

## FORMATION OF LEADERSHIP COMPETENCE TO FUTURE SPECIALISTS IN NAVIGATION AND SHIP HANDLING IN THE PROCESS OF PROFESSIONAL TRAINING: SUBSTANTIATION AND STUDY OF THE EFFECTIVENESS OF PEDAGOGICAL CONDITIONS

### ФОРМУВАННЯ ЛІДЕРСЬКОЇ КОМПЕТЕНТНОСТІ МАЙБУТНІХ ФАХІВЦІВ З НАВІГАЦІЇ ТА УПРАВЛІННЯ СУДНОМ У ПРОЦЕСІ ПРОФЕСІЙНОЇ ПІДГОТОВКИ: ОБҐРУНТУВАННЯ І ДОСЛІДЖЕННЯ РЕЗУЛЬТАТИВНОСТІ ПЕДАГОГІЧНИХ УМОВ

*The article presents the pedagogical conditions for the formation of leadership competence to future specialists in navigation and ship handling in the process of professional training. To determine these pedagogical conditions, there have been taken into account the results of generalization of pedagogical theory (conclusions of scientific publications, studies, conference materials, etc.), pedagogical practice (the results of the confirmatory stage of the experiment, surveys of academic staff, experts, cadets (students), etc.), expert opinions and results of applying mathematical statistics methods, such as factor analysis. The pedagogical conditions for the formation of leadership competence are considered as various factors, the introduction of which in professional training ensures the effective formation of cognitive, practical and active, professional and personal, and value and motivational components of leadership competence.*

*It has been found that in order to form the leadership competence to future specialists in navigation and ship management in the process of professional training, it is important to develop the ideas of future navigators about leadership in professional activities through informal education – trainings, master classes, seminars, distance learning courses, webinars, etc; the use of innovative forms and methods of teaching to develop cadets' and students' skills and abilities to work with ship's crew, manage navigation bridge resources and work in a team; application of interactive (dialogic-discussion) technologies for the formation of communicative leadership skills and abilities, development of emotional intelligence of future navigators; training of research and teaching staff to provide pedagogical support for the leadership behavior of cadets (students) in the process of professional training.*  
**Key words:** pedagogical conditions, leadership competence, specialists in navigation and ship handling, cadets and students, professional training, leadership qualities, leadership.

*У статті представлено педагогічні умови формування лідерської компетентності майбутніх фахівців з навігації та управління*

*судном у процесі професійної підготовки. Для визначення цих педагогічних умов враховано результати узагальнення педагогічної теорії (висновків наукових публікацій, досліджень, матеріалів конференцій тощо), педагогічної практики (результати констатувального етапу експерименту, опитування науково-педагогічних працівників, експертів, курсантів (студентів) тощо), думки експертного середовища та результати застосування методів математичної статистики, наприклад факторного аналізу. Педагогічні умови формування лідерської компетентності розглядаються як різноманітні чинники, впровадження яких у професійну підготовку забезпечує дієве формування когнітивного, практично-діяльнісного, професійно-особистісного та ціннісно-мотиваційного компонентів лідерської компетентності.*

*З'ясовано, що для формування лідерської компетентності майбутніх фахівців з навігації та управління судном у процесі професійної підготовки важливе значення має розвиток уявлень майбутніх судноводіїв про лідерство у професійній діяльності засобами неформальної освіти – тренінгів, майстер-класів, семінарів, дистанційних курсів, вебінарів тощо; застосування інноваційних форм і методів навчання для формування в курсантів і студентів умінь і навичок роботи з персоналом екіпажу судна, управління ресурсами навігаційного містка і вміння працювати в команді; застосування інтерактивних (діалогічно-дискусійних) технологій для формування комунікативних лідерських умінь та навичок, розвитку емоційного інтелекту майбутніх судноводіїв; підготовка науково-педагогічних працівників до педагогічної підтримки лідерської поведінки курсантів (студентів) у процесі професійної підготовки.*

**Ключові слова:** педагогічні умови, лідерська компетентність, фахівці з навігації та управління судном, курсанти і студенти, професійна підготовка, лідерські якості, лідерство.

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**Problem statement.** The need to identify and substantiate the pedagogical conditions for the formation of leadership competence to future specialists in navigation and ship handling is due to the results of generalizing the pedagogical theory and practice of professional training of future navigators. In particular, the regulatory documents standardizing the training of future specialists in maritime higher education institutions in specialty 271 «River and Sea Transport» provide for the need to develop leadership

competence. International regulations, in particular the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (hereinafter referred to as STCW International Convention 78/95) [1], the Manila Amendments (2010) to the Seafarers Training, Certification, & Watchkeeping (STCW) Code [2] also require future navigators to demonstrate the ability to apply leadership skills and the ability to work in a team, the ability to apply methods of managing tasks and workload of ship's

crew members, the ability to use methods of effective resource management, to manage and motivate ship's crew personnel, etc.

