickly update knowledge, adapt to new challenges, and be ready for innovative solutions. This condition is also consistent with the approach of foreign scientist J. Botha and his colleagues, who see self-education as the basis for self-determination and transformational development of teachers (Botha J., et al., 2025). Encouraging self-directed learning in the context of the digital transformation of education involves the active use of electronic platforms (Moodle, Coursera, Prometheus), the creation of individual educational trajectories, and the maintenance of digital self-assessment and reflection journals. Student participation in academic mobility programs, international webinars, and online courses contributes to the formation of skills for continuous knowledge updating. It is important that self-education activities are not limited to additional reading or attending courses: they are integrated into the EP through mandatory individual assignments, portfolios, and project work. In this way, FT students acquire the ability to independently set educational goals, plan their own development, and take responsibility for its results.

Theoretical analysis of the outlined pedagogical conditions shows that they are the basis for the effective FMC in FT of PE. The selected conditions reflect the integration of leading scientific ideas and practical approaches: from the creation of a favorable educational environment and the organization of discipline content to the introduction of professionally-oriented tasks and the development of self-education skills. As scientists note, only a systematic combination of these components allows achieving the effectiveness of the EP and ensuring the readiness of FT for MA.

To further verify the relevance and significance of these conditions, an expert assessment was conducted to determine the priority of each of them. The summarized results are presented in Tabl. 2.4.

Table 2.4

Theoretical justification of pedagogical conditions for FMC in FT of PE

№ f/b	Pedagogical condition	Theoretical rationale	Scientists
1	Creating a motivation-value-based educational environment	Ensures the internal interest of students, activates their motivation, forms professional attitudes and a subjective position FT	Zaritska V. V. (2017); Voloshchuk I. S. (2019)
2	Focus of PT disciplines on management activities	Integrates the management component into the content of pedagogical disciplines, allows students to comprehend the material through the prism of MF, and develops competencies focused on future practice.	Gaponenko S. (2021); Pelekh O. V. (2015)
3	The use of professionally oriented situations in the EP	Simulation of professional situations, case studies, role-playing games, and training sessions contribute to gaining experience in decision-making, developing strategic and tactical thinking, and forming practical management skills.	Osipova T. Yu. (2016); Gaponenko S. (2019)
4	Encouraging self-education	Developing the ability to continuously self-improve and update knowledge; using digital platforms, individual educational trajectories, and participating in academic mobility programs ensure readiness for innovative solutions.	Kalyuzhna T. (2021); Botha J. et al. (2025)

The identified pedagogical conditions reflect a systematic approach to FMC in FT of PE, covering motivational-value, cognitive, professional-activity, and reflective-developmental components. Their theoretical validity confirms the feasibility of further practical verification, which was implemented through expert evaluation, the

results of which clearly demonstrate the priority and significance of each of the conditions.

An important component of the rationale for the pedagogical conditions for the FMC is the detailing of their content and practical manifestations in the EP. The theoretical analysis showed that each of the conditions has its own methodological origins and proven significance in scientific literature. At the same time, to ensure a comprehensive understanding, it is necessary to specify the tools, forms, and means used to implement these conditions in HEIs. It is the systematization of such examples that allows us to see not only general conceptual approaches but also practical mechanisms that contribute to the FMC in FT of PE. To this end, the summarized materials are presented in the form of an expanded table (see Tabl. 2.5).

Table 2.5

Practical tools for implementing pedagogical conditions of FMC in FT of PE

Pedagogical condition	Examples of implementation tools	Expected outcomes
Creating a motivational and value-based educational environment	– student scientific and practical conferences; – participation in sports and organizational projects; – mentoring and tutoring; – interest clubs aimed at developing leadership skills.	Strong internal motivation; development of value orientations; formation of a positive attitude towards management activities
Focus of PT disciplines on management activities	– integration of management modules into pedagogical courses; – development of special disciplines «Pedagogy», «Theory and Methods of PE»; – interdisciplinary courses with elements of management.	Awareness of MF in the content of disciplines; readiness for practical application of management knowledge
Use of professionally oriented situations in PT	– analysis of case studies and specific management situations; – role-playing games and conflict simulations; – decision-making training; – internships in sports organizations.	Development of strategic and tactical thinking; ability to make decisions in real-life situations; readiness to solve problems
Encouraging self-education	– creating individual educational trajectories; – using electronic platforms (Moodle, Coursera, Prometheus); – keeping electronic self-assessment diaries; – participating in mobility programs and webinars.	The ability to engage in continuous professional self-development; the development of autonomy; responsibility for learning outcomes

The analysis of practical tools for implementing pedagogical conditions of FMC in FT of PE, presented in Table 2.5, confirms that each pedagogical condition can be implemented through specific organizational and methodological tools. Their use creates a holistic system that encompasses both the internal motivation of students and the content of academic disciplines, practical experience in modeling professional situations, and individual trajectories of self-development. It is the combination of these components that provides a systemic effect and allows achieving high outcomes in FMC in FT of PE. Thus, the proposed structure of pedagogical conditions demonstrates not only their theoretical validity, but also their real practical value for HE. The theoretical analysis conducted allows us not only to identify four key pedagogical conditions of FMC, but also to substantiate their methodological and practical significance. At the same time, it is important to check how these conditions correspond to the positions of specialists who directly implement FT of PE training and organize the EP. For this purpose, an expert assessment was conducted, which made it possible not only to quantitatively confirm the identified theoretical positions, but also to determine their relative priority in the structure of FMC.

The selection of four pedagogical conditions has both theoretical and practical foundations. They cover the key aspects of FMC: motivational-value, cognitive, professional-activity, and reflective-developmental. This structure ensures the integrity of FT of PE training and is consistent with current trends in pedagogical science and practice. On this basis, it became expedient to conduct an expert assessment, which allowed not only to confirm their significance, but also to establish the priority of implementation.

In the process of substantiation of the choice of pedagogical conditions of FMC in FT of PE the expert assessment method was used. The expert group included 20 specialists: HEIs lecturers with experience in teaching PT disciplines, those responsible for developing educational programs, as well as practitioners-organizers (stakeholders) of PE and sports activities who directly face management challenges in their work. This composition of experts ensured a multifaceted approach and allowed for a

comprehensive assessment of the significance of pedagogical conditions, taking into account scientific and practical positions.

The expert group includes specialists with proven scientific and practical experience in the field of PT of FT of PE. In particular, four experts are doctors of pedagogical or psychological sciences who research issues related to the competency-based approach in HE; 11 experts have a candidate of sciences degree and more than 10 years of teaching experience in HEIs; and 5 other participants represent the practical segment – heads of sports organizations and methodologists directly involved in the organization of PE and sports activities. The choice of 20 experts is based on the principle of sufficient representativeness: on the one hand, this number allows for a variety of viewpoints and ensures diversity in assessments, and on the other hand, it avoids excessive complexity in data collection and analysis. This approach is in line with generally accepted recommendations in pedagogical research, where a group of 15–25 experts is considered optimal for achieving reliability and consistency of results.

The data collection procedure was carried out by means of a questionnaire, in which experts assessed the significance of each of the four defined conditions: creation of a motivational and value-oriented educational environment; focus of PT disciplines on management activities; use of professionally-oriented situations in training; stimulation of self-education activities. A five-point scale was used for this purpose, where 1 point corresponded to the minimum level of importance of the condition and 5 points to the maximum. This scale is easy to understand and at the same time provides quantitative indicators suitable for further statistical analysis.

After collecting the questionnaires, the data was processed using several stages of analysis. First, the average score for each pedagogical condition was determined, which allowed them to be arranged in order of importance and ranked. Next, the coefficient of variation (V) was calculated, which shows the level of consistency of assessments: the lower its value, the more unanimous the experts' opinions were. In our case, the coefficient of variation did not exceed 10%, which indicates a sufficiently high level of consistency in assessments and confirms the reliability of the results. To

verify consistency in a more rigorous statistical measurement, Kendall's coefficient of concordance (W) was also used.

This indicator allows us to determine whether there is a statistically significant correlation in the experts' judgments regarding the ranking of conditions. Its value ranges from 0 to 1: the closer to 1, the greater the consistency. The calculation was performed using the classic formula, which takes into account the sum of the squares of the deviations of the rank assessments from the average value, the number of experts, and the number of conditions assessed. The resulting consistency coefficient of over 0.7 indicated a fairly high degree of consensus.

The selection of pedagogical conditions for the FMC in FT of PE was based on a combination of theoretical and methodological analysis and quantitative confirmation of their significance using expert assessment methods. The expert group included 20 specialists – HEIs teachers, educational program methodologists, and organizers of PE and sports activities. This made it possible to combine the academic view of the problem with the practical demands of the modern education system. The experts evaluated the four specified conditions on a five-point scale, where 1 point meant minimal significance and 5 points meant maximum significance.

At the first stage, the average score for each pedagogical condition was determined using the formula:

$$X = \frac{\sum_{i=1}^m x_i}{m}$$

where: X is the average score; x_i is the score given by the i -th expert; m is the number of experts.

The calculations were carried out in several stages. First, the indicators for each condition were determined using the average value formula. For example, for the condition «creation of a motivational and value-based educational environment», the experts gave the following scores: 5, 5, 4, 5, 5, 4, 5, 5, etc. Summing up the scores of all experts, we obtained a number of 96 from 20 experts and dividing it by the number of evaluators (20), we obtained an average value of $X = 4.8$. Similarly, the average values for the other three conditions were calculated. In the second stage, the standard

deviation σ was determined, after which the coefficient of variation V was calculated using the corresponding formula. This made it possible to assess not only the level of significance of each condition, but also the degree of consistency of expert judgments. The intermediate calculations of the average score and coefficient of variation for pedagogical conditions are presented in Tabl. 2.6.

Table 2.6

Example of intermediate calculations of the average score and coefficient of variation for specific pedagogical conditions

Pedagogical condition	Examples of individual assessments (20 experts)	Total points	Average score (X)	Standard deviation (σ)	Coefficient of variation $V = \sigma/X \cdot 100\%$
Creating a motivational and value-based educational environment	5, 5, 4, 5, 5, 4, 5, 5, 5, 4, 5, 5, 4, 5, 5, 4, 5, 5, 4, 5	96	4,8	0,36	7,5 %
Focus of disciplines on management activities	5, 4, 5, 4, 5, 4, 4, 5, 4, 5, 5, 4, 4, 5, 5, 4, 4, 5, 5, 4	92	4,6	0,38	8,2 %
Use of professionally oriented situation	5, 4, 4, 5, 4, 5, 4, 5, 5, 4, 4, 5, 4, 5, 4, 4, 5, 4, 5, 4	90	4,5	0,41	9,0 %
Encouraging self-education	4, 4, 5, 4, 4, 5, 4, 4, 5, 4, 4, 5, 4, 4, 5, 4, 4, 5, 4, 4	86	4,3	0,45	10,5 %

Table 2.6 shows data illustrating how the average value is formed from the initial assessments, as well as how σ and V are calculated. This allows us to trace the entire calculation process – from the questionnaire to statistical generalization. The calculations showed that the creation of a motivational and value-based educational environment received an average score of 4.8; the focus of PT disciplines – 4.6; the use of professionally-oriented situations – 4.5; the stimulation of self-educational activities – 4.3. This provided grounds for ranking the pedagogical conditions in order of importance.

The second stage was to calculate the coefficient of variation, which allows us to assess the consistency of expert opinions:

$$V = \frac{\sigma}{X} * 100\%$$

where: V is the coefficient of variation; σ is the standard deviation; X is the average score.

Calculations showed that the coefficients of variation ranged from 7.5% to 10.5%, which indicates a fairly high level of consistency in the assessments (in pedagogical research, it is considered that $V < 15\%$ confirms the reliability of the results).

At the next stage, Kendall's coefficient of concordance (W) was used to verify the deeper consistency of expert judgments. It is calculated using the following formula:

$$W = \frac{12 * S}{m^2(n^2 - n)}$$

where: m – number of experts, n – number of conditions evaluated, $S = \sum_{i=1}^n (R_i - R)^2$ – sum of squares of deviations of rank sums, R_i – sum of ranks of the i -th condition, R – the mean of the sum of ranks.

The calculations yielded a value of $W = 0.73$, which corresponds to a high level of agreement. The χ^2 criterion was used to verify statistical significance.

$$\chi^2 = m * (n - 1) * W$$

In our case $\chi^2 = 20 \cdot 3 \cdot 0,73 = 43,8$. This value exceeds the critical value χ^2 (7,81 when $df = 3$, $\alpha = 0,05$), which confirms the statistical reliability of experts' opinion consistency

Thus, the choice of pedagogical conditions is not arbitrary, as it is based on a combination of in-depth analysis of scientific sources and confirmed by quantitative methods of expert assessment. The calculated indicators of average values, coefficients of variation, and Kendall's coefficient of concordance prove that these conditions are recognized as the most significant for the formation of FT of PE in HEIs under BL conditions.

The generalized results of the expert assessment of the significance of pedagogical conditions for the FMC in FT of PE are presented in Table 2.6. The obtained indicators allow determining the priority of individual conditions by average scores and also confirm a sufficient level of consistency in the experts' judgments (see Tabl. 2.7).

Table 2.7

Expert assessment of the significance of pedagogical conditions of FMC in FT of PE

№	Pedagogical condition	Average significance score (on a 5-point scale)	Range	Coefficient of variation (V, %)
1	Creating a motivational and value-based educational environment	4,8	I	7,5
2	Focus of PT disciplines on management activities	4,6	II	8,2
3	Use of professionally oriented situations in training	4,5	III	9,0
4	Encouraging self-education	4,3	IV	10,5

As can be seen from Table 2.7, all identified pedagogical conditions received high average scores (over 4.3 points), which confirms their importance for the process of FMC in FT of PE. The highest level of expert support is for the creation of a motivational and value-based educational environment (4.8 points; $V = 7.5\%$), which emphasizes its leading role in the preparation of FT of PE. The focus of PT disciplines (4.6 points) and the use of professionally oriented situations (4.5 points) also ranked high in the rating. The lowest average score (4.3) was given to the stimulation of self-education activities, but even this condition was recognized by experts as an important component of the EP. In general, the results confirm the feasibility and scientific validity of the proposed pedagogical conditions, which is the basis for their further practical implementation and verification in the course of a pedagogical experiment.

Thus, the generalization of theoretical approaches and the results of expert evaluation confirmed that the pedagogical conditions of FMC in FT of PE are a

systematic combination of motivational-value, cognitive, professional-activity, and reflective-developmental components, each of which performs a unique function in the EP. Their implementation through the creation of a motivational and value-based educational environment, the focus of disciplines on management activities, the use of professionally-oriented situations, and the stimulation of self-educational activity ensures the integrity of training, increases its effectiveness, and meets modern scientific and practical requirements. This confirms the feasibility of introducing these conditions into the EP of HEIs and determines the prospects for further research on optimizing the methods and technologies for their implementation.

2.3. Structural and functional model of developing managerial competence in future physical education teachers at higher education institutions in a blended learning environment

The concept of a «model» in pedagogical science is considered to be an ideal reflection of a certain process, phenomenon, or system, which allows their essential characteristics, structure, and functional interrelationships to be reproduced in a simplified but scientifically sound form. A model is a tool for scientific knowledge and practical activity, as it provides the opportunity to predict, construct, and optimize EPes. As emphasized by scientist J. Pérez-Pueyo and his colleagues, it is the model that creates the conditions for the development of pedagogical technologies (Pérez-Pueyo J., et al., 2020). We agree with scientist A. Casey, who in his research determines that a model can take various forms – a diagram, conceptual structure, algorithm, or program – but always reflects a certain pattern of organization and functioning of the object of study. (Casey A., 2014).

Modeling in pedagogy is defined as the process of creating, testing, and improving models that represent pedagogical phenomena and processes with the aim of gaining a deeper understanding of them and managing them effectively. It is a scientific research method that allows complex EPes to be reproduced in a form that is more accessible for analysis and design. As researcher O. Marushko emphasizes,

pedagogical modeling is a tool for in-depth analysis of EPes (Marushko O., 2023). As noted by scholars N. Puseplina, T. Ishutin and L. Shapovalova, as well as G. Martynova and I. Bodnar, pedagogical modeling encompasses the stages of goal setting, system component analysis, structural and functional relationship building, and practical verification of model results in an educational environment (Puseplyna N., 2020; Ishutyna T., Shapovalova L., 2018; Martynova G., Bodnar I., 2021).

Ukrainian scientists have made an important contribution to the development of the theoretical foundations of pedagogical modeling. In particular, scientist O. Dubasenyuk emphasized the importance of a person-oriented approach as the basis for modernizing teacher training (Dubasenyuk O., 2012), while researcher N. Knyazheva analyzed the systemic and activity-based foundations of the transformation of the EP (Kniazheva N., 2005). At the same time, researchers T. Ishutin and L. Shapovalova emphasize the role of structural and functional components of the model in ensuring its practical effectiveness (Ishutina T., Shapovalova L., 2018). Thus, modeling provides a scientific basis for the creation of pedagogical technologies, programs, and methodological systems.

In this context, we define the structural-functional model of FMC in FT of PE in HEIs under the conditions of BL as a comprehensive scientifically based system that reflects interrelated structural components (goals, objectives, content, forms, methods, means, and results) and functional aspects (motivational-targeted, predictive, research, regulatory-corrective, organizational, informational-creative, conflict resolution, self-development, and self-improvement functions) of the EP aimed at the FMC in FS. Accordingly, BL conditions are considered as an innovative environment that combines traditional and DT, provides variability in forms of educational interaction, and creates opportunities for individualization of PT.

This model reflects a purposeful process of FT of PE training, where the structural component determines the elements and logic of the EP, and the functional component ensures the dynamics, efficiency, and effectiveness of management competence formation in the context of integrating face-to-face and distance learning. These functional aspects ensure the comprehensive nature of PT of PE FT in HEIs:

they help to define the goals, objectives, and principles of management activities, contribute to the gradual formation of knowledge, skills, and abilities in the field of PE; ensure the creation of a value-based environment and stimulate the PA of FS; lead to the development of a multi-level system for assessing learning outcomes under BL conditions; they determine self-correction and improvement of the EP based on diagnostics and prognostic analysis of PA.

Scientific literature notes that MC of FT is considered an integral characteristic of personality, combining knowledge, skills, experience, and value orientations necessary for effective management of the EP, organization of interaction between participants in the educational environment, decision-making, and control over performance results. As emphasized by researcher O. Levytska, MC provides a comprehensive approach to the organization of a teacher's PA (Levytska O., 2021). A similar opinion is held by scientist O. Samoilenko, who considers MC to be an integral phenomenon that combines managerial, organizational, and communication skills (Samoilenko O., 2025). An important contribution to the disclosure of the structure of MC was made by foreign researchers from the Department of Education of the Potava City Council and L. Martalishvili, who emphasize its component structure (Department of Education of the Potava City Council & Martalishvili L., 2023). In addition, researcher A. Konok et al. emphasize the importance of physiological and psychological factors in PA of PE teachers (Konok A., et al., 2022), while researcher G. Gryban and colleagues prove that the introduction of health-saving technologies contributes to the development of teachers' PC (Gryban G., et al., 2022).

In addition, pedagogical research emphasizes that a teacher's MC goes beyond purely administrative functions and encompasses leadership skills, the ability to design educational situations, organize teamwork, and create a favorable psychological climate. Communication skills, critical and strategic thinking, reflective skills, and a readiness for innovative activity occupy a special place in the structure of this competence.

With regard to FT of PE, MC has a specific meaning, determined by the characteristics of their PA. As researcher A. Konok notes, PE teachers at GSEIs are

not limited to conducting training sessions, but also perform the functions of organizing physical activities, leading sports clubs, initiating mass health events, and mentoring students in the process of forming a healthy lifestyle (Konok A., et al., 2022). A similar opinion is held by scientist G. Gryban, who emphasizes the multifunctionality of the role of the PE teacher and its importance for PA (Gryban G., et al., 2022). Accordingly, MC in this context encompasses the ability to plan and implement the EP, taking into account the physiological and psychological characteristics of students, organize individual and group forms of classes, motivate students to actively participate in PE and sports activities, ensure safety and discipline during lessons, and monitor and evaluate learning outcomes and development.

Current Ukrainian research also emphasizes the importance of the competency-based approach. As researcher O. Ivanii notes, this approach has specific features of implementation in PT of PE teachers (Ivanii O., 2020). A similar opinion is held by researcher L. Konovalskaya, who reveals details of its application in HEIs and draws attention to the difficulties of practical implementation (Konovalska L., 2017). In a broader context, researcher I. Zimnia emphasizes that a competency-based approach is a basic condition for developing teachers' readiness for effective PA (Zimna I., 2010). In addition, researcher O. Ivanii emphasizes the peculiarities of integrating this approach into PE teachers' PT programs, confirming its significance in modern pedagogical practice (Ivanii O., 2020). The FMC in HEIs is based on the integration of the following approaches: competence-based, personality-oriented, system-activity-based, constructive, interdisciplinary, individual, problem-oriented, axiological, and acmeological approaches and the functions of competence-based management of the EP – motivational-targeted, prognostic, research, regulatory-corrective, organizational, informational-creative, conflict resolution, self-development, and self-improvement (section 1.4).

The competency-based approach focuses FT of PE on acquiring theoretical knowledge, practical skills, and managerial decision-making skills; developing leadership qualities, critical thinking, and the ability to work effectively in a team; and fostering responsibility for managerial decisions and their consequences. The person-

centered approach focuses on developing the individual abilities and potential of applicants, taking into account their needs, values, and educational trajectories. As researchers O. Oleksiienko and O. Rozskazov emphasize, the systemic-activity approach allows us to view the PT process as a holistic structure in which all elements are interconnected and aimed at achieving a common result (Oleksiienko O., & Rozskazov O., 2021). A similar opinion is held by scientists T. Shapran and K. Sidiropulo, who emphasize the importance of active interaction between students and the educational environment, their involvement in various activities, practical tasks, project work, and participation in teaching practice (Shapran T., & Sidiropulo K., 2022). The constructive approach focuses the learning process on the creation of applicants' own educational products and models of management activities, which ensures the formation of in-depth practical experience. According to researcher N. Holubnycha and her colleagues, the interdisciplinary approach ensures the integration of knowledge from various scientific fields to solve complex tasks of managing the EP (Holubnycha N., Shchokina N., Soroka N., & Besarab T., 2022). An individual approach creates conditions for the formation of a personal educational trajectory that corresponds to the level of training, motivation, and professional orientation of the applicant. The problem-oriented approach, as emphasized by researcher R. Dmytrenko, is aimed at organizing learning through the resolution of professionally significant problem situations, which stimulates the development of critical and strategic thinking (Dmytrenko R., 2016). The axiological approach, according to researcher M. Baumgartner, emphasizes the importance of value orientations, the cultivation of a managerial culture, and the formation of humanistic principles in interaction with participants in the EP (Baumgartner M., 2022). The axiological approach emphasizes the importance of management activities for the development of educational institutions and individuals, and ensures the formation of conscious, ethically responsible, and socially oriented managers. These approaches ensure the multidimensionality of PT of FT of PE, contribute to the development of both cognitive and practical skills, and form a readiness for reflection and innovative activity. At the same time, each of the approaches described determines the specifics of the

organization of the EP: from the development of the personal potential of applicants and the integration of interdisciplinary knowledge to the orientation towards the creation of their own educational products, the solution of professionally significant problems, and the formation of value orientations. The combined application of these approaches ensures the multidimensionality of PT and contributes to the development of motivational-value, cognitive, professional-activity, and reflective-developmental components of MC.

In the model structure, these functions serve as a mechanism for the practical implementation of the specified components of MC, combining them into a coherent system of PT of FT in PE in HEIs. Together, they create a scientifically sound basis for training specialists capable of effectively organizing the EP, making management decisions, engaging in professional reflection, and implementing innovations under BL conditions. Problem-oriented learning as a condition for the FMC is considered by scientist S. Dmytrenko, emphasizing its role in the development of research and management skills (Dmytrenko S., 2016). Foreign researchers J. Lewis, A. Rebeshi, and P. Hunt focus on the practical aspects of training specialists in various professional fields through the implementation of competency-oriented learning models (Lewis J., Rebeshi A., & Hunt P., 2022). Similar emphases can be found in the works of scholars A. Harkins-Brown, N. Gillon, and M. Schanbacher, who consider innovative approaches to competence formation in modern education (Harkins-Brown A., Gillon N., & Schanbacher M., 2024). In addition, Ukrainian researchers O. Filonenko and A. Stukan focus on the specifics of developing FT management competencies (Filonenko O., & Stukan A., 2025).

Each of these approaches defines its own logic of organizing the EP, the specifics of goals and objectives, as well as the directions for implementing a formative influence on FT of PE. The combination of these approaches ensures the multidimensionality and integrity of training, forming not only knowledge and skills, but also the ability to effectively manage the educational environment, perform organizational and communicative functions, and make optimal decisions in changing conditions (Tabl. 2.8).

Table 2.8**Scientific approaches to the FMC in FT of PE**

Approach	Main idea	Peculiarities of implementation in HEIs	Expected outcomes
Competence-based	Integration of theoretical knowledge of EP management into practical activities; development of managerial decision-making skills	Integration of theory and practice, individualization of the EP, interdisciplinarity; use of modern educational technologies in teaching	FMC and readiness to make effective managerial decisions
Personality-oriented	Taking into account the individual needs, abilities, and educational trajectories of applicants	Individualization of tasks; adaptation of programs; creation of conditions for personal development	Developing a unique management style; recognizing your strengths
System-activity	Learning through active participation and practical experience	Use of interactive technologies, role-playing games, training sessions, project work, pedagogical practice	Development of management skills in real and simulated pedagogical situations; experience in making management decisions
Constructive	Focus on creating our own educational products and models of activity	Involvement in project work, creation of original programs and training models	Development of creativity, innovation, and the ability to independently design management processes
Interdisciplinary	Integration of knowledge from different fields for comprehensive problem solving	Combining pedagogical, psychological, managerial, and digital knowledge in training courses	Developed systematic thinking; ability to see connections between different areas of knowledge
Individual	Building a personal educational trajectory	Use of individual learning plans, counseling, mentoring	Developing the ability to independently plan one's career and professional development
Problem-oriented	Learning through solving practical and professional problems	Use of problem-based tasks, case methods, situation analysis	Development of critical thinking, creativity, and the ability to find optimal solutions
Axiological	Focus on values, humanistic principles of management and pedagogical activity	Fostering a management culture, emphasizing the humanization of the EP	Formation of value orientations; readiness to act on the basis of ethical principles
Acmeological	Focus on achieving professional excellence and self-fulfillment	Individualization of learning; encouragement of self-development and self-education; creation of conditions for professional excellence	Striving for continuous growth; willingness to be a leader and role model for students

A generalization of scientific approaches shows that the FMC in HEIs cannot be spontaneous, but requires a systematic and phased influence that integrates the motivational-value, cognitive, professional-activity, and reflective-developmental components in PT of FT in PE.

As noted by researchers H. Zhang, E. Zorba, and A. Isim, it is the integration of different approaches that ensures the development of FT management skills (Zhang H., Zorba E., & Isim A., 2024). A similar opinion is held by researcher M. Baumgartner, who emphasizes the need for a holistic approach to the formation of professional (including managerial) competencies (Baumgartner M., 2022).

The effectiveness of such influence is determined not only by the content of education, but also by the consistency of the application of the outlined approaches, which ensure the integrity of the EP. Therefore, modern research increasingly focuses on the creation of models that integrate various scientific paradigms and form a comprehensive understanding of management activities in students. On this basis, it is logical to refer to the structural-functional model developed to ensure the effective process of PT of PE FT. Its significance lies in its ability to reflect both content-targeted guidelines and technological and evaluative aspects of PT. The model structure includes strategic, conceptual-methodological, and criterion-diagnostic blocks that reflect the interconnection between goals, objectives, pedagogical conditions, forms and methods of teaching, as well as criteria for evaluating results. Each of these blocks performs its own functional purpose. In this way, the model not only formally describes the sequence of PT, but also creates a scientifically based mechanism for its implementation, which allows combining theoretical training with practical activities and reflective analysis (Fig. 2.3).

The structural and functional model of FMC in FT of PE, presented in Figure 2.3, is a comprehensive scientifically based structure that reflects the logic, stages, and internal interconnection of all components of PT in HEIs. It integrates strategic guidelines, conceptual and methodological provisions, and criteria and diagnostic tools into a single system, where each block has its own functional purpose and together

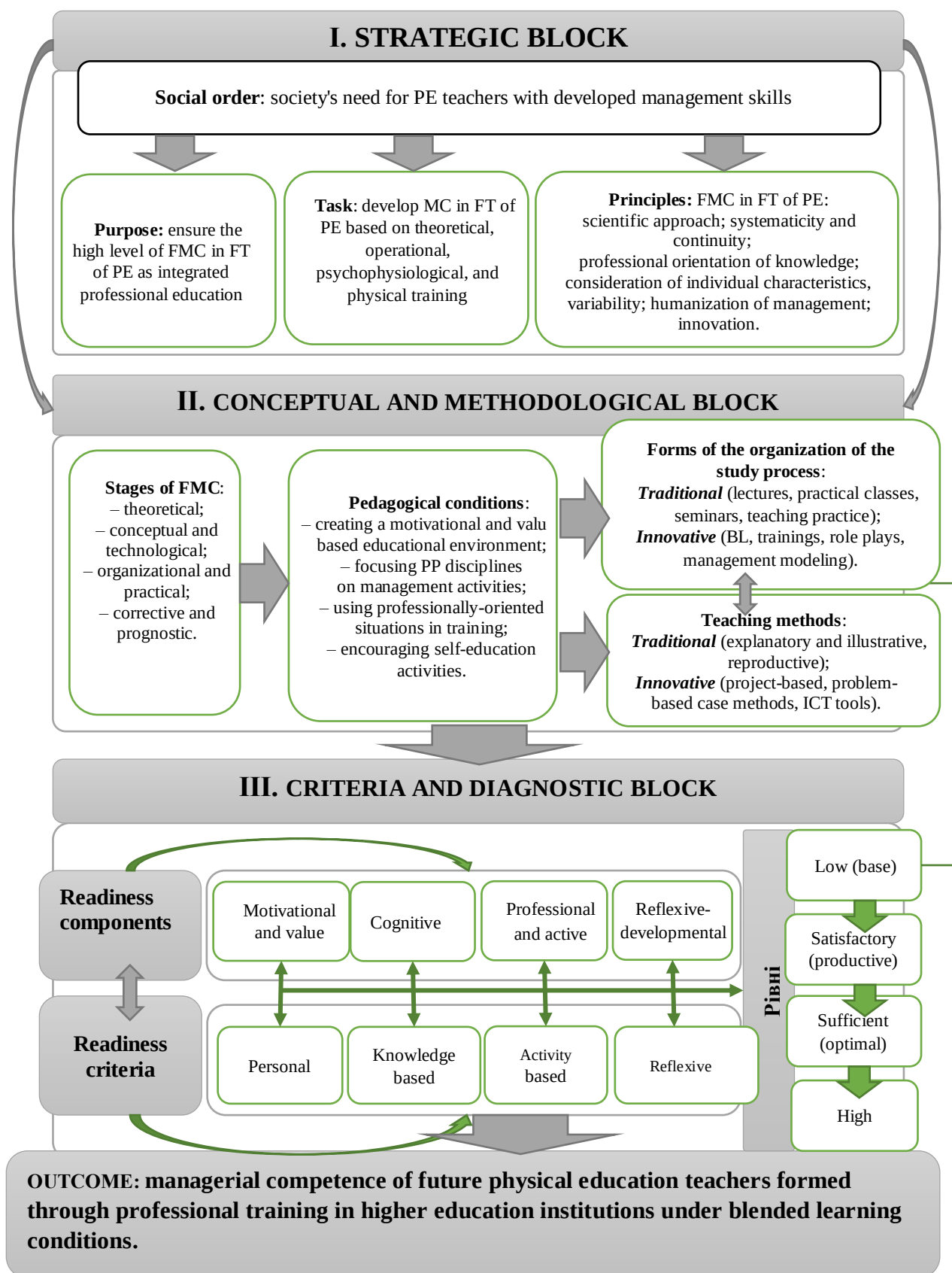


Fig. 2.3 Structural and functional model of FMC in FT of PE in HEIs under BL conditions

provides the formation of a comprehensive set of management knowledge, skills, and value orientations for applicants.

The first block of the structural-functional model – the strategic block – plays a leading role, as it sets the general orientation, content focus, and value guidelines for the process of FMC in FT of PE. It is based on social demand, which reflects society's need for specialists who are capable not only of teaching PE lessons, but also of effectively organizing the EP, managing sports and health activities, and motivating young people to lead a healthy lifestyle. On this basis, the goal is defined – to ensure of a high level of FMC in FT of PE as an integrated result of PT. To achieve this goal, tasks are defined that cover various aspects of training: theoretical, operational, psychophysiological, and physical.

An important methodological basis is provided by the scientific principles of FMC, including scientific rigour, systematicity and continuity, professional orientation of knowledge application, consideration of individual characteristics, variability, humanisation of management, as well as the principles of reflexivity and innovation in their in-depth interpretation.

They ensure the scientific correctness of the model, its practical significance, and its ability to adapt to different educational conditions. These principles serve as value and regulatory guidelines that determine the logic, content, and direction of the EP. Each of them has its own content and specific ways of implementation in the practice of HEIs. Their characteristics are summarized in Tabl. 2.9.

Thus, the principles of the strategic block provide a scientific basis, integrity, and practical effectiveness of the model. They allow combining the fundamental and applied aspects of the EP, orienting FT of PE towards achieving a high level of MC capable of meeting the needs of modern education and society.

The conceptual and methodological block of the structural and functional model acts as the core of the system, determining the logic, stages, and organizational and methodological means of FMC in FT of PE. It covers the step-by-step process of PT – from theoretical assimilation of basic knowledge to corrective and prognostic

Table 2.9**Principles of FMC in FT of PE**

Principle	Content	Peculiarities of implementation in HEIs	Expected outcomes
Scientificity	Focusing the EP on the use of modern scientific knowledge, evidence-based methods, and concepts	Inclusion of the latest research in programs, analysis of scientific approaches, use of evidence-based teaching practices	Ability to work with scientific information, critically evaluate it, and apply it in professional activities
Systematicity and continuity	Consideration of the preparation process as a holistic system with a logical sequence of stages	Building the EP as a system where each element builds on the previous one and at the same time provides prospects for further development	Understanding pedagogical activity as a system; readiness to integrate knowledge and skills into a single structure
Professional focus of knowledge application	Focus on the practical significance of knowledge and its application in professional settings	Use of professionally-oriented tasks, pedagogical practices, modeling of management situations	Readiness to effectively apply knowledge in specific pedagogical situations
Taking individual characteristics into account	Ensuring the development of each applicant's personal potential	Individualization of tasks, adaptation of teaching technologies, differentiation of methods	Developing your own management style; recognizing your strengths
Variability	Variety of forms, methods, and means of organizing the EP	Combination of traditional and innovative technologies; choice of forms of educational interaction	Flexibility in decision-making, ability to adapt to changing conditions
Humanization of management	Focus on respect for the applicant's personality, partnership relations	Using dialogue techniques, creating an atmosphere of trust and support	The formation of an ethical management culture, the ability to motivate and inspire
The principle of reflexivity	Developing the ability to self-observe, self-assess, and self-correct	Using reflective analysis methods, writing essays, keeping journals професійного розвитку	Ability to analyze one's own management decisions, adjust activities, and build individual growth trajectories
The principle of innovation	Focus on continuous updating and modernization of the EP	Use of innovative methods (project-based, case studies, game simulation) and technologies	Willingness to be an agent of change, initiator, and implementer of new pedagogical practices

activities, which ensures the development of self-reflection and professional self-improvement skills. The stages outline the logic of PT, where each subsequent step builds on the previous one and at the same time enriches it with new results. Thus, the first stage provides a fundamental knowledge base, the second stage develops management methods and technologies, the third stage involves immersion in practical activities, and the fourth stage involves the correction and improvement of acquired competencies. A generalized description of these stages is presented in Tabl. 2.10.

Table 2.10**Stages of FMC in FT of PE**

Stage	Content	Features of implementation	Expected outcomes
Theoretical	Mastering the fundamentals of management science, pedagogical concepts, and modern approaches to organizing the EP	Lectures and seminars, study of scientific sources, discussions, analysis of management situations	Formation of basic knowledge about management activities and their characteristics in the field of PE
Conceptual and technological	Introduction to innovative management technologies, methods of organizing the educational environment, and team interaction	Use of training sessions, situation modeling, case studies, application of digital educational resources	Developing skills in designing management processes and selecting appropriate methods and tools
Organizational and practical	Direct activity in real and simulated pedagogical conditions	Teaching practice, business games, simulations, teamwork, organization of sports and educational events	Gaining experience in management decision-making, developing communication and organizational skills
Corrective and prognostic	Analysis of the results of one's own management activities, identification of difficulties, search for ways to improve	Self-reflection, diagnostic techniques, discussions with mentors, formation of individual professional development trajectories	Ability to self-correct, awareness of prospects for further professional growth, development of strategic thinking

These stages ensure the integrity of PT logic: from knowledge accumulation to experience acquisition, from methodology assimilation to practical application and self-improvement. They create conditions for the gradual development of FT of PE

management competencies, where the main result is not only the possession of certain skills, but also the ability to continuously self-develop and adapt to new challenges in the educational environment.

The structure of the block also includes pedagogical conditions that create a favorable motivational and value-oriented environment, integrate the content of academic disciplines with a management focus, and stimulate self-education activities among students. We have defined the forms and methods of organizing training. Namely, a combination of traditional (lectures, seminars, teaching practice) and innovative (BL, training, business games, modeling of management situations) methods. This ensures the diversity and flexibility of the EP. The use of modern methods – from explanatory and illustrative to project-based, problem-oriented, and case methods – creates conditions for the integration of knowledge and practical skills, as well as for the development of critical and strategic thinking.

The forms and methods of organizing learning within the conceptual and methodological block of the structural and functional model are key means of implementing the EP. They provide a combination of traditional and modern approaches, which allows the FT of PE to form a set of managerial knowledge, skills, and abilities under BL conditions. The forms reflect the organization of educational activities, and the methods reflect specific ways of interaction between teachers and students. Their diversity makes it possible to vary the EP and adapt it to the individual characteristics of students and the specifics of PT. A generalized description of the forms and methods of organizing education is presented in Tabl. 2.11.

The forms and methods of organizing learning in the model ensure the integration of traditional and modern pedagogical approaches, creating conditions for the multifaceted development of FT of PE. Their application contributes not only to the acquisition of knowledge, but also to the active formation of managerial skills, the development of creativity, communication skills, and professional mobility, which are the basis of effective FMC in future PA.

Table 2.11

**Forms and methods of organizing training in the process of FMC in FT of
PE**

Category	Content	Peculiarities of implementation	Expected outcomes
Traditional forms	Lectures, seminars, practical classes, teaching practice	Focus on systematizing knowledge, honing skills, and consistent immersion in professional activities	Acquisition of fundamental knowledge, development of skills to analyze and solve professional tasks
Innovative forms	BL, training sessions, business games, management situation simulations	Use of DT, interactive methods, creation of educational simulations	Development of managerial, communication, and organizational skills; ability to act in conditions of uncertainty
Traditional methods	Explanatory and illustrative, reproductive	Use of demonstrations, examples, exercises for reproducing knowledge and actions	Building a solid knowledge base, practicing standard skills and abilities
Innovative methods	Project-based, problem-oriented, case methods, application of ICT	Emphasis on independence of applicants, teamwork, solving practical management situations	Developed ability to think critically and strategically, readiness for innovative activity

The criterion-diagnostic block of the structural-functional model acts as a mechanism for assessing and controlling the FMC in FT of PE. It provides a link between the strategic guidelines of the model and its practical implementation, as it allows for the objective determination of the level of readiness of applicants, the identification of strengths and areas for improvement, and the timely adjustment of the learning process. The structure of this unit highlights the components of readiness (motivational-value, cognitive, professional-activity, reflective-developmental), which reflect the multidimensionality of MC.

Each component has its own assessment criteria – personal, knowledge-based, activity-based, and reflective – which allows for a comprehensive analysis of FS training. In addition, this block provides for levels of competence (low – basic, satisfactory – productive, sufficient – optimal, high), which help to differentiate learning outcomes and assess the dynamics of professional development. Thus, the

criterion-diagnostic block not only records the final result of the EP, but also performs a feedback function, contributes to the flexible management of the FMC under the conditions of BL, and ensures its compliance with modern professional and social demands.

The outcome of the structural-functional model reflects the ultimate goal of the entire process – FdMC in FT of PE in HEIs under BL conditions. It is considered an integral professional quality that combines knowledge, skills, abilities, value orientations, and the ability to organize and manage the EP in various conditions, including under BL conditions. The result is manifested in the ability of FS to effectively plan and implement educational activities, motivate students to be physically active, ensure teamwork, make management decisions, and self-correct their own activities. It is important that the model provides not only for the existence of this competence, but also for the possibility of assessing it by levels – from basic to high, which allows tracking the dynamics of the development of students. Thus, the result functions as an indicator of the success of educational training and, at the same time, as a benchmark for further improvement of the pedagogical process.

Monitoring the results of FMC in FT of PE in HEIs is a key component of the criterion-diagnostic block of the model, as it ensures the integrity and objectivity of assessing the professional FMC in students majoring in 014.11 Secondary Education (PE). Control not only serves to test knowledge and skills, but also acts as a feedback mechanism that allows for timely adjustments to the EP, increasing its effectiveness and taking into account the dynamics of student development. Its distinctive feature is its multi-level nature: from initial diagnostics (Appendix A), which determines the starting positions of students, to a comprehensive assessment of the integrated results of the FMC (Appendix B), which reflects the practical viability of the acquired MC in a real professional environment.

This system allows tracking not only intermediate and stable final results. A generalized description of the types of control is presented in Tabl. 2.12.

Table 2.12**Types of performance monitoring of FMC in FT of PE in HEIs under BL**

Type of control	Content purpose	Methods and means of implementation	Expected outcomes
Entrance (Appendix A)	Determining the initial level of knowledge, skills, motivation, and value orientations of students	Tests, questionnaires, interviews, portfolio analysis, situational tasks	Identifying starting positions, differentiating groups, determining individual learning trajectories
Ongoing	Monitoring of material assimilation at each stage of learning	Oral surveys, test assignments, mini-projects, practical exercises	Timely identification of difficulties, correction of the learning process, stimulation of activity
Intermediate	Assessment of results upon completion of individual modules or stages of training	Tests, modular control works, analysis of practical cases	Determining the degree of achievement of intermediate goals, refining the strategy for further learning
Complex (Appendix B)	Comprehensive assessment of managerial knowledge, abilities, and skills, taking into account the integration of various components of this competency	Management games, project tasks, case studies, simulations, reflective essays	Establishing a comprehensive level of MC, testing managerial knowledge and practical skills
Final	Fixing the final level of MC as readiness for PA	State exam, defense of qualification work, final assessment of practical training	Confirmation of the ability to perform MF in a professional environment

A multi-level control system, supported by the tools in Appendices A–B, ensures comprehensive and reliable assessment of the results of management competence development. It allows not only to diagnose the level of students' preparedness in this area, but also to track the dynamics of management competence development, make timely corrections, stimulate professional and managerial growth, and confirm the practical significance of the acquired skills in future pedagogical activities.

Therefore, summarizing the above, we can conclude that the structural and functional model of FMC in FT of PE in HEIs under BL conditions appears as a holistic, scientifically based system that integrates strategic guidelines, conceptual and methodological provisions, and criteria and diagnostic mechanisms into a single

structure. It ensures the consistent and multi-level FMC in students – from defining the goals, objectives, and principles of training to the gradual acquisition of managerial knowledge, gaining practical managerial experience, and developing skills of reflection and self-improvement in managing the EP. Of particular importance is the results monitoring system, described in Appendices A–B, which includes initial, interim, comprehensive, and final monitoring, allowing not only to record the level of FMC, but also to track its stability in future PA. Thanks to the integration of traditional and digital learning technologies, the use of innovative forms and methods, as well as multi-level diagnostics, the model creates conditions for training a new generation of PE teachers who are able to effectively organize and manage the EP, perform MF, and meet modern social requirements.

Conclusions to the second chapter

The psychological and pedagogical analysis of scientific research and professional experience gained regarding the content and structure of FMC of FT of PE in HEIs using BL technologies made it possible to identify the following key structural components and their indicators: motivational and value-based (covering interest in PA, the need for management activities, the desire for management activities, and the ability to carry out effective management activities), cognitive (reflecting knowledge of management theory, pedagogy, and other, management technology, and PE management), professional-activity (includes the ability to use regulatory and legal acts related to PE in GSEIs, planning lessons and sports events, making management decisions, solving non-standard professional situations) and reflective-developmental (ensures the ability to self-analyze, self-evaluate management actions, one's own image as a teacher-manager, a creative approach to finding ways to eliminate shortcomings in management PA).

The established components are manifested in specific criteria: personal, knowledge-based, activity-based, and reflective. The comprehensive FMC for the

outlined components corresponds to the FdMC levels: high (excellent), sufficient (optimal), satisfactory (productive), low (basic) according to its indicators.

In PT of FT of PE, the fundamental scientific principles are: scientificity, systematicity and continuity, professional orientation of knowledge application, consideration of individual characteristics, variability, humanization of management, reflexivity and innovation, the comprehensive use of which contributed to FMC in students.

For effective FMC of FT of PE under BL conditions in HEIs, the following pedagogical conditions are specified: creation of a motivational and value-based educational environment during the study of academic disciplines and optional classes (as a determining condition for ensuring the subjective position of the student); focusing PT disciplines on management activities (as a condition that correlates with the concept of a competence-based approach), since when studying PT disciplines, the management component becomes an integral part of their educational content; the use of professionally-oriented situations in the training process (as a condition that suggests the full use of simulation and role-playing games, case studies, etc. in FT training), which allows knowledge to be transferred from the theoretical to the practical plane; stimulation of self-education activities (as a condition that contributes to the ability of FT to independently determine educational goals, plan their own development, and be responsible for its results), which is of particular importance in the context of dynamic educational changes.

Taking into account the multifaceted problems of PT of FT of PE allowed us to use a set of integrated approaches in the FMC process: competence-based, personality-oriented, system-activity-based, constructive, interdisciplinary, individual, problem-oriented, axiological and acmeological, and the fundamental functions of competence-based management of the EP: motivational-targeted, prognostic, research, regulatory-corrective, organizational, informational-creative, conflict resolution, self-development, and self-improvement.

The structural and functional model of FMC in FT under BL conditions in HEIs is characterized, which contains three blocks: strategic (includes social demand for FT

of PE as management specialists, goals, objectives, and principles), conceptual and methodological (contains stages of FMC, pedagogical conditions, forms of organization, and teaching methods); criterion-diagnostic (covers components, criteria, levels of FMC, and the result – FdMC in FT of PE as the ultimate goal of the study).

The main results of the section are reflected in the author's scientific works:

Chen R., 2024; Chen R., 2024 c; Chen R., 2025 b; Chen R., 2024 d

CHAPTER 3

EXPERIMENTAL VERIFICATION OF THE EFFECTIVENESS OF PEDAGOGICAL CONDITIONS AND A STRUCTURAL-FUNCTIONAL MODEL FOR DEVELOPING THE MANAGERIAL COMPETENCE OF FUTURE PHYSICAL EDUCATION TEACHERS IN BLENDED LEARNING IN HIGHER EDUCATION INSTITUTIONS

3.1. The state of development of managerial competence of future physical education specialists in higher education institutions

The fundamental basis of the pedagogical experiment is the analysis of the state of FMC in FT of PE in HEIs under BL. The research was conducted by us during 2021–2025. The pedagogical experiment, which was held continued over four years, was divided by us into four stages of pedagogical scientific and research exploration. At each stage, specific tasks were identified that required timely resolution, and the appropriate forms and effective methods of a sequentially designed organization of ER implementation were highlighted. Scientific research was carried out in stages and was characterized by consistency, logic, and complementarity.

At the first stage (theoretical and exploratory stage of experimental research (ER), 2021–2022), we accomplished the following tasks:

1. Scientific and pedagogical literature on the theme of our research was analysed, and periodic scientific and methodological publications and materials from scientific and practical conferences on the FMC in FT of PE were reviewed. The analysis of literary sources was carried out continuously until the completion of the dissertation research.

2. The experience of FMC in FT in Ukraine and abroad was studied with the aim of identifying current trends in FMC in students in HEIs, and the regulatory and legal framework for PT of FT in HE was characterized.

3. The categorical and conceptual apparatus important for our scientific research has been identified and characterized, and its scientific and theoretical justification has been comprehensively substantiated.

4. Work has been done to prove the importance of the FdMC in FT of PE for their future profession and conducting effective pedagogical activities in GSEI.

5. The approaches to determining the components, criteria, and indicators during FMC in PE bachelor's degrees are justified, and the importance of their application in the process of identifying the initial level of FMC in FT is argued.

6. A refined ER hypothesis has been formulated, its specifics have been clarified, and its relevance in the context of this scientific research has been substantiated.

7. The experimental basis for the research has been identified and the approximate duration of the research procedures has been determined.

8. The ER program has been designed and developed, and experimental methods and procedures for conducting the ascertaining stage of ER have been identified.

During the second stage (the ascertaining stage of ER, 2022–2023 academic year), we collected the necessary empirical information and thoroughly analysed the input data. The goal of the ascertaining stage of the experiment was to comprehensively study the state of FMC in FT of PE at the beginning of the pedagogical experiment.

In subsection 2.1, we established that FdMC in FT is directly related to the effective management knowledge, skills, and abilities acquired at HEIs, which serve as a prerequisite for the use of effective management methods and techniques in pedagogical activities and the productive implementation of critical self-analysis, and thus for professional and managerial growth in the future. We concluded that the FMC in FT of PE developed in HE gradually develops into their readiness to promptly perform MF during the implementation of PA.

The ascertaining stage of ER allowed us to focus our research on:

1. Development and testing of specific scientific research tools (criteria and indicators of the FdMC in FT of PE outlined in section 2.1), which made it possible to identify the corresponding level of presence and personal managerial qualities formation (interest in PA management, need for management activities, desire for

management in PA and ability to carry it out, etc.) and acquired knowledge, skills, and abilities for self-analysis, self-assessment of one's own management actions, and personal creation of the image of a teacher-manager of the PE.