The results of the analysis of the professional training of future specialists in navigation and ship handling also reinforce the relevance of the topic. The data of the pilot study show that graduates of maritime higher education institutions acquire insufficient theoretical knowledge and do not acquire a sufficient level of skills, which is the basis of leadership competence. It must also be noted that the content, forms and methods of developing leadership competence do not fully meet the current requirements of the labor market, do not ensure the effective development of knowledge, skills and abilities that provide leadership to the ship's captain or their mates.

**Analysis of recent research and publications.**

The generalization of scientific sources allows to conclude that the problem of leadership is considered through the perspective of numerous concepts and theories. However, all theories of leadership should be considered as a whole, as the limits between them are rather conditional. The issues of leadership formation, development of leadership qualities and competence of water transport specialists were the subject of attention of O. Bezlutska (theoretical aspects of leadership qualities of a ship's officer, psychological bases of development of leadership qualities of future navigators in a higher educational institution, methods and forms of development of leadership competencies of future navigators) [3–4], O. Kostyria (leadership in a multinational crew: requirements of an international maritime organization) [5].

Some aspects of psychological support for the development of leadership qualities of maritime transport specialists were the subject of attention of H. Kryvorotko [6, p. 400–408] and P. Kryvoruchko [7].

**Highlighting previously unresolved parts of the problem.** However, the solution of the scientific task of forming the leadership competence to future specialists in navigation and ship handling in the process of professional training in maritime higher education institutions has not been the subject of a separate study. The pedagogical conditions for the formation of this important competence for future navigators need to be substantiated, taking into account national and foreign educational trends in the development of leadership potential.

**The aim of the article** is to present and substantiate the pedagogical conditions for the formation of leadership competence to future specialists in navigation and ship handling in the process of professional training in maritime higher educational institutions.

**Presentation of the basic material.** Scholars interpret the concept of «pedagogical conditions» in different ways. In particular, A. Lytvyn defines them as «a set of specially designed general factors of influence on the external and internal circumstances

of the educational process and personal parameters of all its participants, which ensure the integrity of education and upbringing in the information and educational environment of the educational institution in accordance with the requirements of society» [8, p. 28]. Professor O. Didenko proposes to understand pedagogical conditions as «a set of interrelated and interdependent circumstances that have an impact on learning (education). These circumstances are determined through systematic research and experimental activities, generalization of the results of the analysis of pedagogical theory and innovative practice and involve the selection, design and application of content elements, technologies, methods, techniques, as well as organizational forms of education to achieve certain didactic goals» [9].

Taking into account these definitions, we can state that the pedagogical conditions for the formation of leadership competence to future specialists in navigation and ship handling are various factors (organization of educational space, use of modern technologies and their elements, effective forms, methods, techniques and means, methodological approaches to teaching, creation of a favorable social and psychological climate of higher education institutions, differentiated approach to teaching different groups of students, etc.), the implementation of which in professional training ensures the effective formation of cognitive, practical and active, professional and personal, and value and motivational components of leadership competence.

To determine the pedagogical conditions for the formation of leadership competence to future specialists in navigation and ship handling, it is advisable to take into account the results of generalization of *pedagogical theory* (conclusions of scientific publications, studies, conference materials, etc.), *pedagogical practice* (the results of the confirmatory stage of the experiment, surveys of academic staff, experts, cadets (students), etc.), expert opinions and results of applying mathematical statistics methods, such as factor analysis. This is a statistical method that allows you to reduce the number of variables and find the main factors that affect a certain process or phenomenon. To determine the effective pedagogical conditions for the formation of leadership competence, factor analysis should be applied on the basis of data from a survey of experts on the factors that influence the formation of leadership competence.

With regard to the generalization of pedagogical theory, the research and search activity allowed us to identify a number of studies in which scientists consider various aspects of the formation and development of leadership, leadership potential and leadership competence of maritime professionals. The results of the generalization of pedagogical theory have made it possible to identify a fairly wide range of pedagogical conditions that can be used to form the

leadership competence to future specialists in navigation and ship handling in the process of professional training. However, for the objectivity of the study, *it is advisable to take into account the results of the generalization of pedagogical practice*, in particular the results of a survey of academic staff, experts, cadets (students) and the opinions of the expert community. The preliminary results of the study have revealed that in the context of developing the leadership competence to future specialists in navigation and ship handling during their studies in maritime higher education institutions, certain shortcomings have been identified, including an insufficient focus on the development of leadership competence; lack of opportunities for practical application of leadership competence; insufficient attention to the individual needs of cadets (students) and their personal development; insufficient use of the potential of best practices and the experience of well-known leaders; insufficient interaction between lecturers of different disciplines; insufficient attention to the study of ethical aspects of leadership by students; insufficient attention to the content of the educational components of the educational and professional program for the development of intercultural competence, etc.