2. Identification and formation of a database of assessment indicators with the establishment of a level of assessment of FMC in PE bachelors in the process of training in HEIs according to the curriculum.

3. Identification and implementation of pedagogical conditions in the EP of bachelor's degree students and the development of a structural and functional model for the FMC in FT of PE, which serves as an effective tool for the formation of such competence.

4. Organization and implementation of the ascertaining stage of ER, which involved the diagnosis of the initial levels of FMC in FT of PE students according to the specified components (motivational-value, cognitive, professional-activity, and reflective-developmental), which helped determine the state and levels of such formation in students.

5. Detailing and refining the tools, methods, and organizational forms of FMC of PE bachelors in order to appropriately solve the tasks of the ER.

6. Justification of the structure of the FMC in FT of PE and the design and development of the further content of the ED program.

These tasks were solved by applying the developed criteria, indicators, and effective methods, which made it possible to diagnose the level of MC of FT for conducting MA in general education institutions. At the second stage of ER «diagnostics» will be considered as a system of orderly and effective diagnostic procedures aimed at studying the personality of FT-managers of PE and finding ways and means for their personal and managerial development, taking into account the individual qualities that are necessary for the FMC.

To determine the level of FdMC in FT of PE under BL conditions at the ascertaining stage of the study, experimental data were obtained on the basis of three HEIs: Ivan Ohienko Kamianets-Podilskyi National University (KPNU), Uzhhorod National University (UZNU), and Bohdan Khmelnytsky Melitopol State Pedagogical

University (MDPU). A total of 85 second-year students of the Faculty of PE participated in this stage of the study (the number of participants as of the time of admission – as of September 1, 2022-2023 academic year), namely 41 HE seekers from KPNU, 33 HE seekers from UzhNU, and 21 HE seekers from MDPU (Tabl. 3.1).

Table 3.1

Number of higher education institution applicants involved in conducting the experiment at the ascertaining stage of the study

№ f/b	Higher education institutions	Quantity of participants from the number of FT of PE
1.	Ivan Ohienko Kamianets-Podilskyi National University (KPNU)	41
2.	Uzhhorod National University (UzNU)	33
3.	Melitopol State Pedagogical University named after Bohdan Khmelnytsky (MSPU)	21
Total (Persons)		85

At the ascertaining stage, our ER was conducted in the usual conditions of educational activity of HEIs for students. The purpose of the ascertaining stage was to determine the state of FMC in FT of PE in accordance with the set of formed components: motivational-value, cognitive, professional-activity, and reflective-developmental. The results of the ascertaining stage made it possible to establish the state of FMC in the outlined components in PE bachelors.

At this stage, the assessment indicators were tested using a set of proprietary methodologies developed by scientists (M. Yerusalem, R. Nemov, A. Rean, M. Rokich, R. Shvarts) and specially adapted methodologies, which we subsequently used during the formative stage of the experiment (see Tabl. 3.2).

These methods helped determine the level of FdMC in bachelors majoring in 014.11 Secondary Education (PE).

We combine the achievement of the research goal with a more detailed description of these methods (see Tabl. 3.2), which make it possible to verify the effectiveness of the proposed components and criteria of FdMC in FT of PE, and to

determine the overall level of such formation in bachelor's students. On the other hand, the assessment of FdMC levels was carried out using a set of diagnostic methods, taking into account the requirements for their application.

Table 3.2

**Methods for researching components and criteria for
FdMC in FT of PE in HEIs under BL conditions**

№ f/b	Components	Criteria	Methods
1.	Motivational-value	Personal	The «Motivation for Success and Avoidance of Failure» technique (A. Rean) The «Value Orientations» technique (M. Rokich) (Appendix A)
2.	Cognitive	Knowledge	Questionnaire to determine the importance of management knowledge acquired in HEIs in the professional activities of PE specialists (R. Chen) (Appendix B)
3.	Professional-activity	Activity	The «Leadership Effectiveness» Methodology (R. Nemov, adapted by R. Chen) (Appendix C)
4.	Reflexive-developmental	Reflexive	The «Self-Efficacy and Self-Development Scale» methodology (R. Schwarzer and M. Jerusalem, supplemented by R. Chen) (Appendix D)

We used ER methods that allowed us to:

- diagnose motivation for success and fear of failure (author A. Rean) and determine students' value orientations (author M. Rokich) (Appendix A);
- use a questionnaire to reveal the importance of management knowledge acquired in HEIs in the professional activities of FC specialists (author R. Chen) (Appendix B);
- establish the effectiveness of leadership in pedagogical activities (author R. Nemov, adapted by R. Chen) (Appendix C);
- use the scale to determine self-efficacy and self-development (authors R. Schwarzer and M. Jerusalem, supplemented by R. Chen) (Appendix D).

The digital data obtained for each methodology are characterized by hierarchical expression and are structured and balanced. They range from high to low levels of MC

in FT of PE and logically reveal the FMC in HEIs for bachelors majoring in 014.11 Secondary Education (PE).

At the same time, the maximum number of points that each student participating in the experiment can receive according to these methods is 100 points. Therefore, we have established the limits of such formation depending on the points received by the MF. These levels correspond to the levels of FMC in FT during their period of study in HE:

- high (perfect) level is within the range of 90-100 points;
- sufficient (optimal) level is within the range of 75-89 points;
- a satisfactory (productive) level is between 60 and 74 points;
- a low (basic) level is 59 points or below.

In addition, for the convenience of assessing the level of FdMC in FT of PE in HEIs under BL conditions, we used a scale of the ratio of the scores obtained in % to a specified numerical value (the numerical values of the levels were described according to N. Daire (Daire N., 1979). Thus, our high (excellent) level, which ranges from 100% to 90%, corresponds to 5 points; the sufficient (optimal) level, from 89% to 75%, corresponds to 4 points; the satisfactory (productive) level, ranging from 74% to 60%, corresponds to 3 points; the low (basic) level, ranging from 59% and below, corresponds to 2 points.

The score of the FdMC level (in points) in PE bachelors was calculated through the formula:

$$Dk = \frac{(K1+K2+K3)}{n}$$

where Dk – the score of the level of FdMC component in FT;

K1; K2; K3 – score for each component;

n – number of indicators in each of the components of MC in PE students.

Therefore, the numerical value of the FdMC levels of bachelor PE students is within numerical limits:

- for a low (basic) level – from 2 to 2.5 points;
- for a satisfactory (productive) level – from 2.51 to 3.5 points;

- for a sufficient (optimal) level – from 3.51 to 4.5 points;
- for a high (strategic) level – from 4.51 to 5 points.

The comprehensive use of the proposed diagnostic methods in the experimental study and the processing of questionnaires completed by students through the use of the relevant methods allowed us to evaluate the results obtained in the research process regarding the formation in FT of PE in HEIs under BL conditions. At the same time, we compared the scores obtained by each student by levels and components of such formation, which ultimately contributed to determining the results of the ascertaining stage of the study. Scientific research at the ascertaining stage was conducted under the traditional conditions of operation of each educational institution involved in the experiment.

The summarized numerical results of testing (with the participation of 85 students) for four components (motivational-value, cognitive, professional-activity, reflective-developmental) of FMC in FT of PE in accordance with the specified methods are presented in Tabl. 3.3.

Table 3.3

The state of FMC in FT of PE by all the components at the ascertaining stage

№ f/b	Components of the FMC	Levels of the FdMC								AV
		High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
		QP	%	QP	%	QP	%	QP	%	
1.	Motivational-value (MV)	11	12,9	33	38,8	38	44,7	3	3,5	3,61
2.	Cognitive (C)	8	8,2	31	36,5	42	48,2	4	7,1	3,51
3.	Professional- activity (PA)	7	7,1	30	37,6	43	49,4	5	5,9	3,46
4.	Reflexive- developmental (RD)	9	10,6	33	38,8	39	45,9	4	4,7	3,55
Average value		9	9,7	32	37,9	40	47,1	4	5,3	3,54

Legend: NP – number of participants; AS– average score (in points)

The results of the ascertaining stage of our research showed that among 85 bachelor's students, a high (excellent) level of FdMC was found in 9 HE seekers, which is 9,7%, sufficient (productive) – in 32 students (37,9%), satisfactory (productive) – in 40 students (47,1%), but a low (basic) level – in 4 bachelor's degree students, which is 5,3%.

At the same time, the lowest FT of PE scores were within the high (perfect) level for the professional-activity component (7,1%), while the highest were at the low (basic) level for the motivational-value (3,5%) and reflective-developmental (4,7%) components. A thorough analysis of the qualitative and quantitative indicators obtained at the ascertaining stage of the experiment allowed us to conclude that only 47,6% of FT are ready to perform management activities in GSEIs, which corresponds to high and sufficient levels of management competence (according to the average % indicators obtained). However, it is possible to increase the quantitative indicator of MC formation provided that students move from low (basic) and satisfactory (productive) levels to higher ones. The experimental data obtained helped to outline ways to improve the formation of this competence in the FT of PE and allowed us to determine the starting points for conducting the formative stage of our research in experimental HEIs.

Thus, at the ascertaining stage of the experiment, we performed a preliminary diagnosis of the levels of FMC in FT of PE according to the identified components and identified and systematized certain contradictions in the study. The work carried out contributed to the comprehensive implementation of the formative stage of scientific research.

The third, formative stage (which took place over two academic years – the second semester 2023-2024 and 2024-2025 academic years) of experimental work determined the conduct of the experiment itself and included verification of the outlined hypothesis of our research, the effectiveness of the identified conceptual provisions, and the FMC in FT of PE model. The implementation of the structural-functional model in the EP of HE seekers took place with the successful introduction of verified pedagogical conditions into FT training. The goal of the study at the

formative stage was implemented in accordance with the solution of a set of identified tasks, which included:

1. Creation of an effective and well-founded empirical basis for objective research and experimental work on the implementation of the pedagogical conditions proposed by us in the EP of PE bachelors and the structural and functional model of FMC in HEIs under BL conditions, as described in section 2.3.

2. Making corrections, if necessary, to the developed structural-functional model for FMC in FT of PE.

3. Monitoring the effectiveness of the pedagogical conditions implemented in the EP, which were deliberately aimed at forming the necessary level of MC in FT of PE, and thus their readiness for pedagogical and MA.

At the same time, at the beginning of the formative stage of the pedagogical experiment (the beginning of the third semester of the 2023-2024 academic year), we carried out work on:

- selecting control and experimental study groups and checking the homogeneity of these groups;
- determining the variable and constant conditions of the experiment;

The formative stage of ER involved the effective implementation of four pedagogical conditions and the implementation of the developed structural-functional model of FMC in FT of PE in the study of the academic disciplines «Theory and Methods of PE» and «Pedagogy» At the same time, we measured the interim results of the implementation of pedagogical conditions and the structural-functional model and decided to correct them if necessary; collected information on the progress of ER; agreed on the procedure for forming the experiment program.

The participants of the formative stage of ER were students who initially studied in the second and then in the third year of the 014.11 Secondary Education (PE) program at experimental HEIs. All of them were involved in the ascertaining stage. It should be noted that at the end of the third year of study (admission to the educational and professional program took place in 2022-2023) there were two academic groups at KPNU with a total of 36 students (18 in each group) and one group of students from

UzhNU (22 people) and MDPU (20 people). It should be noted that the number of students from the middle of the second to the end of the third year decreased from 85 to 78, as some of them left the country, fleeing the war in Ukraine, and some of the students dropped out or took academic leave for valid reasons.

Using the comparative analysis method, we formed control (CG) and experimental (EG) groups (Tabl. 3.4).

EG and CG participants were identified based on the general population, using a reliable method of forming a sample population and the cluster sampling method, where FT of PE study groups were selected as research units.

Table 3.4

Division of FT of PE into CG and EG according to the results of the entrance control at the formative stage of the experimental research

№ f/b	Higher educational institutions	Quantity of participants from the number of FT of PE at the entrance control	
		CG	EG
1.	KPNU	18	18
2.	UzNU	–	22
3.	MSPU	20	–
TOTAL (total number of students)		38	40

Students were recruited to the CG and EG in accordance with the current regulations: greater statistical homogeneity of the general population allows for a smaller sample size (Christensen M., 2012).

The sample of students involved in the experiment is representative, as all FT students study at HEIs and are training to become PE teachers under the educational and professional program Secondary Education (PE). At the same time, each of the academic groups is a separate group of students. FT are second-year bachelor's students (at the time of the entrance control (EC) of the formative stage of the experimental study) and are acquiring knowledge in general and PT disciplines.

The distribution of students into CG and EG was based on EC results. In this distribution, we took into account factors that indicated equivalent conditions for students' entry into the experiment at the formative stage of the study:

- CG and EG have almost equal quantitative composition of participants (QP). There were 38 people in CG and 40 people in EG;
- virtually identical numerical values for each component of FMC in CG and EG students according to EC results, which we tracked through the analysis of data in Tabl. 3.5.

Table 3.5

Similarity of numerical values of FdMC in FT of PE in CG AND EG by the results of the EC of the formative stage of the ER

№ f/b	Com- ponents	Groups	Levels of FMC								AV
			High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
			KY	%	KY	%	KY	%	KY	%	
1.	MV	CG	5	13,16	13	34,21	18	47,37	2	5,26	3,55
		EG	5	12,50	15	37,50	17	42,50	3	7,50	3,55
2.	C	CG	4	10,53	12	31,58	20	52,63	2	5,26	3,47
		EG	5	12,50	10	25,00	23	57,50	2	5,00	3,45
3.	PA	CG	3	10,53	14	31,58	17	52,63	4	5,26	3,42
		EG	3	12,50	15	25,00	18	57,50	4	5,00	3,42
4.	RD	CG	4	10,53	12	31,58	19	50,00	3	7,89	3,44
		EG	5	12,50	11	27,50	21	52,50	3	7,5	3,45
Average value		CG	4	10,53	13	34,21	18	47,37	3	7,89	3,47
		EG	4	10,00	13	32,50	20	50,00	3	7,50	3,45

It should be noted that training sessions in FT of PE in the EG within the ER were conducted traditionally, in accordance with the approved work programs of academic disciplines, and in the EG, in addition, the pedagogical conditions and structural-functional model of FMC in FT of PE were effectively implemented. The results obtained by ER on the FMC in HEIs under BL conditions in EG applicants were

compared with the results obtained in CG, since our goal was to identify the effectiveness of the implemented pedagogical conditions on the process of FMC in FT of PE. The testing of the described criterion-based assessment apparatus for the FMC in PE students indicated its effective objectification of the results obtained, providing them with an unbiased assessment, and thus determining with its help the levels of formation of the specified competence in bachelors of specialty 014.11 Secondary Education (PE).

The entire formative stage of the experimental work was characterized by the following fundamental dominant features:

- the reliability of the ER results obtained was ensured by the practically identical quantitative composition of FT of CG and EG, almost equal initial digital indicators and levels of FMC in first-year students (ascertaining stage) and more or less equal professionalism of teachers who provide teaching of educational components in this educational and professional program to students of CG and EG. To confirm this, we analysed the educational component of the PP of PE bachelors and carried out a qualitative assessment of the pedagogical activities of the teaching staff of the departments of HEIs that provide the EP in FT;

- the content of the educational components taught by teachers working with EG students largely included teaching material that enabled them to develop their necessary educational, cognitive, and personal and professional abilities. During the formative stage, there was continuous monitoring of the FT of PE learning material and the FMC;

- the main provisions of the formative stage of ER were implemented in the process of lectures and practical classes, group classes, and out-of-class work, which contributed to the FMC in FT as a result of effectively structured pedagogical interaction between teachers and PE students.

At the fourth, final stage (at the end of the 2024-2025 academic year, i.e., in June, as well as in July and August 2025), we:

1. Analysed the final assessment of the level of FdMC.

2. Evaluated the effectiveness of the implemented pedagogical conditions and the structural-functional model of FMC in PE students.

3. Summarized the results of the dynamics of FMC in FT of HEIs and carried out a comparative analysis of qualitative and quantitative changes in the level of FMC in bachelors under BL conditions.

4. The method of mathematical statistics was used for qualitative and quantitative data processing.

At the same time, at the final stage of ER, general conclusions were written, prospects for further scientific research on finding ways to improve FMC of FT of PE in HEIs were determined, and the text of the dissertation was finalized.

Thus, our experimental work at all stages of ER was aimed at solving the key task – FMC in FT of PE under BL conditions. At the same time, it is important for our research to describe the organization and methodology of the formative stage of the experiment.

3.2. Organization and methodology of conducting a pedagogical experiment

Currently, the PE system in Ukraine is aimed at solving the problem of PT of FT for effective management of the PE sphere, as it occupies an important place in both the spiritual education of young people and their intellectual and physical growth. Modern PE teachers focus their activities on the full and harmonious physical development of students and their acquisition of a high level of physical fitness. The activities of such teachers fully provide the EP with the necessary conditions for strengthening the health of schoolchildren and improving the quality of their physical life.

At the same time, the process of managing PE in GSEIs cannot be separated from educational reforms and regulatory and legal provisions/acts/documents, etc., which are aimed at improving the effectiveness of PE lessons and conducting PE and sports activities with schoolchildren. Therefore, the formation of MC in HEIs for bachelors majoring in 014.11 Secondary Education (PE) requires a timely solution. PE

management, as a multifaceted concept, is interpreted in accordance with the specifics of the subject of our research, and therefore consider it as a separate type of pedagogical activity that contributes to the development of management decisions, assists in the organization of the implementation of these decisions, controls and regulates the management process in accordance with the set goals, and thus holistically provides a system of managerial influence on the object of PE and physically improves it.

Therefore, a modern PE teacher is a competent specialist-manager who coordinates the school's work plan on PE, organizes students' work in PE classes and extracurricular sports events; able to interact effectively with the teaching staff, parents, and the community to create optimal conditions for students' PE and conduct classes to ensure a healthy lifestyle.

Therefore, we consider FMC in HEIs under BL conditions in FT of PE to be a complex and multifaceted phenomenon that is significantly influenced by both direct and indirect pedagogical conditions, factors, and circumstances. They act as an intermediary link between the set goal and the final result achieved, through which the effectiveness of the teacher's work in the specified direction is determined.

With this in mind, in subsection 2.2, we identified and substantiated four pedagogical conditions for FMC in FT of PE in HEIs under BL conditions, which are characterized by close interconnection, interdependence, and the ability to reproduce each other. Their use in the EP of training bachelors allowed us to determine the target orientation of the experimental work and to verify the effectiveness of the implemented conditions for FMC students of this specialty (Rebukha L., & Chen R., 2024 f).

The definition of the purpose of the experimental work contributed to the establishment of a working hypothesis, which emphasizes that purposeful FMC is ensured by the effective implementation of pedagogical conditions and a structural-functional model in FT of PE training. The pedagogical conditions aimed at effective FMC that we identified during the theoretical analysis include:

1. Creating a motivational and value-based educational environment.
2. Focusing PT disciplines on management activities (MA).
3. Application in professionally oriented situations in the EP.

4. Encouraging self-education activities.

We identified the following as the most important tasks of the ER formative stage:

- a) to implement the structural-functional model of FMC in the teaching of FT of PE in HEIs (see Table 2.2, theoretically substantiated in section 2.3);
- b) to prove experimentally the effective influence of pedagogical conditions on FMC in PE bachelors and the effectiveness of the methods used in ER for such formation.

Identifying the research problem, defining the subject, working hypothesis, and its objectives helped us prepare a Program of FMC in FT of PE, which is based on a scientifically sound structure consisting of:

- testing the initial level of FdMC in FT of PE in HEIs;
- practical implementation of the structural-functional model of FMC in bachelor's degree programs;
- verification of the level of FdMC in FT after the formative stage of the experimental work;
- analysis of the results of the experimental work of FMC in third-year students and their generalization for the implementation of effective pedagogical conditions in education.

The formative stage was conducted in a step-by-step manner. This was the formative stage of the experiment itself, which involved the use of effective methods for diagnosing FdMC in FT of PE, and mathematical processing of the numerical data obtained during the practical implementation of the experiment. The study combined diagnostic and methodological work, testing of the specified pedagogical conditions, and various forms of organizing the educational environment for students to acquire MC.

The formative stage of the experiment, which took place in three HEIs (KPNU, UzhNU, and MDPU), involved testing the effectiveness of the pedagogical conditions implemented (fully described in section 2.2), which were specifically aimed at improving the level of FMC among bachelor's degree students. We tested the formation

of this competence using the criteria (listed and described in section 2.1) and corresponding test samples.

Experimental work during the formative stage was based on substantiation of the model of the FMC in FT of CG and EG and focused on the continuous professional and managerial development of students by improving their managerial knowledge, skills, and abilities, as well as their future leadership self-development and managerial self-improvement.

The formative experiment consisted of introducing additions to the themes of the academic discipline «Theory and Methods of PE» (the discipline is studied by students in the 4th, 5th, and 6th semesters) into the EP of ER bachelor's degree students, URL : <https://fizkultura.kpnu.edu.ua/wp-content/uploads/2024/09/rp-tmfv-2024-2.docx-za-opp-2021-1-1.pdf>), «Pedagogy» (a subject studied by students in the third semester, URL : <https://fizkultura.kpnu.edu.ua/wp-content/uploads/2023/12/rob.-prohr.pedahoh-ka-2022-2023.pdf>) and their active participation in optional classes, which were jointly provided by the FMC. Changes made to the subjects taught by two departments (the Department of Theory and Methods of PE and the Department of Pedagogy and Educational Management) allowed for interdisciplinary FMC in FT of PE and eliminated certain content inconsistencies related to MA knowledge.

The implementation of the elective course «Management Competence as an Important Component of Professional Development for Teachers» with students (the elective course was held in the 5th and 6th semesters of the 2024-2025 academic year) took place in accordance with five interrelated and logically coordinated stages: preparatory, motivational, activity-based, practical, and final.

Each stage had its own tasks (Appendix E). At the preparatory stage, a number of organizational issues were resolved and an initial diagnosis of FdMC in FT of PE levels was carried out. The motivational stage involved identifying students' need to acquire MC in HEIs and encouraging them to develop a positive attitude towards MA. During the activity and practical stages, the teacher's actions were aimed at the assimilation of new management knowledge, the practical acquisition of personal and management skills and abilities, as well as the development of management skills with

a view to applying them in real-life situations. At the final stage, a summary diagnosis was carried out, which made it possible to obtain feedback on the assessment of the results of the work carried out.

Optional classes, organized in this way, had an effective impact on students' acquisition of new management knowledge and the organized activity-process component of FMC in FT of PE. In addition, attending the elective course contributed to the managerial development of FT students, affecting the growth of their managerial potential and leadership skills.

Therefore, during the formative stage of ER, the following areas of work with PE bachelor's students were implemented:

I. ER ES were asked to:

- complete practice-oriented tasks (case studies) (Appendix F, case 1 and case 2), using the knowledge gained in the academic disciplines of «Pedagogy» and «Theory and Methods of PE»;
- write abstracts within the framework of the scientific research work carried out by the Department of Theory and Methods of PE (Appendix G).

Second-year students (at the end of the fourth semester), solving practice-oriented management tasks, devoted a lot of their own time to solving them. They had to use both their existing management knowledge and skills in their field and independently study scientific literature to acquire new knowledge in order to solve a particular management problem outlined in the task. The knowledge gained in «Pedagogy» (a subject studied in the third semester) and «Theory and Methods of PE» (a subject studied by students in the fourth semester and throughout the fifth and sixth semesters) contributed to the correct solution of the cases (Appendix F, case 3 and case 4).

Solving management-oriented cases helped students realize the prospects for their practical use in the future and motivated FT to independently develop their own MA.

The work of students on their own research themes (the themes for writing theses are listed in the Appendix G) was carried out under the guidance of teachers from the

graduating department. Students learned to structure their thoughts while writing theses on management issues of a problematic nature, describing management practices.

Thus, the practical management knowledge and skills acquired by ER students contributed to FMC and prepared them for effective MA in the future.

II. The PE bachelor's degree program introduced an elective course developed by us, «MC as an Important Component of Professional Development for Teachers» (Appendix E).

In terms of content, it was similar to independent work by students on additional study of the disciplines involved in the experiment and provided for further resolution of practical problems in pedagogical management. Active participation in the elective course and solving the tasks of each class motivated FT of PE to study independently, developed the need to acquire professional and managerial knowledge, and contributed to the formation of effective practice-oriented skills and abilities to solve educational and managerial problems.

The tasks of the elective course were varied, which allowed us to work with ER students on individual management tasks that focused them on effective performance. Success was achieved by those students who thought creatively and flexibly, were persistent, active, strong-willed, sociable, etc. At the same time, the elective classes provided bachelor's students with established management and educational knowledge, skills ready for use in the future, and methodological skills in this area of work. Each class focused students on self-development and future self-education activities.

III. Active formation of MA took place on the basis of established interdisciplinary links for the study of disciplines in the PT cycle (EPP Secondary Education (PE) of the first (bachelor's) level of HE URL : <https://drive.google.com/file/d/1qKZubTLJEabsn3lGY29HZ3zaxLV-8IaX/view>).

Interdisciplinary learning was implemented during the study of themes from sections of disciplines related to teaching techniques (theme 1.3), the EP (1.6), lessons as a form of organizing and analyzing learning (1.11), and monitoring in the learning process (1.12) (see the syllabus for the academic discipline «Pedagogy»; URL : https://fizkultura.kpnu.edu.ua/wp-content/uploads/2023/12/rob.-prohr._pedahoh_-

ka-2022-2023.pdf), PE systems (1.2), principles of PE (1.3), content and features of teaching the subject «Physical Education» at school (2.10), organizational forms of PE for schoolchildren during the school day (2.11), general foundations of the theory of sports activities (3.1) (see the syllabus for the academic discipline «Theories and Methods of Physical Education»; URL : <https://fizkultura.kpnu.edu.ua/wp-content/uploads/2024/09/rp-tmfv-2024-2.docx-za-opp-2021-1-1.pdf>).

Interdisciplinarity in the EP of ER bachelor's degree students enables them to acquire the management knowledge, skills, and special abilities necessary for future PA; to master management methods, tools, means, and procedures for making effective pedagogical and managerial decisions. Practical work on methods in optional classes on effective management task solving helped FT gain some real pedagogical experience in management work.

Under the conditions of experimental work, the formative experiment involved testing the effectiveness of implementing the pedagogical conditions proposed and comprehensively described in section 2 in the HEIs EP. 2 pedagogical conditions, which, according to their theoretical justification, should ensure the effective formation of MC in students and have an effective impact on the process of educational training in this area (Chen R., 2025).

The proposed plan for the formative stage of the experiment complies with all educational and regulatory documents governing the EP in HEIs and does not contradict its implementation. Accordingly, the scientific and methodological preparation of the experiment ensured the objectivity of the research and verification of the effectiveness of the author's structural-functional model and pedagogical conditions. During the formative stage, the following was carried out:

- a) targeted development of problem-based management tasks (cases);
- b) modeling of the content of academic disciplines defined for ER;
- c) designing the structure of the elective course «MC as an Important Component of Professional Development for Teachers» and analyzing the feasibility of its methodological support;

d) supplementing the content of the working programs of selected academic disciplines in the section «Independent work», in which one of the points was «writing and publishing scientific theses» with the need to highlight the managerial aspects of PA (the themes of individual research work are listed in Appendix G);

e) expanding assessment tools as an effective experimental instrument for assessing FMC in FT of PE.

The practical implementation of the formative stage was based on the application of pedagogical conditions and a structural-functional model in the EP of FT of PE. Thus, the creation and development of a motivational and value-based educational environment was achieved through:

1. Demonstrating to students the experience of effective pedagogical and MA of teachers and instructors of PE in HEIs and GSEIs.

2. Active participation of students in round tables, motivational discussions, and debates with the aim of enriching and deepening their managerial knowledge and awareness of its role for their future profession (Appendix E).

3. Including bachelor's students in a group class from the elective course «Managerial Competence as an Important Component of Professional Development for Educators» on the theme «Management in Pedagogical Activity: Role and Significance» (Appendix E), where the goal of the class was to motivate and encourage students to develop leadership qualities, and thus enriching HEIs applicants with knowledge of pedagogical management.

4. Development and demonstration of presentations on management themes: «Team interaction and its impact on effective managerial decisions», «Innovative approaches to managing the EP», «The modern educator: the essence and structure of educational management», «The development of critical thinking and strategic planning in educators», «Teacher communication skills: how to build effective dialogue within management activities», «Innovative technologies in pedagogical management», etc.

The introduction of the first pedagogical condition made it possible to expand the content of lectures with problem-motivational questions that are important for FT

of PE as an EP manager. The content of the discipline «Pedagogy» was supplemented with the following questions:

1. Combining different pedagogical techniques for optimal management of group work and activity of GSEIs (content module 1, lecture 3, semester 3).
2. The impact of effective management of the EP on the academic performance and development of students (content module 1, lecture 6, semester 3).
3. Control as an important element of education quality management (content module 1, lecture 11, semester 3).

During the practical classes on the above lecture themes, the concepts of «the personality of the teacher-manager», «the managerial qualities of the teacher», «teacher motivation for management activities», «PE management», «subjects and objects of PE management», «control in PE management», etc.

Additional questions on the lecture themes of the discipline «Theory and Methods of PE» included:

1. The management aspect in the PE system (content module 1, lecture 2, semester 4).
2. The management aspect in the implementation of PE principles (this issue was considered in terms of the influence of motivation, planning, organization, and control on the effectiveness of PE) (content module 1, lecture 3, semester 4).
3. The modern PE lesson: preserving traditions or focusing on innovation (content module 2, lecture 10, semester 5).
4. The role of the PE teacher in planning PE and health activities throughout the day (content module 2, lecture 11, semester 5).
5. Management decisions in the process of training and competitive activities (content module 3, lecture 1, semester 6).

During practical and seminar classes on the specified lecture themes, students familiarized themselves with concepts important for PA: «the personality of the teacher-manager», «the managerial qualities of the teacher», «teacher motivation for management activities», «management decision-making», «innovative management in PE pedagogy», «management decision-making», «PE management», «subjects and

objects of PE management», «control in PE management», etc. A number of these concepts were comprehensively and substantively discussed at a round table organized as part of an optional class (October 2024) on «The role of management pedagogy in the formation and development of a PE teacher» (Appendix E), where the following motivational issues were discussed:

1. How does the acquired management competence in FT of PE help to effectively plan and conduct the EP?

2. What role does effective management play in resolving conflicts with colleagues, school administration, parents, and in solving various organizational issues?

In parallel with classroom sessions, EG students attended an optional course. Active participation in the optional course (lasting 2 hours) on the theme «Teacher's value-motivational guidelines and their impact on management activities» (Appendix E) helped students gain new knowledge about the important role of professional values for effective pedagogical management, awareness of their managerial purpose, finding ways to motivate themselves for managerial growth and self-realization in the profession, etc. The class involved demonstration methods, storytelling, problem solving, discussion, and situation modeling. In the practical part of the class, students worked on planning motivational activities for their group to develop their management competence. To this end, each student individually developed a planning form indicating the tasks of a motivational event for a month (at least two events) and the dates of its implementation. A special feature of this task was that students were not pointed out mistakes and inaccuracies. The development and completion of the form involved the teacher's work on discussing problem areas, which included identifying the most relevant motivational activities, setting motivational goals, etc. With the help of the teacher, a unified and most optimal version of the plan for holding events was developed, which took into account both the positive and negative aspects of motivational planning for the group's activities.

Teachers developed students' MC during academic classes and extracurricular activities, which contributed to the perfect development of their professional and value

qualities, personal and activity motivation for MA, and perseverance in learning (Chen R., 2024b).

Motivation for professional growth within the MA program was ensured not only by active participation in classes, but also by meetings with well-known specialists in the field of PE and sports, which were positively evaluated by FT of PE, and by the active involvement of students in open classes, which made it possible to consider complex management tasks. At the end of each semester (4th, 5th, and 6th) as part of their independent work in the discipline «Theory and Methods of PE», EG students were asked to write an essay in which they had to reflect their own impressions of personal changes related to the implementation of the management competence acquired in HEIs in future PA.

Essay themes (e.g., «The role of leadership in the pedagogical activity of FT of PE», «My professional growth as a future manager in the context of PE and pedagogical activity», «Self-reflection in MA», «My vision of an effective PE manager», «Self-management as the basis for the professional development of a PE teacher-manager», «My professional credo as a PE manager», «The importance of the MA of a PE teacher in organizing sports and mass activities with GSEIs students», etc.) reflected the students' assessment of managerial and pedagogical activities and their own reflection on their awareness of themselves as managers in the field of PE.

The introduction of the second pedagogical condition (focusing PT disciplines on management activities) into the EP of FT was based on:

- the use of thought mapping in the disciplines involved in the experiment as a method of conducting a systematic analysis of the thinking process of students combined with the visualization of their educational and management activities;
- the targeted involvement of ER students in optional seminar and management activities;
- the practical application of SWOT analysis during PT discipline classes.

Let us consider each of these points.

1. The use of the mind mapping method allowed students to immerse themselves in the information contained in the mind maps for each section of a particular

discipline. This contributed to a significant increase in the FT of EG level of perception of theoretical information for each of the themes, and thus to the independent systematization of the material studied. The proposed mind maps (developed thematic block diagrams) were aimed at effectively identifying important connections between sections and themes of academic disciplines for bachelor's degree students and enabled them to systematically distribute the studied content of the educational material according to the established interdisciplinary connections. The particular value of developing the technology for compiling mind maps lies in:

- visualizing interdisciplinary connections (between the content of the disciplines «Pedagogy» and «Theory and Methods of PE») and their interpretation;
- improving student learning through the use of effective methodological materials, optimization of team interaction, and the possibility of using mind maps both individually and in group work.

We believe that the scientifically based interdisciplinary organization of the EP in HEIs is based on a comprehensive approach to the formation of work programs involved in the experiment of disciplines that provided comprehensive fundamental and PT in FT of PE in accordance with the agreed content of such training (Chen R., 2023). The interdisciplinary knowledge acquired by bachelor's degree students contributed to the prediction, development, and evaluation of future managerial and pedagogical activities.

The presentation of educational information from content module No. 1 «General Pedagogy» of the discipline «Pedagogy» (the discipline is studied by students in the 3rd semester and belongs to the compulsory educational component of the PT cycle) using a compiled mind map is presented in Fig. 3.1.

The decomposition of each block indicated in the lesson's mind map provides students with an effective direction for working through the themes, and thus the questions for consideration for each individual theme, and for analyzing them (in our case, this is the theme of lecture 1.6; shown in Fig. 3.2).

Students are explained that working through each higher level of the block (for example, from 1.1, 1.2, 1.3 ... to 1.16 or 1.17) in the hierarchy of studied lessons means

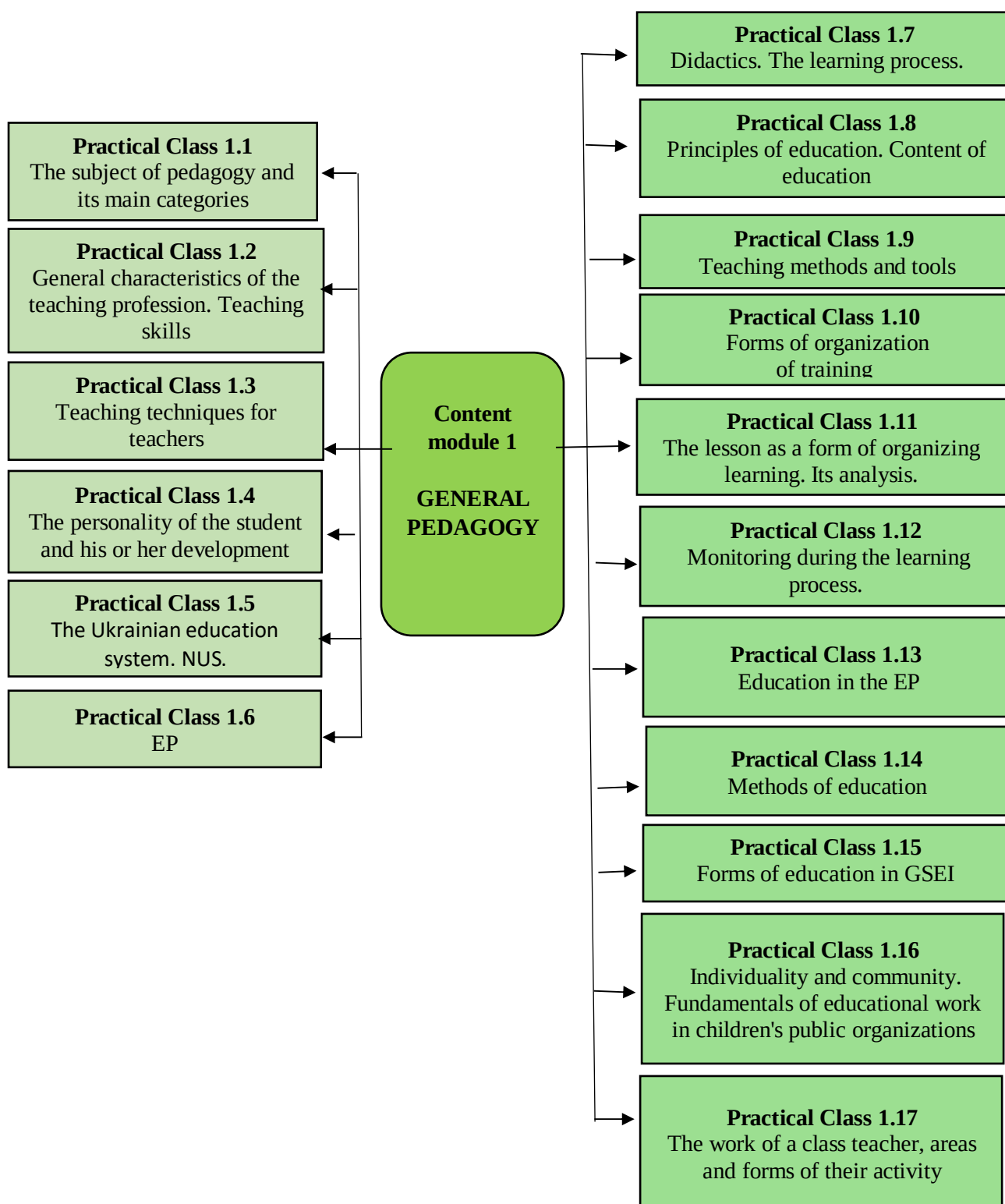


Fig. 3.1 Part of the mind map for content module No.1, «General Pedagogy»

a lower level of detail, but a higher level of achievement of the learning objectives specified in the Working Program of the discipline «Pedagogy». At the same time, FT of PE explained that at the final levels of the mind map (for example, themes 1.15,

1.16, or 1.17), lower goals are formulated, but in such lessons, the degree of their detail is as high as possible. The choice of a specific level of the block by EG students allows them to visualize the necessary level of detail of the content of the studied material, analyze it, and thus fully achieve the goal of the lesson.

For example, we provide a detailed mind map on a specific theme (lesson 1.6) from the discipline «Pedagogy» selected for ER, as its use in FT of PE training at the formative stage made it possible to solve a number of educational problems related to the FMC (Fig. 3.2). The decomposition of lesson 1.6 made it possible to:

- consolidate the knowledge acquired by EG students on this theme, develop the ability and skills to independently find the necessary management information, analyze it, learn to synthesize new educational materials using modern MindJet Mind Manager software (used by us to develop students' systematic thinking, better visualize the material studied, and manage it) and innovative DT;

- strengthen subject-subject relationships between teachers and students and establish equal feedback between all participants in the EP in classrooms;

- encourage bachelor's students to personally recognize the importance of management principles in the physical sphere as the basis for the FMC in FT of PE.

In addition, as part of the implementation of the second pedagogical condition in the practical classes of the elective course «Management Competence as an Important Component of Professional Development of a Teacher», which were held in a mixed form of organization of training (classroom and extracurricular), students were offered a number of themes for consideration and study related to the integration of the management component into their content. This allowed students to thoroughly comprehend the material studied through the prism of the MF they had mastered and to orient the knowledge, skills, and abilities acquired by each student toward future practical management. Let us describe the elective practical classes of FMC effectively in FT of PE.

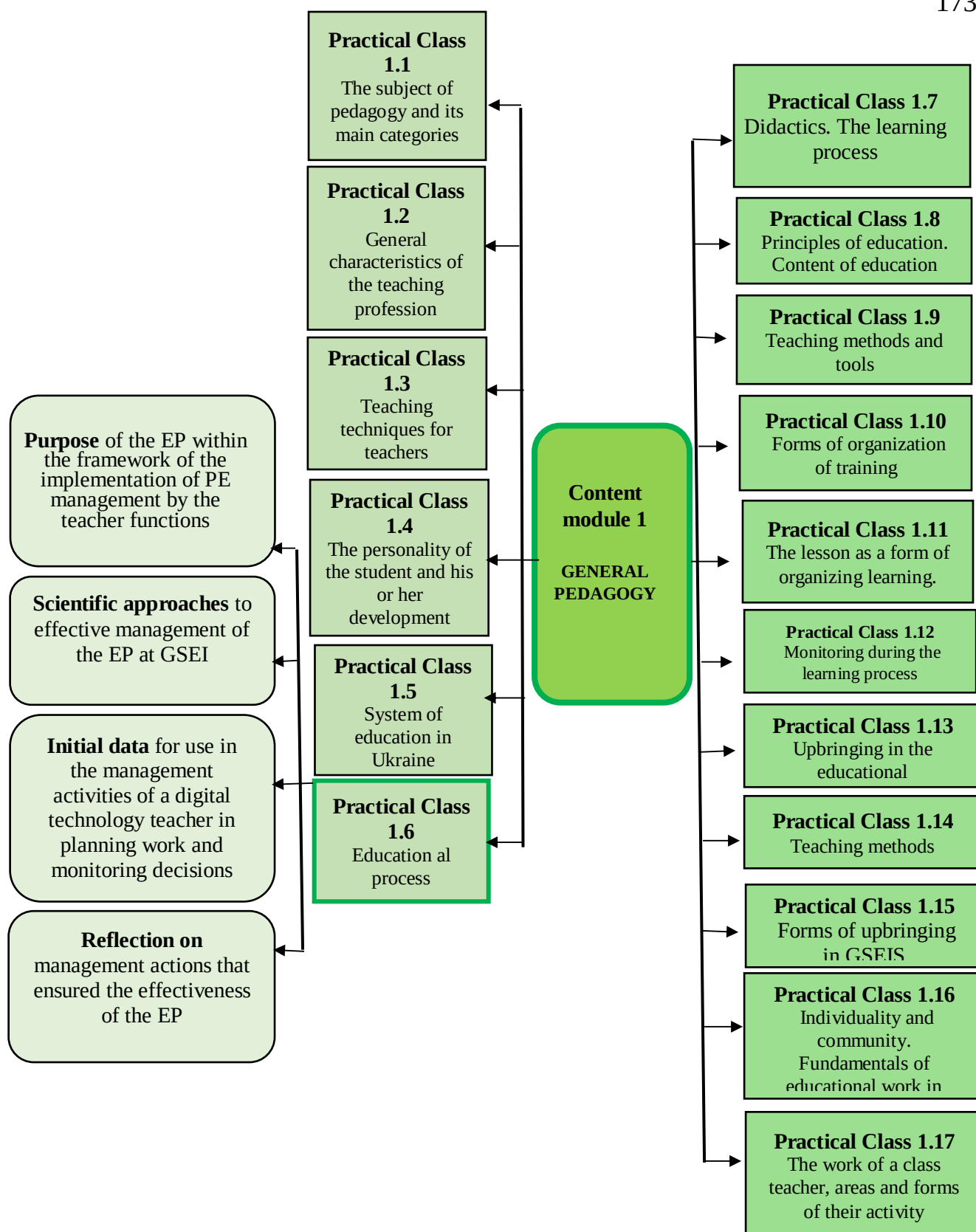


Fig. 3.2 Decomposition of block 1.6 of the academic discipline «Pedagogy»

1. Thus, the practical class on «Planning and organizing the management activities of teachers in the field of PE» (Appendix E) (allocated 4 hours for its

implementation) revealed the management activities of PE teachers as a purposeful and organized process of their influence on participants in the EP with the aim of improving the physical fitness of GSEIs students and forming a healthy lifestyle.

The purpose of the practical training was to improve the main MF, which included semester planning of the teacher's activities with the definition of ways to achieve management results; organization of effective work of the teacher to create appropriate conditions for conducting PE lessons; motivating students to realize the value of various activities in PE lessons for their health; monitoring, evaluating, and correcting results for effective changes to the FC management plan and the EP as a whole. Management skills of FT of PE were developed during the practical part of the class (two-thirds of the class was devoted to the practical part). The training included the development by students of a fragment of a monthly training and coaching plan for a sports section (i.e., four classes) with an indication of the purpose of each class, tasks, forms of work, and control indicators of the results obtained (the indicators were measured at the end of the fourth class).

2. The practical class on «Motivating students for PE lessons through effective pedagogical management» (Appendix E) involved EG students studying the theoretical foundations of motivation (its forms and methods) for four hours, as well as practical work analyzing factors (for example, students' need for physical activity; schoolchildren's sense of success and self-confidence in effectively solving tasks in PE lessons; the attitude of friends and family towards PE lessons; the influence of an emotionally supportive classroom climate on motivation, etc.), which directly affect student motivation in PE lessons.

In addition, students received forms in which they recorded managerial and pedagogical situations and, accordingly, suggested answers for their resolution. Students effectively found the best option for motivating students to perform a specific task and learned to find regulatory and motivational mechanisms for proper pedagogical management. The answers obtained were collectively discussed and comprehensively justified in the form of a dialogue within a group discussion. This

contributed to the implementation of an individual approach to the FMC in FT of PE, and thus their readiness for their future profession.

3. A practical class on «Innovative Technologies in PE Management» (Appendix E) (4 hours allocated for its conduct) allowed students to familiarize themselves with innovative digital, information and communication, and educational technologies for improving MA effectiveness. At the beginning of the practical class, a mini-discussion was held on the theme «What innovative technologies are currently the most effective in conducting PE lessons?». After discussing the issue, in order to summarize the students' opinions expressed in the discussion, there was a short review of presentations that taught the correct use of Smart trainers and various sports applications in the work of a PE teacher. The active FT of PE participation in the optional class helped them become familiar with effective technological management tools – Google Classroom (helps with lesson planning), Trello, Notion (helps with project management in PE), GPS and Garmin Connect (helps monitor students and their activities), and others. The culmination of the class was the students' own development of a lesson fragment using the necessary elements of innovative technologies, its presentation, and subsequent collective discussion. The practical classes of the elective course conducted in this way helped EG bachelor's students gain management experience in determining the main directions of work in PE classes, taking into account the existing conditions of the educational environment and the strengths and weaknesses of the student group, and to understand the importance of introducing innovative technologies into their own management actions when performing pedagogical tasks.

4. Practical class on «Management tasks: ways to solve them by PE teachers» (Appendix E) (allocated 8 hours for its implementation) was significant in the cycle of optional classes conducted for FT of PE of EG, as it was based on the writing and demonstration of group projects by bachelors on the theme of the class, corresponding to the ER disciplines. The themes of group projects were formed by us in accordance with each discipline:

a) Pedagogy – «Management professional ethics and its humanistic orientation», «Individual approach as a management task in pedagogical activities with students of

different levels of physical fitness», «Quality management of the EP using ICT», «Communication and management strategies of PE teachers in organizing sports events in general education schools», «Evaluation of the effectiveness of management decisions and search for ways to overcome identified management problems»;

b) Theory and methodology of PE – «Planning PE lessons: managerial decision-making by teachers», «Monitoring and correcting students' physical fitness in PE lessons as a managerial task for teachers», Methodological approaches to managing the development of key physical qualities in schoolchildren, Management strategies for teachers in shaping a health-conscious culture among students, Teamwork among PE teachers in solving GSEIs management tasks.

During two semesters (5 and 6), EG students, whom we divided into groups (KPNU (18 students in EG) – 3 groups of 6 people each; UzhNU (22 students in EG) – 2 groups of 7 people and 1 group of 8 people each), completed 6 projects on the proposed themes of two disciplines. Each group had a responsible leader, who was changed according to the specific project task. Therefore, each member of the project group performed the managerial functions of a project leader at one stage or another of the research and experimental work. The responsible attitude to project activities and their effective implementation by bachelor's students made it possible to assess the FdMC in EG students.

5. A practical class on the theme «Reflection on the management activities of FT of PE» (Appendix E) (6 hours were allocated for its conduct) allowed to reveal the understanding and essence of reflection in the professional development of a PE teacher. During this optional class, students solved situational tasks related to conflict management during games, managing students in the absence of discipline in the classroom, managing actions in the event of ineffective organization of school sports events, etc. Joint discussion of the results allowed students to find effective solutions to problematic situations and to self-analyze their own management activities. With the organization of this type of independent work by teachers, EG students were able to analyze their own actions in the process of solving situational tasks and mastered the basic skills related to self-reflection, self-assessment, and self-improvement.

The result of the optional classes was a test that served as a check of FT of PE knowledge they got on building their management skills under BL. The test itself consisted of subject testing and the writing of a written test by bachelor's students, which included questions (theoretical and practical blocks of questions) on the FMC (Appendix H).

The third pedagogical condition (the use of professionally oriented situations in the EP) was implemented during the study of the academic disciplines involved in the experiment, «Pedagogy» and «Theory and Methods of PE», where EG students had the opportunity to immerse themselves in the educational environment by:

- analyzing pedagogical phenomena on management themes;
- making informed decisions on specific or simulated educational situations;
- justifying the choice of the optimal solution, etc.

Accordingly, teachers encouraged students to develop their own skills in organizing, conducting, and analyzing classes and making decisions in typical and atypical pedagogical situations, taking into account the age and individual characteristics of GSEIs students.