Thus, taking into account the results of generalization of pedagogical theory and practice, a list of pedagogical conditions that can be used to form the leadership competence of future specialists in navigation and ship handling in the process of professional training is determined. However, to ensure the objectivity and reliability of the conclusions, it is advisable to use *the method of expert assessment*.

For this purpose, 10 experts were chosen using the method of self-assessment from among the pre-selected candidates and asked to rank the pedagogical conditions from the list compiled on the basis of the results of the analysis of pedagogical theory and practice. For each pedagogical condition, a separate item was created in the list that contains the formulation of this condition. The experts were asked to supplement the list with those conditions that, in their opinion, are more appropriate in the system of professional training of future navigators. Experts were offered an evaluation scale that reflects the degree of importance of pedagogical conditions. The scale consisted of numbers from 1 to 5, where 1 is the lowest priority rank and 5 is the highest priority rank. Next, each expert should give a rating according to the rating scale for each item on the list. Then the average score for each item was calculated by summing (adding) all the scores given by the experts and dividing them by the number of experts (10). As a result, we have ranked the pedagogical conditions by their significance.

Subsequently, the pedagogical conditions defined by the experts were slightly adjusted taking into account the peculiarities of the professional activity of

future specialists in navigation and ship handling and foreign experience in training of navigators, as well as the results of the ascertaining stage of the pedagogical experiment, which showed insufficient awareness of cadets (students) of the specifics of leadership competence.

The next step in determining the main pedagogical conditions that can be further substantiated and experimentally tested for effectiveness is to use a statistical method – factor analysis, which reduces the number of variables (pedagogical conditions).

Thus, using the method of factor analysis, it was determined that for the formation of leadership competence to future specialists in navigation and ship handling in the process of professional training the following pedagogical conditions are important:

*developing future navigators' understanding of leadership in their professional activities through informal education, such as trainings, master classes, seminars, distance learning courses, webinars, etc;*

*use of innovative forms and methods of teaching to develop cadets' and students' skills and abilities to work with ship's crew, manage navigation bridge resources and work in a team;*

*the use of interactive (dialogic-discussion) technologies for the formation of communicative leadership skills and the development of emotional intelligence of future navigators;*

*training of research and teaching staff to provide pedagogical support for the leadership behavior of cadets (students) in the process of professional training.*

Here we substantiate the identified pedagogical conditions.

Regarding *the first pedagogical condition*, the development of the ideas of future navigators about leadership in professional activity involves the impact on the cognitive component of leadership competence, as it ensures the formation and deepening of knowledge of the psychology of work with personnel, the peculiarities of human resource management, communication, the peculiarities of team formation and coordination, etc. The means that can be used for this purpose may vary. However, since the content of education is determined by the approved standard of higher education in specialty 271 «River and Sea Transport» for the first (bachelor's) level of higher education, as well as by the educational components of the educational and professional program «Navigation and Ship Handling at sea» of the first (bachelor's) level of higher education, it is advisable to additionally use the potential of informal education, in particular trainings, master classes, seminars, distance courses, webinars, etc. to develop leadership competence.

Regarding *the second pedagogical condition*, the use of innovative forms and methods of teaching involves the impact on the practical and active

component of leadership competence, as it involves the development of students' (cadets') skills and abilities that ensure leadership competence, in particular, skills in working with the crew, managing the resources of the navigation bridge and the ability to work in a team.

The use of innovative forms and methods of teaching can significantly improve the development of students' skills and abilities to work with ship's crew, manage navigation site resources and work in a team. In particular, the use of simulators and virtual reality allows students to acquire practical skills not only in visual perception. This allows them to learn how to effectively communicate with crew members, manage resources, and perform navigation tasks in true-to-life conditions.