Students of the Faculty of Education were offered problem-based tasks (cases) for consideration and detailed analysis (from theoretical and practical perspectives):

Situation I. The implementation of a management decision is based on certain expectations on the part of both the student and the teacher. So, during a PE lesson in the 8th grade, the teacher noticed that the students were distracted from the lesson, did not let go of their mobile phones, did not listen to instructions, and did not follow safety rules. In an attempt to restore order, the teacher began to give sharp commands, making remarks in a raised voice and harsh tone, and, accordingly, often punished the students with multiple push-ups. After several such lessons, the students became more organized and disciplined, but their interest in PE classes decreased significantly, as the lessons became emotionally cold and formal. The question arises:

- 1) What management style does the teacher demonstrate in the PE lesson?
- 2) Analyze the positive and negative aspects of the teaching style you have identified in this situation

3) Is communication during the lesson well established? What communication mistakes did the teacher make?

4) Suggest your own management actions to increase students' motivation for PE lessons.

5) Is it possible to combine strictness and friendliness in the work of a PE teacher? If so, how can this be done?

6) Draw a structural-logical diagram of the internal management interaction between the teacher and students during the lesson.

Situation II. During a gymnastics lesson, one student was injured. It was noted that safety rules were violated during the lesson. The administration of the educational institution is conducting an official investigation. The question arises:

1) What, in your opinion, could be the unacceptable consequences of the lesson?

2) Identify the management mistakes made by the teacher.

3) Propose an algorithm for managing the lesson and possible risks during classes.

4) Recommend an action system for internal safety control in PE classes.

5) Describe effective communication between the teacher and the GSEIs administration.

Solving situational tasks helped students understand the difference between different styles and functions of PE management, develop the ability to comprehensively analyze pedagogical situations, make the right management decisions, and develop their own self-reflection skills. Therefore, the use of professionally-oriented situations in teaching students while studying the disciplines of «Pedagogy» and «Theory and Methods of PE» was implemented through the introduction of situational learning into the EP, aimed at forming professional and managerial competencies in FT of PE that are necessary for future effective pedagogical activity.

In addition, the practical tasks (case studies) proposed by the teachers were successfully solved in the process of a group optional class, which took the form of a round table on the theme «Modern approaches to the development of management

competencies of FT of PE». First, they discussed the importance of key approaches to the FMC, with a decisive emphasis on the managerial knowledge, skills, abilities, and capabilities formed in HEIs to make informed managerial decisions in unpredictable and problematic pedagogical situations, while the second part of the round table was devoted to solving the case itself.

The wording of the case and the corresponding tasks that followed from the case (Appendix E) were communicated to students in advance for teamwork. During the round table, representatives from each small group of students presented the results of their group work.

Following a successfully organized group discussion and its productive feedback, the optional class focused on teaching FT of PE on conducting lessons. In addition, during the class, students learned to plan and organize mass sports activities, effectively communicate and manage team/group work using ICT and innovative pedagogical technologies, take into account the health of all participants and inclusion when conducting lessons and various school sports events, and thus respond instantly to any changes. FT of PE produced a high level of MC, which was manifested in interaction with the administration, parents, and students.

Thus, the work of the round table participants contributed to the activation of EG students towards professional and managerial self-development, increasing their interest in managerial PT, improving their own managerial and practical skills, deepening their understanding of independently studied scientific literature on FMC, and understanding the importance of learning management for FT of PE.

The implementation of the fourth pedagogical condition (stimulation of self-educational activity) in the EP of EG students directed them towards self-development and self-improvement. The addition to the content of the academic discipline «Pedagogy» included in ER (content module 1, practical class corresponding to the theme of lecture 17 «The work of a class teacher, directions and forms of his activity», semester 3) involved identifying the self-acquired gnostic and research and management skills of students by solving a problem-based task (case study) (Appendix H). Independent solution of the tasks outlined in the case study stimulated

the self-educational activity of EG students, within which purposeful motivational attitudes towards the need to improve management skills were formed, and mental activity and personal needs for self-development and self-improvement were fully manifested.

In addition, self-education activities were simulated in extracurricular classes. These classes helped students create their own educational trajectories (an example of a student's individual educational trajectory is provided in the Appendix E), which were aimed at deepening their knowledge of organizing and conducting PE in GSEIs classes. At the same time, an important role was assigned to the teacher, who, providing individual consultations as needed, developed the ability of students to independently plan, conduct, and analyze lessons, take into account the age and individual characteristics of schoolchildren when organizing PE classes, master motivational techniques related to physical activity, effectively apply innovative (digital) technologies and ICT tools in PE lessons, etc.

Individual educational tasks were formed with the help of appropriate online group support in the Moodle and Google Classroom systems, where bachelor's students had the opportunity to discuss problems that arose and receive advice from classmates and teachers on how to solve them. Each student, practicing self-education, created their own professional portfolio, in which they entered personal achievements (certificates, diplomas) and constantly supplemented it with feedback from practice supervisors, materials from published abstracts, letters of recommendation, etc.

In an optional class, students learned to create and regularly fill out electronic self-assessment diaries, which developed their autonomy and responsible attitude towards learning outcomes, which also contributed to an increase in the level of FdMC, and thus professional readiness for MA. At the same time, systematic reflection on their own achievements deepened critical thinking, led to the understanding and analysis of their own mistakes, and further professional growth. Effective elective classes provided students with active construction of personal experience, the ability to effectively self-organize and continuously improve themselves in pedagogical and MA, acquired during their studies at HEI.

Thus, the implementation of the specified pedagogical conditions and the structural-functional model we developed, both in the EP and in the specified elective classes attended by EG students majoring in 014.11 Secondary Education (PE), contributed to the disclosure of FdMC under BL conditions in them. This is proven by the results of experimental work and the methods of mathematical statistics used.

3.3. Research results and their analysis

The organization of the final stage of ER involved verifying the effectiveness of the pedagogical conditions and structural-functional model for the FMC in FT of PE in HEIs under the conditions of BL. A set of methods was consistently applied at both the initial and final diagnostic stages of the study (within the EC on formative stage of ER). The purpose of the final stage was to compare the quantitative results of the initial diagnosis with the final quantitative results obtained at the same stage of the formative experiment.

The final stage involved completing several important tasks, which included:

- establishing equal entry conditions in HEIs for the the implementation of the EP for FT of PE in CG and EG;
- ensuring the efficient implementation of author's methods aimed at the improving of the level of MC during the study of academic disciplines «Pedagogy» and «Theory and Methods of PE» as well as during group classes and training sessions conducted in a BL format;
- monitoring the effective implementation of the pedagogical conditions for FT of PE and the structural-functional model for the FMC in the EP of bachelor's degree students;
- processing the quantitative data obtained during the experiment using methods of mathematical statistics;
- comparing and analysing the quantitative and qualitative changes in the levels of FdMC among FT of PE;
- summarising the ER results in accordance with statistically reliable results.

The effectiveness of the research results directly depended on HEIs teachers, namely particularly on how they organised the teaching of students majoring in 014.11 Secondary Education (PE). It should be emphasised that the teaching staff of the departments involved in training FT in EG were required to follow the content-enriched Working Programme for academic disciplines included in the experiment as well as author's Programme for the step-by-step FMC in students, without making any changes or revisions to their content.

At the final stage of ER, we focused on identifying the dynamics of FdMC in third-year bachelor's students majoring in this speciality according to the criteria and levels described in section 2.1. The components of the AMC in FT of PE were identified as motivational-value, cognitive, professional-active, and reflective-developmental. The criteria corresponding to these components were personal, cognitive, activity, and reflective.

A detailed analysis of each component makes it possible to characterise the phenomenon of managerial competence formation among HEIs students in a BL environment based on the defined components, criteria, and indicators, and accordingly at the intersection of the established relationships between the criteria and levels. The assessment of FdMC in FT of PE involved the use of the criteria and levels defined within the ER. It was the criteria that made it possible to comprehensively verify the results obtained and compare them with the set goal. At the same time, with the help of a level-based approach, we were able to view the process of FMC in bachelor's degree students as a transition from a basic (low, satisfactory) to a complex (sufficient, perfect) level of development of this competence.

To this aim, our task was to compare the empirical data obtained at the initial stage of the ER with the results of the formative stage for CG and EG students. The dependent variable during the ER was the level of FdMC among PE bachelor's students in HEIs, of such competence formation. The verification of the effectiveness of FdMC in FT of PE in CG and EG was carried out according to the criteria defined and described in Subsection 2.1, as well as a generalised set of assessments obtained through each diagnostic method within the framework of students' self-assessment.

Thus, the effectiveness of ER in implementing pedagogical conditions and a structural-functional model aimed at FdMC in FT of PE within EP of HEIs was determined by comparing the obtained digital data of the initial and final levels of formation of the specified components among PE bachelor's students in CG and EG.

The effectiveness of the FdMC in FT is presented in Tables 3.6–3.10 and Figures 3.3–3.7. To validate the numerical results obtained during the ER and for the purpose of their detailed processing, we used methods of mathematical statistics, which, according to A. A. Kyveryalg (1980, p. 278), are professionally applied in pedagogy. To compare the parameters of general populations – mean values and variances – Fisher's criterion (F-test) was used together with tabulated data outlining the indicators of the theoretical F-values. (F_{krit}) (Kyveryalg A. A., 1980, c. 278).

We defined the null hypothesis, which was compared with the alternative and subjected to control revision, as zero. According to null hypothesis, the differences in the indicators of FdMC among FT in CG resulted from the traditional EP in HEIs and the use of conventional methods of knowledge acquisition, as well as the professional skills and abilities acquired by teachers through their teaching practice. However, the alternative hypothesis suggests that the difference in the results of FMC between EC and FC among PE bachelor's students in EG were caused by the systematic involvement of FT in the author's programme and the academic disciplines identified in the study, enriched with additional content. The programme and academic disciplines involved in ER are characterised by sound scientific and methodological support aimed at the coherent and consistent FMC among bachelor's students at HEIs according under BL conditions. In other words, the alternative hypothesis was confirmed by the effective use of well-grounded pedagogical conditions and the structural-functional model of FMC in FT of PE, which has been effectively developed and implemented in the EP of students.

Defining the F-criterion and performing calculations with establishment F_{emp-CG} and F_{emp-EG} took place in the form of 3.1 (acc.to A. Kyveryalg (Kyveryalg A. A., 1980, c. 277):

$$F_{emp} = \frac{\sigma_1^2}{\sigma_2^2} \quad (\text{formula 3.1}),$$

where σ_1^2 – bigger variance; σ_2^2 – lower variance.

Scientist A. Kyveryalg proposes to determine the variance value according to formula 3.2, performing the following calculations:

$$\sigma^2 = \frac{\sum f(x_i - \bar{x})^2}{N} \quad (\text{formula 3.2}), \text{ where:}$$

f – the number of CG and EG students who have a certain (appropriate) level of FdMC;

$(x_i - \bar{x})$ – the difference in points between the numerical value of each level (5; 4; 3; 2) of the FdMC and the average indicator – the average score (AS);

N – number of FT of PE in CG / EG, where variance is calculated.

The verification of the reliability and validity of the results obtained in the experimental work (based on a cross-sectional comparison) was based on a comparison of the numerical values of Fisher's empirical F-test for the CG and EG, i.e. each of the groups (i.e. Femp-CG and Femp-EG, calculated using the numerical data obtained during the ER) and the theoretical F-value (F_{krit}), where the F-value of Fisher's criterion was obtained from a standardised statistical table (according to the total number of persons involved in the experiment in each group) (Kyveryalg A. A., 1980, c. 278).

Thus, in setting the goal of comparing the values of the critical F-test (F_{crit}) with the empirical values we calculated based on the indicators of each level of FdMC in FT of PE within the defined components for CG (Femp-CG) and EG (Femp-EG) students, we took into account the degrees of freedom, which were $38 - 1 = 37$ for CG and $40 - 1 = 39$ for EG.

Therefore, provided that the number of degrees of freedom is between 30 and 40 (in our case, 38 students in CG and 40 students in EG participated in the formative stage of the ER), F_{crit} ranged between 1,5 and 1,9 and 1,5 in the standardised tables. Accordingly, if the numerical values of the F-criterion for CG and EG (F_{emp} -CG and

F_{emp-EG}) calculated by us fall within the range of 1,5 to 1,9, this confirms the reliability of the results obtained in the course of our research.

The cross-section of the FdMC of FT in PE among EG and CG at the formative stage was carried out using the methods of the ascertaining stage of ER. Since the number of FT (QFT) in CG and EG was 38 and 40 persons, respectively, we conducted a comparative analysis based on the average value (AV), which is measured in points, and on the percentage (in %) indicators of the levels of FdMC among bachelors.

EC and FC, at the formative stage of the ER, were carried out using both specific methods of information gathering and methods of mathematical statistics, which made it possible to calculate the statistical probability of various pedagogical influences on the EP, objectify the results of the pedagogical experiment and ensure their further interpretation. The effectiveness of FT in PE training corresponds to the level of their FdMC (high (perfect), sufficient (optimal), satisfactory (productive) or low (basic)).

The results of FMC in terms of the motivation and value component and changes in their formation during the learning process in students of the first (CG) and second (EG) groups are presented in Tabl. 3.6 (the table presents the initial and final control data of the formative stage of ER for this component). The numerical indicators obtained facilitated a detailed analysis of the FMC in HEIs among PE bachelors, and thus their readiness to carry out MA in the future.

Table 3.6

Results of the FdMC in FT of PE in HEIs under BL conditions the motivational and value component

Group, QP	Stage ER	Numerical indicators of FdMC levels of FT in PE according to the motivational and value component								AV
		High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
		q-ty	%	q-ty	%	q-ty	%	q-ty	%	
CG, 38	EC	5	13,16	13	34,21	18	47,37	2	5,26	3,55
	FC	7	18,42	16	42,11	15	39,47	0	0	3,79
EG, 40	EC	5	12,50	15	37,50	17	42,50	3	7,50	3,55
	FC	10	25,00	23	57,50	7	17,50	0	0	4,07

The analysis of the Tabl. 3,6 shows that 10 (25%) bachelor's degree students majoring in PE in EG demonstrated a high level of FdMC in motivational and value component, which is 6,58% higher than that among CG students where 7 students demonstrated a high level.

The percentage of students with the sufficient level increased by 20% in EG and by 7,9% in CG students. The most significant change occurred in the EG at the satisfactory level which decreased by 25% (from 17 students in the initial stage to only 7 in the final stage), while in CG by only 7,9%. It is noteworthy that the number of students with a low level in the EG decreased by 7,5% in FC there were no FT of PE with a low level of motivation and value component of FdMC. In the CG the decrease was 5,26% and no students with a low level were recorded either.

The average score for the motivational and value component of MC among bachelor's degree students in CG increased from 3,55 to 3,79 points, i.e. by 0,24 points, whereas in the EG it rose from 3,55 to 4,07 points, by 0,52 points, which is 0,28 points higher than the result achieved by FT of PE in CG.

Thus, the numerical data indicate the FMC levels among EG and CG students in terms of the motivational and value component. However, across all four levels (from low to high) and in terms of AV scores, the EG demonstrated better final results than the CG students, whose MC was developed through the traditional EP.

The results of the FdMC in the motivational and value component under BL conditions for FT of PE in the CG and EG are presented in the diagram in Fig. 3.3.

The calculation of variance based on numerical results of the FdMC for FT of PE in the FC for the motivational and value component was characterised by the following indicators:

- in CG $\sigma_1^2 = 0,6115$, and $\sigma_2^2 = 0,5346$, therefore the empirical F- criterion for CG ($F_{\text{emp-CG}}$) equals 1,14, which does not exceed the critical value F_{krit} (1,9 – 1,5),
- in EG $\sigma_1^2 = 0,6475$, and $\sigma_2^2 = 0,4193$, which made it possible to calculate the empirical F-criterion for EG ($F_{\text{emp-EG}}$), equal to 1,54. This value falls within the acceptable range (1.9 – 1.5), confirming the reliability of the experimental results.

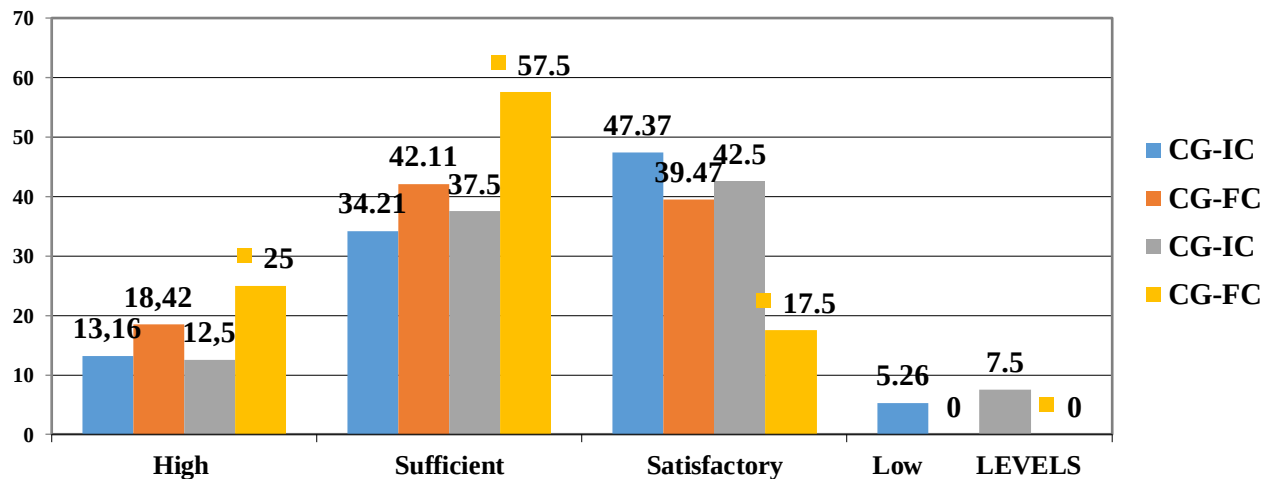


Fig. 3.3 Diagram of the results of FdMC in FT of PE in terms of motivational and value component at the formative stage of the ER

Transformative changes in the formation of the cognitive component of FdMC in CG and EG students throughout the entire formative stage of ER are presented in Tabl. 3.7. The data obtained through mathematical measurements indicate positive dynamics in the FdMC among students majoring in PE at the final formative stage of ER for the cognitive component.

Specifically, at FC, 9 out of 40 EG students involved in the experiment demonstrated a high level of this competence, which accounts for 22,50%.

Table 3.7

Results of the FdMC in FT of PE in HEIs under conditions of BL for the cognitive component

Group, QP	Stage ER	Numerical indicators of the levels of FdMC in FT of PE for the cognitive component								AV
		High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
		q-ty	%	q-ty	%	q-ty	%	q-ty	%	
CG, 38	EC	4	10,53	12	31,58	20	52,63	2	5,26	3,47
	FC	6	15,78	16	42,11	16	42,11	0	0	3,74
EG, 40	EC	5	12,50	10	25,00	23	57,50	2	5,00	3,45
	FC	9	22,50	25	62,50	6	15,00	0	0	4,07

The difference in indicators at this stage of the study between CG applicants is 6,72%. At the same time, a sufficient level of development was found in 25 CG FT bachelors of PE (62,50%), which is 37,5% more than they had at the EC stage. The number of FT students who demonstrated a satisfactory level decreased: in EG by 42,50% (by 17 people) and in CG by 10,52% (by 4 people). The number of EG bachelors of PE who had a low level of FdMC decreased by 5,00% (from 5,00% to 0%), which indicates that by the end of the ER stage, there were no students at this level, as they had progressed to higher levels of competence.

Let us analyse the results obtained for the CG. The difference in the high level of MC was 5,25%, which is 4,75% less than that of EG students; at a sufficient level, the difference was 10,53%, which is 26,97% less than in EG students. The numerical values for satisfactory and low levels are not less significant, as the decrease amounted to 10,52% and 5,26%, respectively. However, the data demonstrate an overall increase in the level of MC among FT bachelors of PE in the CG during the traditional training at HEIs.

The average score for MC in CG for the cognitive component increased from 3,47 to 3,74 points (a growth of 0,27 points). For EG bachelor students, it increased from 3,45 to 4,07 points (a growth of 0,62 points), which is 0,35 points higher than that of CG students.

The effectiveness of the identified numerical values of the indicators of FdMC in FT students of the CG and EG within the cognitive component at the formative stage of the ER is presented in Fig. 3.4 (in the form of a diagram).

The analysis of the results obtained at the end of the ER formation stage confirms positive changes in the FdMC in EG bachelors majoring in 014.11 Secondary Education (PE) in terms of the cognitive component. This is proven using Fisher's statistical criterion.

Calculation of variance σ^2 , which belonged to CG and EG students, corresponds to the following values:

– σ_1^2 for CG is 0,5650; while σ_2^2 is 0,5096, but $F_{\text{emp}}\text{-CG} = 1,11$;

$-\sigma_1^2$ for EG is 0,5975, while σ_2^2 is 0,3693, which allowed us to calculate $F_{\text{emp-EG}} = 1,62$.

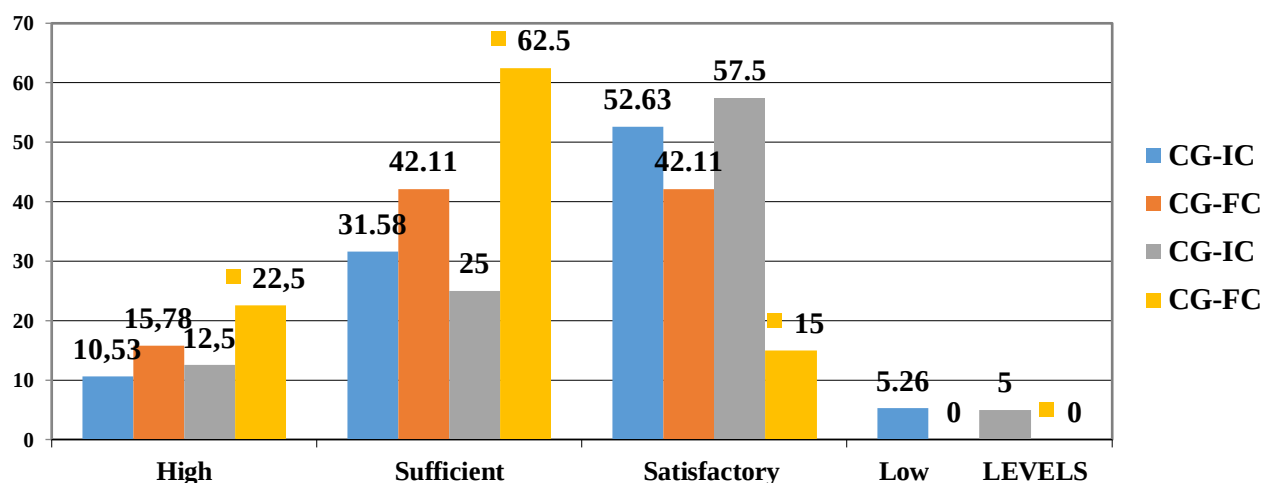


Fig. 3.4 Diagram of the results of the FdMC of FT of PE in CG and EG for the cognitive component at the formative stage of ER

Thus, for bachelors, the CG F-criterion ($F_{\text{emp-CG}}$) with a numerical value of 1,11 exceeds the theoretical indicator F_{krit} (1,5 – 1,9), while the calculated F-criterion ($F_{\text{emp-EG}}$) for EG with a value of 1,62 is within the acceptable range of 1,5 – 1,9, which confirms the reliability of our experimental results.

A comparative analysis of the FMC in FT of PE in terms of motivation and value and cognitive components in the conditions of BL (the results of formation are shown in Tables 3.6 and 3.7) reflects the dynamics of changes in CG and EG students. A significant increase in the indicators in FT of EG confirms the high level of motivation of students to master this competence and their comprehensive assimilation of the educational material according to the author's methodology of such formation in the process of studying experimentally selected academic disciplines and the successful completion of optional classes (group and self-study classes) conducted in BL conditions.

At the same time, in FT of PE of EG, with proper motivation, which grew into the value of acquiring managerial knowledge, skills, abilities, and awareness of the

importance of communicative competence in the future phase, the understanding of the goals of learning, the content of MA, and the mechanisms of managing educational activity significantly increased.

Changes in the level of FdMC in FT of PE in HEIs in BL conditions for the professional-activity component are presented in Tabl. 3.8.

Table 3.8

Results of the FdMC in FT of PE in HEIs under BL conditions for the professional-activity component

Group, QP	Stage of ER	Numerical indicators of the levels of FdMC in FT of PE for the professional-activity component								AV
		High (perfect) (5)		Sufficcient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
		q-ty	%	q-ty	%	q-ty	%	q-ty	%	
CG, 38	EC	3	7,89	14	36,84	17	44,74	4	10,53	3,42
	FC	7	18,42	18	47,37	12	31,58	1	2,63	3,82
EG, 40	EC	3	7,50	15	37,50	18	45,00	4	10,00	3,42
	FC	10	25,00	24	60,00	6	15,00	0	0	4,10

The numerical data in Table 3.8 confirm an increase in the level of professional-activity component of FdMC in FT bachelor of PE. A comparison of the indicators obtained for students in the two groups at the EC and FC stages confirms positive dynamics in changes in development of this component. A significant increase at the formative stage is observed among EG bachelor students. Specifically, the growth in percentage data is notable at the sufficient level (from 60,00% to 37,50%, i.e., a decrease of 22,50%) and at the satisfactory level (from 45,00% to 15,00%, i.e., a decrease of 30,00%). In the CG, this increase is considerably smaller (by 10,53% for the sufficient level and by 13,16% for the satisfactory level) compared to FT students of the EG.

It should be noted that regarding the high level of FdMC within the professional-activity component, the numerical indicators are also higher for EG students: from 7,50% to 25,00%, i.e., an increase of 17,50%, while in the CG, this increase amounted

to 10,53% (from 7,89% to 18,42%), which is 6,97% lower than in FT bachelors of PE in the EG.

The number of students who demonstrated a low level of FdMC decreased in both groups: in EG – by 10,00% (from 10,00% to 0); in the CG – by 7,90% (from 10,53% to 2,63%, with only one student remaining at the low level of MC). Within the existing level of development, there was a decrease in the indicators for the satisfactory and low levels, which confirms the effectiveness of the implemented methods for the FMC in FT bachelors of PE. The quantitative reflection of satisfactory and low levels illustrates the smooth transition of students majoring in 014.11 Secondary Education (PE) to higher levels – sufficient and high.

There is a noticeable increase in the average score for FdMC in both groups. The difference in the numerical data for VC and PC in the CG is 0,4 points (from 3,42 to 3,82 points), while for the EG this difference is 0,68 points (the increase from 3,42 to 4,10 points), which is 0,28 points higher than in FT bachelors of the CG.

Thus, the quantitative and qualitative changes in the indicators of FdMC in FT bachelors of PE in HEIs under BL conditions for the professional-activity component, which were most clearly observed in the EG respondents, allowing the following conclusion: the integration of problem-based learning into the traditional EP contributed to students' personal and managerial development, effective involvement in management processes during the formative stage, and activated their ability to consciously control their own professional behaviour and to reflect on personal management decisions.

The results of the FMC in PE bachelors in terms of professional-activity component are illustrated in Fig. 3.5.

The numerical results of measuring the FdMC across all components demonstrate positive qualitative and quantitative changes in students at the stage of completing the formative ER.

By means of mathematical statistics, it was established that, σ^2 for EC and FC in students of CG and EG corresponds such qualitative values:

– in CG $\sigma_1^2 = 0,6121$, and $\sigma_2^2 = 0,5713$, so $F_{\text{emp-K}\Gamma} = 1,07$;

– in $E\Gamma$ $\sigma_1^2 = 0,5943$, then as $\sigma_2^2 = 0,39$, that ultimately led to the calculation of $F_{emp-E\Gamma} = 1,52$.

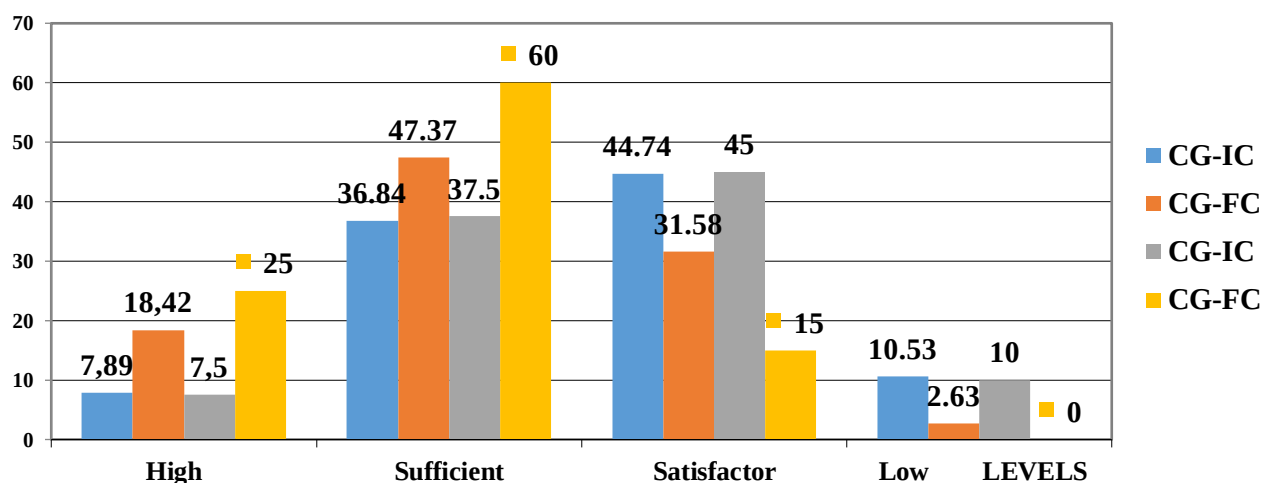


Fig. 3.5 Diagram showing the numerical indicators of FdMC obtained at the ER formation stage in FT of PE in EG and EG according to professional-activity component

Accordingly, the CG F-criterion (F_{emp-CG}) with a numerical value of 1,01 does not fall within the limits of the theoretical indicator F_{krit} (1,5 – 1,9) and, therefore, exceeds the acceptable range. However, the calculated F-criterion (F_{emp-EG}) for EG with a value of 1,52 falls within the expected acceptable range, confirming the reliability of the identified numerical indicators.

Changes in the formation of the reflexive-developmental component of FdMC in FT in PE are reflected in Tabl. 3.9.

The numerical results obtained experimentally and presented in Tabl. 3.9 demonstrate a high level of development of the reflexive-developmental component in FT bachelors of PE in the EG. The percentage values at this level show growth at the FC stage in 12 students (30,00%), which is 11,58% higher than in EG bachelors at the FC stage. The sufficient level in FT of EG increased by 30,00%, while in the CG it increased by 7,89%. The most pronounced dynamics of change occurred at the satisfactory level among EG bachelors, with a decrease in indicators of 40,00%,

compared to only 7,89% in the CG. The low level decreased in two groups (by 7,50% in EG and 7,89% in CG, respectively), indicating the absence of students with a low level of development of the reflexive-developmental component in the studied FMC.

Table 3.9

Results of the FdMC in FT in PE in CG and EG in HEIs in conditions under BL conditions by the reflexive-developmental component

Group QP	Stage of ER	Numerical indicators of the levels of FdMC in FT of PE by the reflexive-developmental oponent								VA
		High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
		q-ty	%	q-ty	%	q-ty	%	q-ty	%	
CG, 38	EC	4	10,53	12	31,58	19	50,00	3	7,89	3,44
	FC	7	18,42	15	39,47	16	42,11	0	0	3,76
EG, 40	EC	5	12,50	11	27,50	21	52,50	3	7,50	3,45
	FC	12	30,00	23	57,50	5	12,50	0	0	4,18

The average score demonstrates an increase in the FdMC with respect to the reflexive-developmental component. Thus, in CG, the increase in points is 0.,2 (from 3,44 to 3,76 points); in EG, the growth was from 3,45 to 4,18 points (an increase of 0.73 points). The difference in scores between EG and CG students is 0,41 points ($0,73 - 0,32 = 0,41$ points), i.e., the numerical indicators for the average score in CG bachelors are lower.

Thus, the changes obtained in quantitative indicators correlate with qualitative transformational processes in the FMC in FT bachelors of PE with respect to the professional-activity and reflexive-developmental components. These changes are most evident in EG students, as the EP implemented in this group was purposefully aimed at realizing the pedagogical conditions and structural-functional model, which were holistically directed at developing professionally significant managerial qualities in HEIs students, acquiring the skills and abilities to reflect on their own MA, and independently carrying out self-analysis of managerial decisions.

The effective formation of FdMC in HEIs students through the reflexive-developmental component during the formative stage of ER is shown graphically in Fig. 3.6).

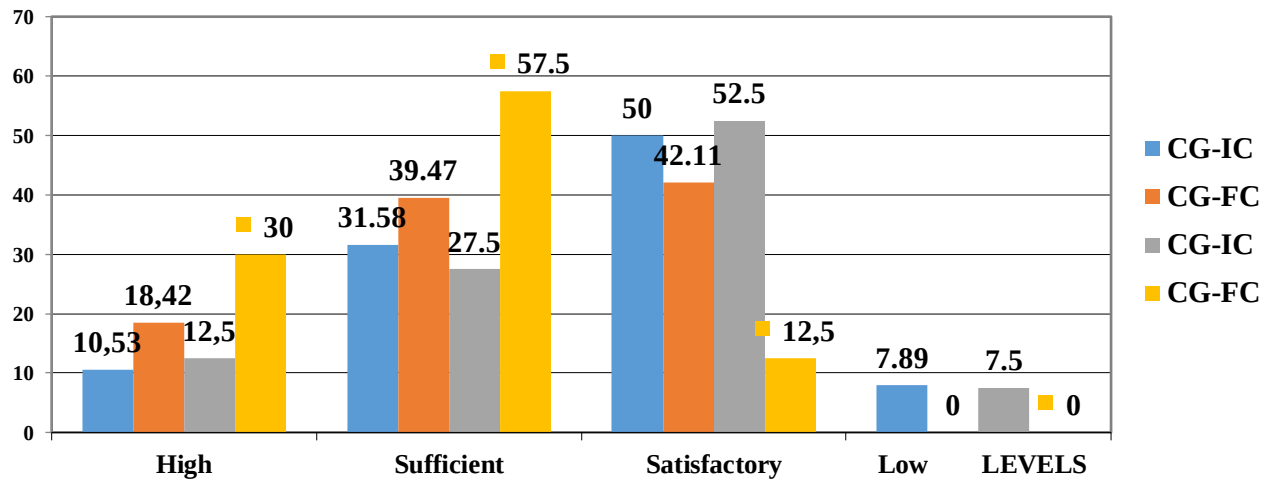


Fig. 3.6 Diagram of the results of FdMC in FT bachelors majoring in 014.11 Secondary Education (PE) in HEIs with respect to the reflective-developmental component at the formative stage of ER

The method of mathematical statistics was used to objectify the results obtained regarding the FdMC in FT bachelors of PE through the reflexive-developmental component, which confirmed the results, showing that σ^2 for the EC and FC stages in students of the CG and EG differed.

For CG $\sigma_1^2 = 0,6156$, and $\sigma_2^2 = 0,5491$, when $F_{\text{emp-KI}} = 1,12$.

For EG $\sigma_1^2 = 0,6475$, whereas $\sigma_2^2 = 0,3943$, that in conclusion made it possible the calculation of $F_{\text{emp-EI}} = 1,64$.

Given this, the F-criterion for CG has a value of 1.12 falls outside the theoretical limits of the standardized F_{crit} indicator with an acceptable range of 1,5–1,9. The calculated F-criterion for EG with a numerical indicator of 1,64 falls within the theoretical range, confirming the correctness of the results obtained during ER.

To summarise the results of FdMC in FT bachelors of PE in HEIs under BL conditions, it is necessary to determine the average score for the component-based

formation of this competence in CG and EG students at the end of the formative stage. In Tabl. 3.9, the results of the final control at the formative stage of ER for EG and CG students (data taken from Tabl. 3,5–3,8) are presented, which allows the determination of the average value for the two groups.

Table 3.9

Summarised numerical values of FdMC in FT bachelors of PE in the CG and EG based on the results of summative control at the formative stage of ER

№ f/ b	Compo nents of FMC	Groups	Levels of FdMC development								VA
			High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
			q-ty	%	q-ty	%	q-ty	%	q-ty	%	
1.	MVC	CG	7	18,42	16	42,11	15	39,47	0	0	3,79
		EG	10	25,00	23	57,50	7	17,50	0	0	4,07
2.	C	CG	6	15,78	16	42,11	16	42,11	0	0	3,74
		EG	9	22,50	25	62,50	6	15,00	0	0	4,07
3.	PA	CG	7	18,42	18	47,37	12	31,58	1	2,63	3,82
		EG	10	25,00	24	60,00	6	15,00	0	0	4,10
4.	RD	CG	7	18,42	15	39,47	16	42,11	0	0	3,76
		EG	12	30,00	23	57,50	5	12,50	0	0	4,18
Average value of component FMC		CG	7	18,42	16	42,11	15	39,47	0	0	3,79
		EG	10	25,00	24	60,00	6	15,00	0	0	4,10

Note: FMC – formation of managerial competence;

MVC – motivation and value component;

C – communicative component;

PA – professional-activity component;

RD – reflexive-developmental component.

The numerical data from Tabl. 3.3–3.9 allowed us to compile Tabl. 3.10 to determine the generalised results of the FdMC. FT of PE in HEIs in conditions of BL according to all components.

Table 3.10

Generalised results of FdMC in FT of PE in HEIs under the conditions of BL for all components (results of EC and FC, formative stage of ER)

Group, QP	Stage of ER	Numerical indicators of the levels of FdMC FT of PE for all components								VA
		High (perfect) (5)		Sufficient (optimal) (4)		Satisfactory (productive) (3)		Low (basic) (2)		
		q-ty	%	к-сть	%	к-сть	%	к-сть	%	
CG, 38	EC	4	10,53	13	34,21	18	47,37	3	7,89	3,47
	FC	7	18,42	16	42,11	15	39,47	0	0	3,79
EG, 40	EC	4	10,00	13	32,50	20	50,00	3	7,5	3,45
	FC	10	25,00	24	60,00	6	15,00	0	0	4,10

The average values of changes reflected in Table 3.10, the FdMC in FT of PE in HEIs under BL conditions for all components allow comparison of results for each group and their characterization according to the levels of competence formation. It is important that in the EP of students majoring in 014.11 Secondary Education (PE) the EG consistently implemented effective pedagogical conditions and integrated an efficient structural-functional model into student training, purposefully orienting FT towards the personal FdMC. The results presented in Table 3.10 clearly demonstrate noticeable transformational changes in the distribution of bachelors by competence levels. Table 3.10 illustrates that over the entire period of study (from the second to the third year of study at HEIs inclusive), the number of students (in %) with a high level of FdMC in EG increased by 15,00% (from 25,00% to 10,00%, i.e. from 4 to 10 people), and in CG – by 7,89% (from 10,53% to 18,42%, i.e. from 4 to 7 people). The number of students with a sufficient level of FdMC increased significantly, with EG showing a 27,50% increase (from 35,00% to 62,50%), while in CG – by 7,90% (from 32,21% to 42,11%), which is 19,60% less than in EG bachelors.

At the same time, significant changes were observed in the quantitative values of satisfactory and low levels. At the beginning of the ER formative stage, the number of EG students who corresponded to these levels was 50,00% and 7,5%, respectively,

but after the completion of this stage, i.e. at FC, this percentage in FT in PE of EG was already 15,00 and 0, respectively. As for CG, the number of students with satisfactory (by 7,90% – from 47,37% to 39,47%) and low (by 7,89% – from 7,89% to 0%) levels also decreased.

This is confirmed by the average numerical data obtained in terms of points. For CG students, they increased by 0,32 points (from 3,47 to 3,79 points), while for EG students, the increase was 0,65 points (from 3,45 to 4,10 points). The difference in growth of 0,33 points supports the conclusion of better FdMC in FT of EG.

These positive changes in the effective formation can be attributed to the implementation of the author's methodology and the content-enriched management context of the academic disciplines involved in ER. These factors effectively influenced students' interest in management activities, motivated them to acquire managerial and personal-professional qualities, and helped bachelor's students master knowledge of EP management and methods of working with students, parents, and colleagues. the acquisition of communication and management skills for conducting PE classes and skills for successfully resolving professional management situations and consciously evaluating the results of one's own management activities.

The generalised results of the formation of FT of PE in HEIs FdMC at the ER formative stage, obtained from CG and EG students, are presented in Fig. 3.7.

The reliability of the results obtained for FdMC in FT of PE in HEIs by BL under BL conditions was confirmed by statistical processing. Thus, within the scope of the initial control, namely for CG $\sigma_1^2 = 0,6177$, while for the final control $\sigma_2^2 = 0,5346$. Therefore, for CG students, the F-criterion ($F_{\text{emp-CG}} = 1,15$). In EG, $\sigma_1^2 = 0,5975$ (EC results), and $\sigma_2^2 = 0,3900$ (PC results). For EG, the F-criterion ($F_{\text{emp-EG}} = 1,53$).

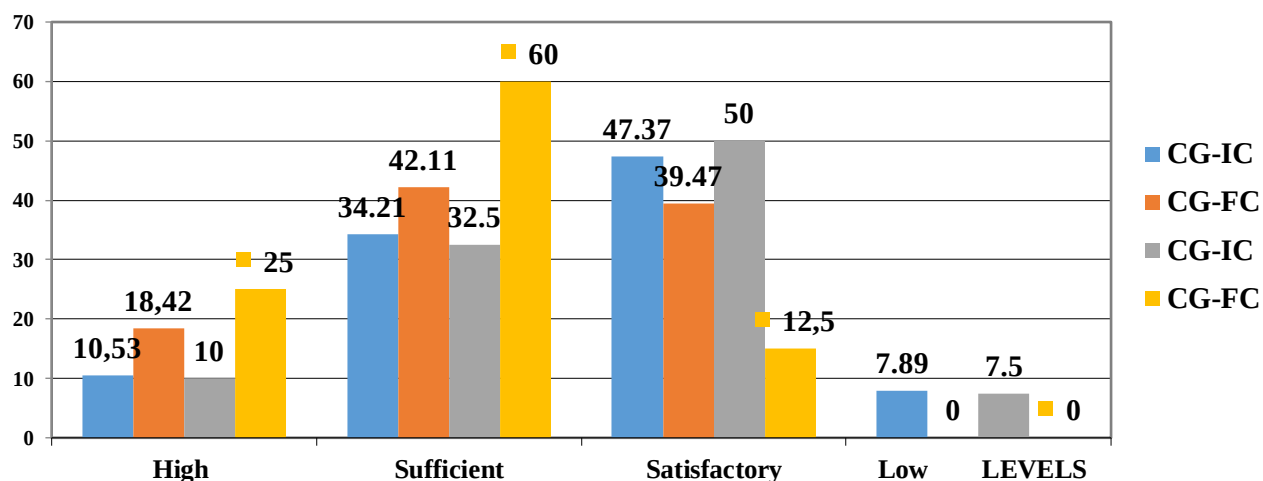


Fig. 3.7 Changes in the indicators of FMC in FT bachelors of PE in terms of the professional-activity component under BL conditions

Thus, the F-criterion for CG with a value of 1,15 exceeds the acceptable range of 1,5–1,9 for the standardized theoretical F-criterion. However, the F-criterion for EG with a quantitative indicator of 1,53 falls within the permissible range, confirming the reliability of the obtained results, particularly their quantitative indicators. A comparative analysis of the experimental numerical data obtained during the study, both in terms of percentage indicators and FdMC levels of students, showed that high (perfect), sufficient (optimal), satisfactory (productive), and low (basic) levels at FC clearly confirmed stable, positive-dominant results compared to the EC data, and demonstrated effective and consistent growth across all components in FT bachelors of PE in EG.

Conclusions to the third chapter

The effectiveness of the implemented pedagogical conditions and the author's structural-functional model FMC in FT of PE under BL conditions was tested experimentally. In accordance with the purpose of the experimental research and the developed FMC plan for students, the pedagogical experiment was carried out in accordance with four logically complementary stages of scientific research.

At the theoretical and research stage, an analysis of scientific and pedagogical literature, periodical scientific and methodological publications was carried out, which contributed to identifying the degree of development of the research theme; work was carried out to define the purpose, objectives, and working hypothesis of the qualification work; the categorical and conceptual apparatus was revealed; the experimental base was determined, and the scientific and theoretical justification of the ER program was developed and carried out. The ascertaining stage of ER involved the preparation of a research plan, the development of diagnostic tools, the formation of evaluation indicators, and the clear establishment of the duration of the experiment. After the implementation of the ascertaining experiment, the initial levels of FdMC in FT of PE were analysed in accordance with the specified components (motivational-value, cognitive, professional-activity, and reflective-developmental), a package of special techniques, and four (high (perfect), sufficient (optimal), satisfactory (productive), low (basic)) levels of FMC; the structure of FMC in students was clarified; the further content of the ER program was considered and the educational and methodological support for the experiment was developed. The formative stage is associated with the conduct of the experiment itself and included the distribution of FT of PE on CG and EG, the introduction of four pedagogical conditions, a structural-functional model of FMC, and a performance assessment of FdMC dynamics in bachelor's degree students majoring in 014.11 Secondary Education (PE) into the EP of experimental HEIs. At the final stage, the final diagnosis of the FdMC level was carried out, the data obtained was analysed and mathematically processed for qualitative and quantitative data processing, the results obtained were generalized, and general conclusions were formulated, indicating the effective influence of pedagogical conditions and the structural-functional model on FMC of FT of PE under BL conditions in HEIs.

The developed FMC in FT of PE Program combined the goals and objectives of ER, the same starting level of FdMC for CG and EG bachelors, forms of organization of training, and types of educational activities. EG students in their 2nd and 3rd years participated in ER as part of their studies in the disciplines «Theory and Methods of PE» and «Pedagogy» and as part of the elective course «Managerial Competence as an

Important Component of Professional Development for Teachers». The tasks of the elective course were implemented in five stages: preparatory, motivational, activity-based, practical, and final, each of which ensured the achievement of a specific ER goal.

The experimental work of the formative stage of ER ensured the verification of pedagogical conditions and the structural-functional model of FMC in FT of PE. The first pedagogical condition (focus of PE disciplines on management activities) was implemented in lectures, practical classes, seminars, and elective classes: by expanding the content of classes with problem-motivational questions on specific themes involved in the experiment disciplines; by demonstrating to students the experience of effective pedagogical and MA of HEIs teachers and PE in GSEIs teachers, active participation in round tables, motivational discussions, debates, and optional group classes on the theme «Management in pedagogical activities: role and significance»; in the process of involving students in conducting open classes, writing essays, and developing and demonstrating presentations on motivational and managerial themes.

The EP of FT of EG under the second pedagogical condition (focus of PT disciplines on management activities) was based on the use of the following during the study of the disciplines «Theory and Methods of PE» and «Pedagogy» thought-activity mapping (mind maps for each section of the discipline visualized interdisciplinary connections and facilitated their understanding, encouraged the study of methodological materials, and optimized teamwork); involvement of EG students in optional seminar and management activities with the disclosure of themes such as «Planning and organization of teacher management activities in the field of PE», «Motivation of students for PE lessons with effective pedagogical management», «Innovative technologies in PE management», «Management tasks: ways to solve them by PE teachers», «Reflection on the management activities of FT of PE» of the management activities of PE teachers as a purposeful and organized process; practical application of SWOT analysis during PT classes; writing and demonstration of group projects by bachelors on the themes of the classes.

The third pedagogical condition (the use of professionally-oriented situations in the EP) was implemented in the EP of PE bachelors during their immersion in an

effectively created educational environment, which led to the effective analysis of situational-problem tasks (cases) and taught students to make management decisions in typical and atypical pedagogical situations. Within the framework of this condition, a round table was organized on the theme «Modern approaches to the development of FT of PE managerial competencies» with a discussion of the importance of key approaches to FMC and reflection on the significance of FdMC in FT of PE.

The fourth pedagogical condition (stimulation of self-education activities) was ensured by supplementing the content of the themes included in the ER academic disciplines, creating individual educational trajectories for students in order to deepen their managerial knowledge of organizing and conducting PE in GSEIs classes, and creating and filling out electronic self-assessment diaries.

A successful assessment of FdMC in FT of PE in HEIS of the CG (38 people) and EG (40 people) using the methods of the ascertaining stage confirmed an increase in numerical indicators and the number of CG and EG bachelors with high (perfect) and sufficient (optimal) levels of FdMC in all components at the end of ER. However, for the professional-activity and reflective-developmental components of FdMC, their indicators (in %) and the number of FT at a satisfactory (productive) level decreased both in EG (by 14 people) and in CG (3 people), which was confirmed in the study by the F-criterion (Fisher's criterion).

The positive growth dynamics of the indicators obtained in the study, namely the results of FdMC in FT of PE in HEIs under BL conditions, allows us to conclude that the research hypothesis has been confirmed, the tasks set have been solved, and the ER goal has been achieved.

The main results of the section are reflected in the author's scientific works:

Chen R., 2023; Chen R., 2024 b; Chen R., 2025; Rebukha L., & Chen R., 2024 f

GENERAL CONCLUSIONS

The dissertation provides a theoretical generalization and proposes a new approach to solving the problem of forming MC in FT of PE in HEIs under BL conditions. The results obtained confirmed the hypothesis, demonstrated the achievement of the set goal and the effectiveness of the research tasks, which allowed us to formulate the following conclusions:

1. The analysis of contemporary psychological, pedagogical, scientific, and methodological literature, as well as the fundamental theoretical, methodological, and conceptual provisions and scientific approaches to the formation of MC in FT, which exist in the Ukrainian and foreign educational space, made it possible to outline the key requirements for their PT. These requirements define MC as a multidimensional, holistic, systematic, and orderly process that is implemented at all levels of their PT. The set of formulated requirements for PT and their implementation will ensure that PE teachers meet the high standards set for MA in GSEIs in the future and will require PE bachelor's students to intensively master systemic-theoretical knowledge, practice-oriented skills, and managerial competencies in HEIs. All of the above is aimed at forming MC, which is a significant factor in the effective management of the educational environment, optimising interaction with the teaching staff, students, and their parents, and ensuring effective pedagogical and MA.