Regarding *the third pedagogical condition*, the study assumes that the use of interactive (dialogic-discussion) technologies in the educational process will contribute to the formation of communicative leadership skills of future navigators, the development of their emotional intelligence as an important component of leadership competence. Interactive dialogues and discussions allow students to improve their listening and speaking skills. They learn to effectively perceive and understand information, express themselves clearly and convincingly, and show tolerance for different views and cultures. This improves verbal and non-verbal communication skills, networking with other students, and the ability to engage in constructive discussions. The use of interactive (dialogic-discussion) technologies helps teach cadets (students) to actively listen and understand others, to show empathy and compassion, and to establish contact with interlocutors. They learn how to express their thoughts in a clear and convincing way. These character traits are important for future leadership in professional activities. The participation of cadets (students) in dialogues and discussions promotes awareness of their emotions, understanding their origin and influence their behavior. Future navigators learn to be conscious of their emotions and reactions, which generally contributes to the development of emotional self-control and the ability to manage emotions.

As for *the fourth pedagogical condition*, the training of research and teaching staff to provide pedagogical support for the leadership behavior of cadets (students) in the process of professional training is also important for the formation of leadership competence to future navigators.

Pedagogical support for leadership behavior encourages cadets (students) to actively participate in the educational process. It contributes to the development of their self-organization, responsibility and initiative. Instructors who support students' leadership behavior create an atmosphere where students feel they are successful and see themselves as active participants in the learning process.

**Conclusions.** To form the leadership competence to future specialists in navigation and ship handling in the process of professional training, it is important to *develop the ideas of future navigators about leadership in professional activities through informal education – trainings, master classes, seminars, distance learning courses, webinars, etc; use of innovative forms and methods of teaching to develop cadets' and students' skills and abilities to work with ship's crew, manage navigation bridge resources and work in a team; the use of interactive (dialogic-discussion) technologies for the formation of communicative leadership skills and the development of emotional intelligence of future navigators; training of research and teaching staff to provide pedagogical support for the leadership behavior of cadets (students) in the process of professional training.*

Substantiation of pedagogical conditions for the formation of leadership competence to future specialists in navigation and ship handling in the process of professional training allows to proceed to the next stage of the experimental study – the formative stage, which is aimed at testing the research hypothesis on the effectiveness of the substantiated pedagogical conditions. These are the prospects for further scientific research.

#### REFERENCES:

1. International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW Convention) ... and Seafarer's Training, Certification and Watchkeeping Code (STCW Code), including resolution 2 of the 1995 STCW Conference. URL: <https://digitallibrary.un.org/record/241074?ln>.
2. Manila Amendments to the STCW Convention A Quick Guide for Seafarers URL: <https://www.ics-shipping.org/wp-content/uploads/2020/08/manila-amendments-to-the-stcw-convention.pdf>.
3. Безлуцька О. П. Методи і форми розвитку лідерських компетентностей у майбутніх судових офіцерів у процесі вивчення дисципліни «Менеджмент морських ресурсів». *World Science: International Scientific and Practical Conference*. 2017. № 1 (17). Vol. 3. С. 4–7.
4. Безлуцька О. П. Психологічні чинники впливу на лідерські якості судоводія в умовах рейсу. *Інтернаука: міжнар. наук. журн.* 2017. № 1 (1). С. 67–70. URL: [http://nbuv.gov.ua/UJRN/mnj\\_2017\\_1%281%29\\_\\_16](http://nbuv.gov.ua/UJRN/mnj_2017_1%281%29__16) (дата звернення: 19.04.2023).
5. Костиря О. В. Лідерство в багатонаціональному екіпажі: вимоги міжнародної морської організації. *Прикарпатський юридичний вісник*. 2020. Вип. 4 (33). С. 122–127. DOI: [doi.org/10.32837/руув.v0i4.635](https://doi.org/10.32837/руув.v0i4.635).
6. Криворотько Г. С. Психологічна характеристика особливих умов діяльності моряків далекого плавання. *Науковий вісник Львівського державного університету внутрішніх справ*. 2012. № 2 (1). С. 400–408.

7. Криворучко П. П. Психологічне забезпечення професійної діяльності корабельних спеціалістів у тривалому плаванні: дис. ... канд. психол. наук: 20.02.02. Київ: Київський військовий гуманітарний ін-т, 1998. 263 с.

8. Литвин А. В. Методологічні засади поняття «педагогічні умови»: на допомогу здобувачам наукового ступеня. Львів: СПОЛОМ, 2014. 76 с.

9. Діденко О., Костюченко М. Лідерська компетентність як предмет наукових досліджень. *Збірник наукових праць Національної академії Державної прикордонної служби України*. Сер.: Педагогічні науки. Хмельницький: Вид-во НАДПСУ, 2022. № 2 (29). С. 208–221. URL: <https://doi.org/10.32453/pedzbirnyk.v29i2.1046> (дата звернення: 11.04.2023)