We recognize the following as the fundamental components of the formation of MC in FT of PE in HEIs: the goal of developing this competence in students, the managerial orientation of the content of academic disciplines in a comprehensively organized EP, its structuring according to predetermined initial, intermediate, and final learning objectives, the optimal combination of a comprehensive set of effective means, forms, methods, and techniques for the effective formation of MC in PE ES, and control over the acquisition of the specified competence during PT.

Currently, there is a trend towards strengthening the connection between PT for future MA with pedagogical science and an improved regulatory and legal framework at the state level. The latest educational trends characteristic of the European educational space regarding the formation of PC in students and the requirements for

PT specified in the Draft Standard of Higher Education in the specialty 014.11 Secondary Education (PE) of the first (bachelor's) level. A special place in the formation of MC in HEIs is given to the construction of methodological foundations of PT, which is based on scientific principles (scientificity, systematicity and continuity, professional orientation of knowledge application, consideration of individual characteristics, variability, humanization of management, reflexivity and innovation), a system of interrelated integrated approaches (competence-based, personality-oriented, system-activity-based, constructive, interdisciplinary, individual, problem-oriented, axiological, and acmeological) and various professionally-oriented MF (motivational-targeted, prognostic, research, regulatory-corrective, organizational, informational-creative, conflict resolution, self-development, and self-improvement).

2. Analysis of basic conceptual constructs made it possible in the dissertation research to outline the pedagogical essence of PT of FT of PE in the context of MC formation in ES and to identify the effective components of this process (pedagogical, personal, organizational), as well as to identify the relevant criteria, indicators, and levels of development of this competence.

The managerial component of PC is considered at the level of a specialist's leading skills in performing MF and from the perspective of their ability to plan, organize, and control the EP in GSEIs and self-monitor their own activities in order to achieve specific pedagogical goals. We define the formation of MC in FT of PE in HEIs under BL conditions as a purposeful process that combines fundamental theoretical training with practice-oriented learning, aimed at developing professional and managerial knowledge, organizational skills and abilities to carry out effective pedagogical and managerial interaction, which ensure the specialist's ability to find effective ways to solve complex pedagogical, organizational, and managerial tasks (planning and organizing the EP, making and adopting management decisions, monitoring and evaluating students' academic achievements and supporting their motivation, self-improvement of one's own management activities) and to take responsibility for the results of one's own management activities. The MC in FT of PE

in HEIs is a basic personal characteristic that enables the full engagement of one's professional potential to achieve high professional results in the future.

The structure of the formation of MC in FT of PE in HEIs under BL conditions reflects the unity of motivational and value-based (covering interest in PE, the need and desire for MA, and the ability to conduct effective MA), cognitive (including knowledge of management theory, pedagogy, and other management sciences, management technology in general, and PE management), professional-activity (reflects the ability to use regulatory and legal acts related to PE in GSEIs, the ability to plan lessons and sports events, make management decisions, and resolve non-standard professional situations), reflective and developmental (includes the ability to self-analyse and self-evaluate management actions, create one's own image as a teacher-manager, and take a creative approach to finding ways to eliminate shortcomings in PA) components.

A system of criteria and evaluation tools for research has been developed and substantiated with clearly established levels (high (excellent), sufficient (optimal), satisfactory (productive), low (basic)) FdMC in FT of PE in HEIs in accordance with the identified indicators of this formation according to personal, knowledge, activity, and reflective criteria.

3. In order to improve the effectiveness of MC in FT of PE in HEIs, the influence of pedagogical conditions on the EP of students has been identified, theoretically substantiated, and experimentally investigated. We have identified the following pedagogical conditions: creating a motivational and value-based educational environment to ensure internal interest in education, activating motivation, creating professional attitudes and a subject position of FT; focusing PT disciplines on management activities by integrating the management component into the content of pedagogical disciplines; the use of professionally-oriented situations in PT to gain experience in decision-making and the development of strategic and tactical thinking, the formation of practical management skills; the stimulation of self-educational activities with the aim of increasing one's own managerial growth, independently

determining educational goals, and planning one's own development within the framework of MA.

3. A structural-functional model for the formation of MC in FT of PE in HEIs under BL conditions has been developed, an effective pedagogical model that reflects the unity of three blocks: strategic, conceptual-methodological, and criteria-diagnostic. The strategic block outlines the social demand for teacher-managers and covers the goal (to ensure the formation of a high level of MC in FT of PE as an integrated result of PT), tasks, and scientific principles of research. The conceptual and methodological block defines scientific approaches, fills the content of professional disciplines with fundamental management principles, methodically determines pedagogical conditions, and focuses on the technological support of student learning and the elective program «Management Competence as an Important Component of Professional Development of Educators». The criterion-diagnostic block of the model reveals the diagnostic apparatus (a set of criteria, indicators, and levels of MC formation) for assessing FdMC in FT of PE in HEIs and determines the relationship between the set goal and the expected result.

Within the criteria-diagnostic block, three structural components are presented that facilitate the tracking of the dynamics of MC formation in FT of PE: components of MC formation, criteria for assessing its level of formation, and levels of corresponding formation as the expected result.

4. Experimental verification of the effectiveness of the implemented pedagogical conditions in the EP of FT of PE in HEIs and the effectiveness of the author's structural-functional model made it possible to characterize the state of the formed competence in students through their verification.

The application of the diagnostic complex confirmed the significant positive dynamics of FdMC in FT of PE in HEIs under BL conditions. The summary statistical results showed that in EG, the percentage of bachelors majoring in 014.11 Secondary Education (PE) who achieved high 15% (from 10% to 25%) and sufficient levels 27,5% (from 32,5% to 60%) FdMC for each component, compared to the FT of CG indicators at a high level of 7,89% (from 10,53% to 18,42%) and a sufficient level of 7,9% (from

34,21% to 42,11%). The effectiveness of the developed model is indicated by the fact that the number of FT decreased at a satisfactory level for EG (35% – from 50% to 15%) and low levels (7,5% – from 7,2% to 0%) and for CG at a satisfactory level (7,9% – from 47,37% to 39,47%) and low level (7,89% – from 7,89% to 0%), which is due to the natural influence of training on CG students.

Analysis of the results of FT of PE in HEIs training indicators by average value shows that in CG there was an increase from 3,47 to 3,79 points (by 0,32 points), and in EG – from 3,45 to 4,10 points (by 0,65 points), which is 0,33 points more than in CG students.

The reliability of the results and the validity of the formative stage of the experiment, which includes the MC in FT of PE in HEIs formation program, was proven by using statistical methods of processing data from the pedagogical experiment by finding the Fisher criterion (F-criterion) and comparing the tabulated data of the theoretical F-criterion (F_{krit}). The obtained F_{dMC} results showed that CG σ_1^2 (initial control) is 0,6177, and σ_2^2 (final control) is 0,5346. The F-criterion (F_{emp-CG}) for CG was obtained with a numerical value of 1,15, which is outside the range of 1,9–1,5 of the standardized indicator of the theoretical F-criterion (at the formation stage, 38 people entered CG and 40 people entered EG). In EG, σ_1^2 for the initial control is 0,5975, and for the final control, $\sigma_2^2 = 0,3900$, then the F-criterion for EG (F_{emp-EG}) with an indicator of 1,53 is within the acceptable value (1,5 – 1,9) and indicates the reliability of the numerical results obtained.

The study is comprehensive and complete, but does not exhaust all aspects related to the formation of MC in FT of PE in HEIs under BL conditions. We see prospects for further scientific research in deepening the theoretical and methodological foundations of the formation of MC in FT of PE, improving the content, organization, and methods of forming this competence in the PT process in HEIs, as well as in the development of integrative models for the development of managerial skills and abilities.

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APPENDICES

APPENDIX A

Methodology for «DIAGNOSING MOTIVATION FOR SUCCESS AND FEAR OF FAILURE»

(A. O. Rean) (Kokun O., Pishko I., Lozinska N., & Oliinyk V., 2023, pp. 140–142).

This methodology is aimed at diagnosing motivation for success and fear of failure.

Instructions. Here is a list of statements. Read each statement carefully and decide whether it is true or false in relation to you. If you find it difficult to decide on an answer, remember that the answer «yes» includes both an unconditional «yes» and «rather yes than no». The same applies to the answer «no»: it includes both an unconditional «no» and «more likely no than yes». If you agree with the statement, mark the box corresponding to the statement number on the registration form with a «+» (yes); if you disagree, mark it with a «-» (no). Answer quickly, without thinking too long.

Registration form

Full name _____

Date of examination _____ Age _____ Gender: male/female _____

Course _____ Speciality _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Questionnaire text

1. When getting involved in work, I am usually optimistic about success.
2. I am active in my work.
3. I tend to show initiative.

Continuation of Appendix A

4. When performing responsible tasks, I try, if possible, to find reasons to refuse them.

5. I often choose extremes: either tasks that are too easy or tasks that are unrealistically difficult.

6. When faced with obstacles, I usually do not retreat, but look for ways to overcome them.

7. When successes and failures alternate, I tend to overestimate my successes.

8. My productivity mainly depends on my own determination, rather than external control.

9. When performing sufficiently difficult tasks under time constraints, my performance deteriorates.

10. I tend to be persistent in achieving my goals.

11. I tend to plan my future for the long term. 12. When I take risks, I do so wisely rather than recklessly.

13. Not very persistent in achieving goals, especially if there is no external control.

14. I prefer to set myself moderately difficult or slightly ambitious but achievable goals rather than unrealistically high ones.

15. If I fail at a task, its appeal usually decreases.

16. When successes and failures alternate, I tend to overestimate my failures.

17. I prefer to plan my future only for the immediate future.

18. When working under time constraints, my performance improves, even if the task is quite difficult.

19. If I fail at something, I don't usually give up on my goal.

20. If I have chosen the task myself, then in case of failure, its appeal increases even more.

*Continuation of Appendix A***Key**

Answer «Yes»: 1, 2, 3, 6, 8, 10, 11, 12, 14, 16, 18, 19, 20.

Answer «No»: 4, 5, 7, 9, 13, 15, 17.

Processing and interpretation of results

For each correct answer, the respondent is awarded 1 point. The total number of points scored is calculated.

1. If the total number of points scored is between 1 and 7, the diagnosis is motivation for failure (fear of failure).

2. If the number of points scored is between 14 and 20, motivation for success (hope for success) is diagnosed.

3. If the number of points scored is between 8 and 13, it should be considered that the motivational pole is not clearly expressed.

At the same time, if the number of points is 8 or 9, this indicates that there is a certain tendency towards motivation for failure, and if the number of points is 12 or 13, there is a certain tendency towards motivation for success.

Motivation for success is a positive motivation. With this motivation, a person, when starting something, strives to achieve something constructive and positive. The basis of a person's activity is the hope for success and the need to achieve success. Such people are usually confident in themselves and their abilities, responsible, proactive and active. They are distinguished by their persistence in achieving their goals and their determination.

Motivation for failure is a type of negative motivation. With this type of motivation, a person's activity is linked to the need to avoid failure, condemnation, punishment, or disappointment. In general, this type of motivation is based on the idea of avoidance and negative expectations. When starting a task, a person is already afraid of possible failure and thinks about ways to avoid this hypothetical failure rather than ways to achieve success.

Continuation of Appendix A

People who are motivated by failure tend to be more anxious and less confident in their abilities. They tend to avoid responsible tasks, and when faced with the need to solve extremely responsible tasks, they can fall into a state close to panic. At the very least, their situational anxiety becomes extremely high in these cases. All this, however, can be combined with a fairly responsible attitude towards the matter.

The «VALUE ORIENTATIONS» method (M. Rokich)

(Taken from http://psychologis.com.ua/metodika_cennostnye_orientacii_rokicha.htm)

Answer sheet

Full name _____ Gender _____ Age _____

Date of examination _____

Instructions. Number the statements in order of importance to your life principles and value orientations.

It is important to read each statement and choose the one that is most important to you. Write the number 1 next to it. Then choose the second most important value and write the number 2 next to it. Do the same with the last statement. The least important one remains last and occupies 18th place.

Work thoughtfully and without rushing. If your opinion about a particular statement changes while you are working, you can correct the number. The final result should reflect your real position.

Test material**List A (terminal values):**

1. Active, energetic life (fullness and emotional richness of life);
2. Life wisdom (maturity of judgement and common sense achieved through life experience);
3. Health (physical and mental);

Continuation of Appendix A

4. Interesting work;
5. Beauty of nature and art (experiencing beauty in nature and art);
6. Love (spiritual and physical intimacy with a loved one);
7. A financially secure life (absence of material difficulties);
8. Having good and loyal friends;
9. Social calling (respect from those around you, your team, your colleagues);
10. Knowledge (the opportunity to expand one's education, horizons, general culture, intellectual development);
11. A productive life (making the most of one's potential, strengths and abilities);
12. Development (working on oneself, constant physical and spiritual improvement);
13. Entertainment (pleasant, carefree pastime, absence of responsibilities);
14. Freedom (independence, independence in judgments and actions);
15. Happy family life;
16. The happiness of others (the well-being, development and improvement of other people, the entire nation, humanity as a whole);
17. Creativity (opportunity for creative activity);
18. Self-confidence (inner harmony, freedom from internal contradictions and doubts).

List B (instrumental values):

1. Neatness (tidiness), the ability to keep things in order, order in affairs;
2. Good manners;
3. High standards (high demands on life and high aspirations);
4. Cheerfulness (sense of humour);
5. Diligence (discipline);
6. Independence (ability to act independently and decisively);
7. Intolerance of shortcomings in oneself and others;
8. Education (broad knowledge, high general culture);

Continuation of Appendix A

9. Responsibility (sense of duty, ability to keep one's word);
10. Rationalism (ability to think soberly and logically, make thoughtful, rational decisions);
11. Self-control (restraint, self-discipline);
12. Courage in defending one's opinions and views;
13. Strong will (ability to insist on one's own opinion, not to give in to difficulties);
14. Tolerance (towards the views and opinions of others, the ability to forgive others for their mistakes);
15. Open-mindedness (the ability to understand other people's opinions, respect other tastes, customs, habits);
16. Honesty (truthfulness, sincerity);
17. Efficiency in business (hard work, productivity at work);
18. Sensitivity (carefulness)

Interpretation of test results

When analysing the hierarchy of values, attention should be paid to how the test subjects grouped them into meaningful blocks on various grounds. For example, «concrete» and «abstract» values, values of professional self-realisation and personal life, etc. are distinguished. Instrumental values can be grouped into ethical values, communication values, business values; individualistic and conformist values, altruistic values; values of self-affirmation and values of acceptance of others, etc. These are far from all the possibilities for subjective structuring of the system of value orientations. The psychologist should try to identify individual patterns.

If no pattern can be identified, it can be assumed that the respondent does not have a developed system of values or that their answers are insincere.

APPENDIX B

QUESTIONNAIRE TO DETERMINE THE IMPORTANCE OF MANAGEMENT SKILLS IN THE PROFESSIONAL ACTIVITIES OF PHYSICAL EDUCATION TEACHERS

(The questionnaire was developed by the author (R. Chen) in accordance with the «Generalised Matrix of Management Competence of a Physical Education Manager» (Azhipo O., & Korolyova M., 2020, pp. 5–11))

Instructions. Fill in Table 1, where 2; 1; 0 points correspond to the order of importance of management knowledge for the formation of management competence, where 2 points correspond to the greatest importance of knowledge for the formation of this management competence, 1 point corresponds to the importance of knowledge for acquiring management competence in higher education institutions, and 0 points correspond to the possibility of doing without knowledge of management in the field of FC in future professional activities.

Table 1

Summary of the importance of management knowledge acquired in higher education institutions for the formation of managerial competence in future physical education teachers

No.	Management competencies	2	1	0
1.	Strategic and analytical thinking			
2.	Mastery of the system for solving management problems			
3.	Generation of ideas			
4.	Leadership			
5.	Communication			
6.	Emotional and volitional sphere			
7.	Flexibility of behaviour			
8.	Business qualities			
9.	Organisational and managerial qualities			
10.	Management culture			

Continuation of Appendix B*Interpretation of results:*

All scores are added up and their values are compared with the specified scale.

From 20 to 18 points – high level of importance of acquired knowledge for the formation of managerial competence in higher education institutions.

From 17 to 13 points – medium level of importance of the acquired knowledge for the formation of managerial competence in higher education institutions.

From 12 to 8 points – medium level of importance of the acquired knowledge for the formation of managerial competence in higher education institutions.

From 7 to 0 points – low level of importance of acquired knowledge for the formation of managerial competence in higher education institutions.

APPENDIX C

Methodology «LEADERSHIP EFFECTIVENESS»

(author R. Nemov (Kokun O., Pishko I., Lozinska N., & Oliinyk V., 2023,
pp. 46–49), adapted by R. Chen)

This methodology is used to assess not a person's leadership qualities, but their potential practical activity as a leader in terms of their potential effectiveness.

Instructions: «You will be asked 40 questions, which you must answer «yes» (a) or «no» (b) by marking «+» in the appropriate column of the registration form. There is no middle ground in the answers. Do not waste time thinking. The most natural answer is the one that first comes to mind. If you have doubts about the answer, still mark the alternative answer that you are more inclined towards.»

Registration form

Full name _____

No.	Question	Answer options	
		«Yes» (a)	«No» (b)
1	Do you strive to use the latest achievements in your work?		
2	Do you strive to cooperate with other people?		
3	Which language (business, social, everyday) do you prefer when communicating with your colleagues?		
4	Do you explain to others the reasons and grounds for your decisions?		
5	Do people who are permanently or temporarily subordinate to you trust you?		
6	Do you involve all those involved in a joint project in discussing related issues if you are responsible for managing them?		
7	Do you encourage your subordinates to be independent, autonomous in their work and proactive?		
8	Do you remember the names of the people you interact with?		

Continuation of Appendix C

9	Do you give your subordinates freedom of action in achieving the goals you set for them?		
10	Do you monitor the progress of tasks assigned to your subordinates?		
11	Do you help your subordinates if they need it?		
12	Do you express gratitude to your subordinates for a job well done?		
13	Do you strive to find the best qualities in people and focus on them when working together?		
14	Do you know how to best utilise the positive qualities of your subordinates in your work?		
15	Do you know the interests and needs of your subordinates?		
16	Are you a good listener?		
17	Do you thank your employees for their work in front of others?		
18	Do you reprimand your subordinates? If so, in what situations?		
19	Do you acknowledge your subordinates' good work when reporting to senior management?		
20	Do you trust your subordinates?		
21	Do you strive to convey all the essential information received from senior managers and organisations to your subordinates?		
22	Do you explain to your subordinates the importance of their work for the common cause?		
23	Do you allow yourself and your subordinates time to plan their work?		
24	Do you have a plan to improve your professional qualifications or general education?		
25	Do your subordinates have a plan to improve their qualifications (or similar individual plans)?		
26	Do you regularly read specialised literature?		
27	Do you have a library of the latest literature in your field?		
28	Do you take care of your health, maintaining and improving your working capacity?		
29	Do you enjoy doing complex but interesting work?		
30	Do you personally train your subordinates in order to improve the quality and efficiency of their work?		
31	Do you know what qualities to look for in a candidate when hiring them?		

Continuation of Appendix C

32	Are you willing to deal with complaints and satisfy personal requests from your subordinates?		
33	Do you maintain a psychological distance when communicating with subordinates?		
34	Do you treat your subordinates with attention, understanding and respect?		
35	Are you confident in yourself?		
36	Do you know your strengths and weaknesses well?		
37	How often do you show creativity at work?		
38	Do you regularly improve your qualifications by attending special courses, seminars, etc.?		
39	Are you flexible enough when making decisions and communicating with people?		
40	Are you prepared to change your leadership style if necessary?		

Processing and interpreting the results

For each affirmative answer to the questions («yes»), the respondent receives 1 point, and for each negative answer («no») – 0 points.

Note: If this technique is used for self-assessment by a manager, there is a risk of distorting the results due to a subjective desire to present oneself in a better light or simply a lack of awareness of one's own characteristics. Therefore, it is recommended that this questionnaire be given to subordinates together with their manager and then the results be summarised.

If the test subject scores between 30 and 40 points, their leadership style (taking into account the above note) is considered highly effective.

If the total score is between 11 and 29, the leadership style is considered moderately effective.

If the total score is 10 or less, the person's leadership style is considered ineffective and they are not recommended to be a team leader.

APPENDIX D

Methodology «SELF-EFFECTIVENESS AND SELF-DEVELOPMENT SCALE»

(R. Schwarzer and M. Jerusalem, supplemented by J. Chen)

(Kokun O., Pishko I., Lozinska N., & Oliinyk V., 2023, pp. 29–30)

The methodology is used to study self-efficacy – a person's confidence (beliefs) in their potential ability to organise and carry out their own activities necessary to achieve a specific goal. Self-efficacy is also understood as a productive process of integrating cognitive, social, and behavioural components to implement an optimal strategy in various situations.

Instructions: «Please read each statement and indicate in the registration form the most appropriate answer regarding the effectiveness of your military-professional activities in performing professional tasks (marking the corresponding cell with a «+» sign).»

Registration form

Full name _____

No.	Statement	Completely «no»	Mostly «no»	Mostly «yes»	Completely «yes»
1	If I try hard, I can always find a solution even to complex problems				
2	If something gets in my way, I still find ways to achieve my goal				
3	It is quite easy for me to achieve my goals				
4	In unexpected situations, I always know how to behave.				
5	I believe that I can cope with unforeseen difficulties				
6	If I try hard enough, I can overcome most problems				
7	I am prepared for any difficulties because I rely on my own abilities				

Continuation of Appendix D

8	When I encounter a problem, I usually find a solution.				
9	I can come up with something even in a situation that seems hopeless at first glance				
10	I am usually able to keep the situation under control				
11	How often do you think about the reasons for your mistakes and failures in self-development?				
12	Do you strive for self-education, self-improvement, and self-development of your personal qualities and professional abilities?				
13	Do you feel the desire to get to know yourself and your abilities better so that you can later use them for self-development?				
14	Do your friends and acquaintances notice your successes in self-education, self-improvement, and self-development?				
15	Are you able to continue solving difficult professional tasks if several hours in a row do not bring any positive results?				

Processing and interpretation of results

The self-efficacy scale consists of 15 statements, which the subject is asked to correlate with the effectiveness of their activities. The subject assigns 1 point to the cell «absolutely not»; 2 points to «rather not»; 3 points to «rather yes»; and 4 points to «absolutely yes». The final result is obtained by adding up the points for all 15 statements. The results are interpreted as follows: 56-60 points – high self-efficacy; 45-55 points – above average; 35-44 points – average; 25-34 points – below average; 24 points and below – low.

APPENDIX E

OPTIONAL PROGRAMME

**«MANAGEMENT COMPETENCE AS AN IMPORTANT COMPONENT OF
THE PROFESSIONAL DEVELOPMENT OF A TEACHER»**

1. Goals and objectives of the elective

The elective course is part of the programme for preparing FC teachers for professional teaching, as well as an effective means of preparing bachelors for teaching. Elective classes are aimed at helping FC teachers acquire the skills and abilities needed to effectively manage the educational process. The need for an optional course for students is determined by their preparation for MD and is not directly influenced by such training, but indirectly, when they are involved in various classes and other educational activities.

Third-year students are involved in the optional classes. Accordingly, its programme totals 68 hours (including 40 hours allocated for classroom classes and classes conducted in the conditions of the educational institution; 22 hours allocated for the FC's FC and 4 hours for passing the exam).

The aim of the elective course is to help FC bachelor's students prepare for PD by improving their level of UK and enhancing their personal and professional qualities that influence their successful professional future.

Methods – explanatory-illustrative method (using various forms of informing students during group classes, which holistically form knowledge of educational process management); reproductive method (used in various forms of practical classes aimed at developing professional and managerial skills and abilities necessary for the effective implementation of the knowledge gained in higher education institutions in the conditions of educational management); problem-based teaching method within the framework of optional teaching material (used in the form of a case method, which develops students' management skills).

Stages of implementation of the optional course «Management competence as an important component of professional development of a teacher»:

1. *Preparatory stage.* At this stage, the opinions of third-year students on the existing problems of MC formation in higher education institutions were studied; an organisational and methodological meeting was held with students to conduct a survey and initial diagnosis of the level of MC formation using a set of tests and questionnaires; the results of the initial diagnosis were processed.

2. *Motivational stage.* This stage is characterised by providing bachelor's students with motivated information about the effectiveness of their participation in non-standard group classes in order to obtain the necessary level of fundamental management knowledge and skills required for future PD.

3. *Activity stage.* It is at this stage that FC bachelor's students develop knowledge, abilities and skills in educational management, which contributes to the formation of effective MC.

4. *Practical stage.* At this stage, FC students attend practical classes in order to practise the acquired MC.

5. *Final stage.* This stage includes organising discussions with third-year bachelor's students on the management of the educational process (in order to assess the dynamic growth of educational management skills, provided that they actively participate in the elective classes); determining the levels of development of educational management skills and obtaining feedback from all participants in the elective classes; identifying the shortcomings of the developed optional classes and conducting a final diagnosis and analysis of the level of development of UK in the MV FC during the period of study at the HEI in the conditions of ZN

2. Requirements for the content of extracurricular classes

Successful completion of optional classes allows students to acquire a certain level of:

Continuation of Appendix E*a) knowledge about:*

- the essential features, structure and content characteristics of the UK MV FC;
 - features of UD planning, its organisation in a group of ZZSO students;
- motivation of schoolchildren for FC lessons; areas of control over the performance of assigned tasks;

b) skills in:

- planning and conducting organisational activities related to physical education;
- effectively increasing students' motivation for physical education and focusing them on the effective completion of tasks set by the teacher;
- organising supervision of schoolchildren's activities in general (during lessons, various health-promoting events, etc.);
- effective resolution of administrative and organisational tasks.

3. Types of optional educational work and the number of hours allocated for its implementation

No.	Types of educational extracurricular activities	Number of hours
1	Total number of optional hours	68
2.	Classes conducted in a blended learning format	14
3	Classroom group classes	26
4	Independent work	22
5	Type of final assessment – test. Final assessment of the level of development of UK	6

*Continuation of Appendix E***4. Content of optional classes****4.1. Elective topics and types of classes**

No	Topics	Number of hours		
		GZ	PZ	SR
1	Introductory lesson. Determination of the initial diagnosis of management competence acquired during training	4	–	–
2	Management in pedagogical activity: role and significance	2	–	2
3	The role of management pedagogy in the formation and development of a physical education teacher (conducted as a round table discussion)	2	–	2
4	Teachers' value-motivational guidelines and their impact on management activities	–	2	2
5.	Planning and organisation of teachers' management activities in the field of physical education	–	4	2
6	Motivating students for physical education lessons through effective pedagogical management (the lesson was conducted according to the curriculum)	–	4	2
7	Innovative technologies in physical education management (the lesson was conducted according to the curriculum)	2	2	2
8	Management tasks: ways to solve them by physical education teachers (class held according to the curriculum)	2	2	2
9	Reflection on the management activities of the FC	2	2	2
10.	Modern approaches to developing management competencies of the Ministry of Finance (round table discussion)	4	–	2
11	Creation of an individual educational trajectory to stimulate self-education activities (ZN, where PZ was conducted online)	2	4	4
12	Credit	–	2	–
13.	Final class. Final assessment	4	–	–
TOTAL		68		

Note: GC – group classes; PC – practical classes; SR – independent work of students

5. Independent work in general MV FC

No	Type of independent work	Number of hours
1	Preparation for practical classes and round table	2
2	Writing abstracts	4
3	Preparing for the exam	2
Total		28

*Continuation of Appendix E***6. Presentation topics**

1. Teamwork and its impact on effective management decision-making.
2. Innovative approaches to managing the educational process.
3. The modern teacher: the essence and structure of educational management.
4. Development of critical thinking and strategic planning in teachers.
5. Teacher communication skills: how to build effective dialogue within management activities
6. Innovative technologies in pedagogical management.

7. Essay topics

1. The role of leadership in the pedagogical activities of the Ministry of Physical Education and Sports.
2. My professional growth as a future manager in the context of physical education and pedagogical activities.
3. Self-reflection in educational management.
4. My vision of an effective manager in the field of physical education.
5. Self-management as the basis for the professional development of a teacher-manager in physical education.
6. My professional credo as a manager in physical education.
7. The importance of the managerial activities of a physical education teacher in organising sports and mass activities with students of general secondary education institutions.

**8. Case study example, the analysis of which was discussed
during the round table**

**«Modern approaches to the development of management competencies of the
Ministry of Physical Education and Sports»**

SITUATIONAL TASK

A general secondary education institution wants to hold a physical education week under the motto: «Movement is life» The physical education teacher has been appointed to lead this event. The aim of the event is to increase the level of physical activity of school students and their parents, create a positive attitude towards physical education, and improve the health of citizens. As a future physical education teacher, you are responsible for organising the school event and ensuring proper communication between all participants.

Task:

1. Develop an information bulletin for the event, including announcements, information channels (school board, social networks, parent meetings) and a plan for the event itself (including exercises, relays, video contests, etc.).
2. Propose an effective model of cooperation with parents (involving support, motivation, parental participation in sporting events, feedback).
3. Assess your own management competencies that you have applied.
4. Identify possible risks (passivity of individual students and parents, unfavourable weather conditions, insufficient resources, etc.) and prepare an action plan to overcome them if they arise.
5. Indicate how the results of the event will be monitored and evaluated (whether it will be a survey, changes in physical activity indicators, etc.).

9. An example of creating an individual educational trajectory (within the framework of the discipline «Theory and Methods of Physical Education») by a student majoring in 014 Secondary Education. Physical Education.

9.1. General information

Student: K.O.V.; **Course:** 3

Discipline: «Theory and Methods of Physical Education»

Semester: VI

Continuation of Appendix E**9.2. Student's educational goal**

1. To deepen knowledge of the organisation and conduct of physical education classes in educational institutions.
2. Develop the ability to independently plan training sessions, taking into account the age and individual characteristics of students.
3. Master modern methods of motivating students to engage in physical activity.
4. Prepare to participate in a student scientific conference on the topic «Innovative approaches in physical education of schoolchildren.»

9.3. Individual educational tasks

Area of work	Task content	Forms of work	Expected result
Theoretical block	Independent study of the topic: « <i>Principles and methods of physical education</i> »	Study of literature, online lectures, note-taking	Prepared analytical notes (3–4 pages)
Practical block	Development of an author's summary of a physical education lesson for 8th grade.	Individual work, consultation with the teacher	Methodological notes and video presentation of a lesson fragment
Research block	Mini-research: « <i>The impact of active games on the development of speed qualities in middle school students</i> »	Observation, questionnaire, analysis of results	Mini-report (5 pages), presentation at a seminar
Self-education block	Online course «Modern technologies in physical education» (Prometheus or Coursera)	Independent study, certification	Certificate obtained, short essay on the application of new methods
Reflective block	Self-analysis of learning progress	Filling out a «self-education diary»	Report on personal achievements and problems in the learning process

9.4. Forms of stimulating self-education activities

1. Individual consultations with the teacher.
2. Online support in the Moodle/Google Classroom group.
3. Maintaining a student's **electronic portfolio** (methodological developments, research, certificates).
4. Assessment based on personal progress (individual criteria).
5. Opportunity to present work results at a student scientific and practical conference.

9.5. Expected results of the implementation of an individual educational trajectory

1. In-depth understanding of the patterns, principles and methods of physical education.
2. Development of skills in planning, conducting and analysing lessons.
3. Ability to apply innovative technologies and ICT tools in physical education.
4. Development of self-education, self-analysis and self-regulation skills in educational activities.
5. Improved professional readiness to work in educational institutions.

9.6. Conclusion

The introduction of an individual educational trajectory within the discipline «Theory and Methods of Physical Education» allows:

1. Activate students' cognitive and self-education activities.
2. Increase their motivation to apply knowledge in practice.
3. Form professionally significant qualities of future physical education specialists.

10. Questions for preparation for the test

1. Essential features of educational management.
2. The concept of managerial competence, its components and structure.
3. Formation of the value-semantic sphere of MV FC.

Continuation of Appendix E

4. Value orientations of physical education specialists: from socially oriented to personal-professional and educational-managerial.
5. Basic methods and techniques for effective management of the educational process.
6. Organisation and planning of practice-oriented activities of the FC teacher and management of the teaching and training process at the class and school level.
7. The problem of social and psychological adaptation of physical education students to their future professional activity.
8. The role of motivation in the formation and development of the teaching staff in an educational institution.
9. Concepts of motivation in the management of the physical education process.
10. Basic methods and techniques of motivating physical education teachers to engage in educational activities.
11. The influence of motivation on the self-development and self-realisation of physical education teachers.
12. Control and its features in managing the educational process in physical education.
13. Basic methods, means and techniques for effective control of educational and training activities of students with FC.
14. The concept of «management decision» and planning of educational activities in the physical education system of an educational institution.
15. Making pedagogical decisions and solving management tasks in the activities of a physical education teacher.
16. Pedagogical decision as a type of mental activity and manifestation of the professional competence of a physical education teacher.
17. Communication and management skills and their importance for physical education teachers.

Continuation of Appendix E

18. Ways to overcome communication barriers in the interaction of physical education teachers with students, parents and colleagues.

19. The influence of communication processes on the effective management of students' educational activities within physical education classes.

20. Establishing trusting relationships between PE teachers and students as a condition for effective management of the educational process.

7. Teaching and methodological support for the elective course.

7.1. Recommended reading

1. Bachynsky, M. (2024). Higher education quality assurance policy: European experience. *Scientific Bulletin: Public Administration*, 1(15), 259–271.

2. Bashavets, N. A. & Starikova, K. V. (2021). Competence-based approach in the professional training of physical education teachers. Contemporary Issues in Physical Education, Sport and Human Health: Proceedings of the 5th Internet Conference (Odessa, 17-18 November 2021). Odessa: Bukayev, Vadim Viktorovich, 142–145.

3. Gakman, A. V., Dudko, M. V., Kuznetsov, V. A., & Medvid, A. M. (2024). Characteristics of health-saving competence of future physical education teachers in the structure of professional training. *Scientific journal of the Ukrainian State University named after Mykhailo Dragomanov. Series 15*, 8(181), 50–54.

4. Marushko, L. (2023). Modeling of the system of training future science teachers for professional activities on the basis of differentiation and individualization of learning. *Humanities Science Current Issues*, 2(62), 255–260.

5. Nakhaieva, Ya. M., Gumenna, I. R., & Shatskyi, V. V. (2021). The use of an interdisciplinary approach to the formation of academic communicative competence of students of higher medical education institutions. *Medical Education*, 3, 88–98.

6. Polulyakh, A. V. (2023). Organizational and pedagogical conditions for the formation of a healthy lifestyle among students. *Bulletin of Ivan Franko Zhytomyr State University*, 13, 118–120.
7. Rebukha, L., & Zvarych, H. (2023). Higher education teaching: Formation of managerial competence in future educators. *Humanities Studies: History and Pedagogy*, 1, 114–124.
8. Serhiichuk, O., & Sembrat, A. (2024). Pedagogical aspects of implementing a learner-centered approach in the higher education teaching process. *Psychological and Pedagogical Problems of Rural School*, 48, 39–46.
9. Shchekotilina, N. F. (2024). Soft Skills in the professional training of future physical education teachers. *Olympicus: Scientific Journal*, 1, 198–205.
10. Shevchenko, I., Kostenko, D., Molchaniuk, O., Veresh, M., & Klanichka, Yu. (2023). Blended learning in the era of digital transformation. *Bulletin of Science and Education*, 5(11), 815–830.

7.2 Resources that facilitate the mastery of optional classes: class presentations, demonstration posters and tables, situational tasks, forms for practical work.

7.3 Material and technical support for optional classes: video projector, screen, laptop

APPENDIX F

**EXAMPLES OF PRACTICE-ORIENTED TASKS (CASES) THAT
INTEGRATE KNOWLEDGE FROM THE DISCIPLINES
«PEDAGOGY» AND «THEORY AND METHODOLOGY OF
PHYSICAL EDUCATION»**

Case 1. Organising a physical education lesson taking into account the individual characteristics of students

Situation: A physical education teacher is conducting a lesson in the 6th grade. The class includes students with different levels of physical fitness: some children are actively involved in sports, several students have low endurance, and one student belongs to the preparatory group according to medical indicators. During previous lessons, low motivation and disciplinary problems were observed in some students.

Task for students:

1. Develop a fragment of a physical education lesson (main part) using the principles of individualisation and differentiation of teaching.
2. Identify pedagogical methods and techniques for motivating students to engage in physical activity.
3. Propose ways of pedagogical influence to maintain discipline and a positive psychological climate in the lesson.
4. Justify the choice of physical exercises in terms of the age and physiological characteristics of schoolchildren.

Case 2. Forming students' value-based attitude towards a healthy lifestyle

Situation: The class teacher, together with the physical education teacher, noticed that 8th grade students have little interest in physical education, often skip classes without good reason, and lead a sedentary lifestyle. The school administration has commissioned the development of pedagogical measures aimed at increasing students' motivation for physical activity.

*Continuation of Appendix F***Task for the student:**

1. Propose a set of educational measures (in and out of class) aimed at fostering positive motivation for physical education and sports.
2. Identify educational methods (persuasion, example, encouragement, etc.) that are appropriate to use in this situation.
3. Develop a brief plan for a physical education and health event (flash mob, sports festival, challenge) taking into account the principles of consistency and accessibility.
4. Justify the role of the physical education teacher as an educator and organiser of a health-promoting educational environment.

Case 3. Managing the organisation of physical education and health activities with secondary school students

Situation: There has been a decline in the level of physical activity among pupils in grades 7–9 in general education schools. Some pupils systematically avoid participating in physical education classes, and the number of absences without valid reasons is increasing. The school administration has instructed the physical education teacher to develop and implement a set of management measures to revitalise physical education and health activities with students.

Management problem: Ineffective organisation and management of physical education and health activities for students.

Task for students.

1. Analyse the reasons for low student participation in physical education classes.
2. Identify pedagogical and managerial factors that influence student motivation.
3. Propose a management solution (action plan) to improve the organisation of physical education and health activities.

Continuation of Appendix F

4. Justify the proposed measures from the perspective of pedagogy and the theory and methodology of physical education.

Expected results. Development of skills in planning, organising and monitoring physical education and health activities with students.

Case 4. Management of the physical education learning process, taking into account the individual characteristics of students

Situation: The class includes students with varying levels of physical fitness and health. Some students have health limitations, while others are highly physically developed. Physical education classes are conducted according to a single programme, which leads to some students being overloaded and others losing interest. The teacher must make a management decision to optimise the learning process.

Management problem: Lack of a differentiated and individual approach to managing students' learning activities.

Task for students.

1. Describe the pedagogical situation and identify the main management mistakes.
2. Propose a management decision on the organisation of differentiated teaching in physical education classes.
3. Develop an example of a lesson structure taking into account the individual abilities of students.
4. Justify the proposed solutions from the perspective of physical education theory and methodology and pedagogy.

Expected results. Development of management competencies, the ability to make informed decisions when working with a group of students.

APPENDIX G

**TOPICS OF THESES WITHIN THE SCOPE OF RESEARCH WORK OF
THE DEPARTMENT OF THEORY AND METHODOLOGY OF PHYSICAL
EDUCATION**

1. Modern approaches to the modernisation of the physical education lesson system in higher education institutions.
2. Forming motivation among students for systematic physical education classes.
3. Innovative methods of teaching physical education in higher education institutions.
4. The impact of physical activity on the physical and psycho-emotional state of students.
5. A differentiated approach to physical education, taking into account the level of physical fitness.
6. The role of physical education in shaping a healthy lifestyle for young people.
7. Application of fitness technologies in the physical education teaching process.
8. Features of organising physical education lessons for students in special medical groups.
9. Monitoring and assessment of students' physical fitness in the learning process.
10. The impact of regular physical exercise on students' performance and academic success.
11. Competence-based approach in training future physical education specialists.
12. Prevention of musculoskeletal disorders by means of physical education.
13. Development of students' motor skills in the process of physical education classes.

Continuation of Appendix G

14. Use of ICT in physical education classes.
15. Independent physical exercise as a component of the educational process.
16. Formation of physical education and health competence in student youth.
17. Gender differences in students' physical fitness and their consideration in the educational and management process.
18. The impact of physical education classes on students' stress resistance.
19. Methodological principles for developing endurance in students of non-sports specialities.
20. Physical education and its impact on the socialisation and personal development of students.

APPENDIX H

1. QUESTIONS FOR WRITING THE TEST

Theoretical questions

1. Define the concept of «management competence of a physical education teacher».
2. Define the content, purpose and objectives of management training for physical education teachers.
3. What factors influence the formation of the management competence of a physical education teacher in higher education institutions?
4. Describe the relationship between the professional, communicative and management competence of a teacher.
5. Identify the pedagogical conditions that ensure the effective formation of MC in the process of PP.
6. Analyse the role of self-management in the structure of the management competence of physical education teachers.
7. Compare traditional and innovative approaches to training physical education teachers for teaching.
8. What functions of educational activities does a physical education teacher perform in secondary schools?
9. Reveal the role of self-education and reflection in the development of professional competence.
10. Characterise subject-subject interaction as a factor in the development of UK.
11. Name the main structural components of the FC.
12. What approaches (competence-based, activity-based, acmeological, personality-oriented, etc.) underlie the formation of UK?

Practical questions

1. Explain the importance of reflection in the process of forming UK.
2. Propose your own model for the formation of MC in the FC.
3. Develop a fragment of a training session or pedagogical situation aimed at developing management skills in students.

Continuation of Appendix H

4. Describe an example of a situation from school practice in which a physical education teacher demonstrates management skills.

5. Evaluate the effectiveness of various forms and methods (training, project activities, modelling) in the process of forming MC.

II. STRUCTURED EDUCATIONAL AND DIAGNOSTIC CASE, AIMED AT IDENTIFYING THE SELF-ACQUIRED KNOWLEDGE AND RESEARCH AND MANAGEMENT SKILLS OF PHYSICAL EDUCATION STUDENTS

CASE «Analysis and management of the educational process in physical education»

The quality of the educational process in physical education in grade 8-B (28 students) is monitored in secondary schools. Based on the results of observations and analysis of documentation, the following was found:

1. 30% of students have a low level of academic activity in class;
2. Some pupils perform exercises formally, avoiding full exertion;
3. The level of mastery of the educational material on the topic «Active games and team sports» is uneven;
4. The physical fitness indicators of students differ significantly;
5. The teacher mainly uses traditional teaching methods without elements of variability and independent student activity.

The school administration recommended analysing the situation and proposing managerial and pedagogical solutions to improve the effectiveness of the educational process.

Tasks for students

In the role of a physical education teacher, complete the following tasks:

1. Analyse the pedagogical situation and identify the main problems in the physical education process.

Continuation of Appendix H

2. Formulate a management task that needs to be solved in order to improve student learning outcomes.
3. Propose a research and management action plan that includes:
 - collection and analysis of information (observation, questionnaires, testing);
 - selection of teaching methods and forms of class organisation;
 - differentiation of workloads according to the level of student preparedness.
4. Justify the management decisions taken from the perspective of pedagogy, psychology and physical education theory.
5. Define the criteria and indicators for evaluating the effectiveness of the proposed measures.



МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
КАМ'ЯНЕЦЬ-ПОДІЛЬСЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ІМЕНІ ІВАНА ОГІЄНКА
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Від 26.08.2025 № 34/25 На № _____ Від _____

CERTIFICATE
on the Implementation of the Results of the Dissertation Research by
CHEN RONGHAO
on the topic
«Formation of Managerial Competence in Future Physical Education Teachers
in Higher Education Institutions under Blended Learning Conditions»
for the degree of Doctor of Philosophy in
Specialty 011 Educational, Pedagogical Sciences

The results of the dissertation research “Formation of Managerial Competence in Future Physical Education Teachers in Higher Education Institutions under Blended Learning Conditions” were implemented in the training process of first (bachelor’s) level higher education students of Specialty 014.11 Secondary Education (Physical Education) at Ivan Ohienko Kamianets-Podilskyi National University during the 2023–2025 academic years.

The relevance of the issue of professional training in the formation of managerial competence in future Physical Education teachers is determined by the implementation of a blended learning system in higher education institutions, the increasing demands of society on the professional activity of Physical Education teachers, the necessity of developing students’ leadership and organizational qualities for managing group activities in Physical Education classes, and other factors.

The applicant verified the effectiveness of the proposed pedagogical conditions, as well as the efficiency of the methods and means of instruction that stimulated the development of students’ personal qualities and managerial abilities, and, consequently, the acquisition of their professional and managerial competences. Theoretical and empirical findings of Chen R. enhanced the need of students for a more profound mastery of their chosen specialty, deepened their knowledge of the theory of management in Physical Education and educational institutions, and encouraged the improvement of managerial skills and abilities during professional training.

At different stages of the pedagogical experiment, active and interactive teaching methods, blended learning technology, and individual, classroom, and extracurricular forms of work were effectively applied. The pedagogical tools proposed by the postgraduate student contributed to the creation of an effective educational environment in which future Physical Education teachers actively developed managerial competence both in theoretical training and in the practical application of acquired knowledge in simulated pedagogical situations.

The materials of the dissertation research are recommended for use by university lecturers in the formation of managerial competence in future educators.

The scientific provisions and final results of Chen Ronghao's research, which have both theoretical and applied significance for the system of professional training of future Physical Education teachers, were discussed and unanimously approved at the meeting of the Department of Theory and Methods of Physical Education (Protocol No. 14, 26 August 2025).

Vice-Rector for Scientific Work,
Doctor of Pedagogical Sciences, Professor



Svitlana MYRONOVA



MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

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23 BEP 2025

№ 01-15/1707

On №

REFERENCE

on the Implementation of Results
of the Dissertation of **CHEN Ronghao** on the topic
«**Formation of Managerial Competence in Future Physical Education
Teachers in Higher Education Institutions under Blended Learning
Conditions**», submitted for the degree of Doctor of Philosophy
(Field of Knowledge 01 Education/Pedagogy,
Specialty 011 Educational, Pedagogical Sciences)

From 2023 to 2025, at the Department of Theory and Methods of Physical Education, the implementation of the main results of the dissertation research by Chen Ronghao on the topic “Formation of Managerial Competence in Future Physical Education Teachers in Higher Education Institutions under Blended Learning Conditions” was carried out, which is confirmed by this reference. The main focus was directed to the practical implementation of the main ideas, theoretical provisions, and conclusions of the research related to ensuring the quality formation of managerial competence in future Physical Education teachers under the conditions of organizing blended learning at Bohdan Khmelnytsky Melitopol State Pedagogical University.

In the educational process of training specialists in Specialty 014.11 Secondary Education (Physical Education), a structural-functional model of the formation of managerial competence of future Physical Education teachers under the blended form of organization of the educational process, as well as pedagogical conditions that directly had a positive impact on the development of this competence, was implemented.

The main provisions and conclusions of the dissertation research confirmed the relevance and prospects of the outlined topic and contributed to achieving high-quality results in improving the professional skills of future Physical Education teachers, which made it possible to appropriately use the proposed methodology in higher education institutions. The author's scientific publications were also used in the educational process of students.

The implementation of the results of Chen Ronghao's dissertation research made it possible to conclude that the theoretical and educational-methodical materials proposed by the author meet modern requirements and contribute to the accelerated development of managerial competence in first (bachelor's) level students of Specialty 014.11 Secondary Education (Physical Education).

The results of the dissertation research by Chen Ronghao on the topic "Formation of Managerial Competence in Future Physical Education Teachers in Higher Education Institutions under Blended Learning Conditions" were discussed and approved at the meeting of the department of Department of Theory and Methods of Physical Education, Bohdan Khmelnytsky Melitopol State Pedagogical University (Protocol № 2 from 12.09.2025 p.).

Rector



Natalia FALKO

**МІНІСТЕРСТВО ОСВІТИ
І НАУКИ УКРАЇНИ
ДЕРЖАВНИЙ ВИЩИЙ
НАВЧАЛЬНИЙ ЗАКЛАД
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25.09.2025 № 3236/01-4 На № _____ Від _____

STATEMENT

**on Implementing the Results
of PhD Research by Chen Ronghao
Titled “ Formation of Managerial Competence in Future Physical
Education Teachers in Higher Education Institutions under Blended Learning
Conditions”, Submitted for Obtaining the Degree of Doctor of Philosophy in
Speciality 011 Educational, Pedagogical Sciences
in the Educational Process of SU “Uzhhorod National University”**

The results of the dissertation research titled “The Formation of Managerial Competence in Future Physical Education Teachers in Higher Education Institutions under Blended Learning Conditions” were being implemented in the educational process of first (bachelor’s) higher education level students of Speciality 014.11 Secondary Education (Physical Education) at Uzhhorod National University during the 2023–2024 and 2024–2025 academic years.

At the department, there was conducted a pedagogical experiment which included the ascertaining and formative stages, final assessment of students’ academic performance, and the level of formation of managerial competence among students of control and experimental groups.

The research and experimental work of the PhD student consisted in identifying, substantiating the feasibility of, and experimentally testing the pedagogical conditions, which enabled him, within the framework of studying academic disciplines by students, to implement a structural and functional model for the formation of future Physical Education teachers’ managerial competence. This model envisages the presence of strategic, conceptual-methodological, and criteria-diagnostic blocks.

The theoretical and methodological results of the conducted research deserve attention, as they confirm the increase in the level of managerial competence formation among students under blended learning conditions and demonstrate the expediency of their implementation in the professional training of teachers in higher education institutions.

We affirm that the scientific research carried out by R. Chen is relevant and effective, and the implementation of his developments has made it possible to significantly enhance the level of future Physical Education teachers' managerial competence development while being professionally trained. The content and results of the research can be employed by academic and teaching staff of Uzhhorod National University for developing students' managerial competence.

The materials of the PhD thesis "The Formation of Managerial Competence in Future Physical Education Teachers in Higher Education Institutions under Blended Learning Conditions", its main provisions, conclusions, and the research results received positive evaluation from the lecturers and were approved at the meeting of the Department of Theory and Methods of Physical Education (Protocol No. 1 dated 02 September 2025).

Vice-rector for Scientific
Affairs, Professor



Ivan MYRONIUK

Dean of the Faculty of
Health and Physical Education,
Candidate of Pedagogical Sciences,
Associate Professor,
Associate Professor of the Department of
Theory and Methods of Physical Education

Eduard SYVOKHOP