

Practical aspects of applying interdisciplinary interaction in navy specialists training

*M V Botnaryuk and S A Kalinina**

Admiral Ushakov Maritime State University, 93 Lenin Ave., Novorossiysk, 353924, Russian Federation

Abstract. Experience shows that the multilateral study of a foreign language should be emphasized in the process of navy specialists training, which will benefit organic integration of future seafarer into a new working atmosphere. The relevance of the study is determined by the alteration of the conditions of the institutional environment, which includes not only the requirements of employers and the impact of the external environment, but also the learning process organization in a higher educational institution. The purpose of the study is to identify promising directions for the development of the educational process, approaches to its construction in accordance with the new conditions. In the work, methods of observation, study and generalization of experience, an analytical method, a survey of potential employers by the method of in-depth interviews have been used. The survey covered both Russian and foreign employers. The main requirements of employers regarding seafarers are identified on the example of Novorossiysk being one of the largest seaports in the country. The range of problems arising in the training of a modern navy specialist is determined. The working curriculum of a specific maritime specialty is analyzed, which enabled to establish interdisciplinary relationships between a foreign language and other disciplines of the plan. An algorithm for hiring seafarers is presented based on the results of a survey covering crewing companies' employees. The algorithm proves the need to form an educational process in a maritime higher education institution within the framework of interdisciplinary interaction. It is shown that holding joint seminars and workshops is relevant and in demand. Recommendations for conducting interdisciplinary classes are presented.

1 Introduction

A study of the practical aspects of organizing the educational process shows that in recent years there has been a steady trend towards strengthening the requirements of employers for the professional skills of the graduates from maritime higher educational institutions. Such requirements are due to a number of factors, the key of which is the desire of shipowners to reduce their personnel costs, as well as to reduce the number of accidents resulting from the low professionalism of crew members. It is difficult to argue with the fact that owners are unwilling to meet additional costs, while it is possible to achieve the desired result by raising the level of requirements. In this regard, it should be noted that for several decades there has been no practice of mandatory postgraduate work assignment of cadets upon graduation. Previously, in the epoch of the planned economic system, it was believed that yesterday's students, who had a sufficient amount of theoretical material, would quickly integrate into the workforce not meeting any material costs. At the same time, the labour collective was given the following party's task: to provide maximum assistance to newcomers in acquiring practical skills for strengthening the competence of a young specialist. The institute of

mentoring was developed quite strongly. Therefore, the university aimed to put maximum emphasis on the provision of a sound theoretical base. Thus, the leaders of shipping companies were circumstanced to ensure recruitment and subsequent practical training of specialists with a diploma of higher or secondary education. The transition of the country to a market economy system has created new conditions for the market functioning, in which employers have a unique opportunity to introduce their own requirements to hiring.

The following aspects are also worth emphasizing:

- at the moment, the world trade is slowing down, which, in turn, leads to a decrease in the number of ships (or a slowdown in fleet development);
- interethnic crews are formed (according to the minimum wage for which seafarers are ready to conclude a contract);
- crew recruitment conditions are transformed at the international level (in connection with the latest global trends [1, 2]).

All the above proves the modern intense competition among graduates of maritime educational institutions, which contributes to the formation of a strong market power of buyers (by which we mean shipowners in this article).

* Corresponding author: s_kalinina@bk.ru

In addition to the above, it is worth emphasizing that at present, in case of the successful passing the Unified state examination, applicants do not need to come to the university in advance. They can apply to several educational institutions at the same time, afterwards choosing the most successful one, in their opinion. In this regard, we can safely talk about the growing competition between the specialized institutions of the higher education system.

Taking into account that the “success” of an institution from the perspective of potential cadets is determined, as a rule, by the importance of the profession and the possibility of further employment in the “top” shipping companies with a high degree of probability, as well as summarizing the above, the authors consider it relevant to study the issue of transforming the requirements of employers in order to determine promising directions to develop the educational process, approaches to its construction.

2 Materials and Methods

A maritime university, which trains the following specialists in maritime transport: navigators, ship mechanics, and electromechanics was chosen as the object of the study. It should be stressed that today many maritime higher educational institutions also provide educational services not only in the field of training maritime specialists but also onshore ones. For example, training is successful in the following directions: “Customs”, “Economics”, “Jurisprudence”, “Technology of transport processes”, “Management of water transport and hydrographic support of navigation”, etc. At the same time, the authors chose the educational process (in terms of meeting the requirements of employers) exclusively in the “marine segment” being the subject of the study. The methods of observation, study and generalization of experience, analytical, expert survey were used in the work (potential employers being recruitment managers of crewing companies with more than ten years of experience were invited as experts).

3 Results and Discussion

Study of the requirements of potential employers from the standpoint of building an effective educational process ensuring the sustainable competitiveness of a maritime university.

Earlier, it has been noted that there is a need for a higher educational institution with an industry orientation to conduct its activities in a tough competitive environment. At the same time, it is worth emphasizing that the following trend is observed: in the current conditions, one of the key areas for the development of a higher professional school should be the stable interaction of the educational process and production, which contributes to maximum adaptation of the training process to the requirements of the maritime industry and specific employers, enabling them to freely compete in the labor market.

The observations outcomes over the past twelve years summarized by the authors enabled to make the following conclusions:

- it has been established that over the past 6-7 years, the demand for the development of students’ competencies (knowledge, skills, abilities) has increased, while earlier emphasis was placed on didactic units;
- a significant tightening of the potential employers’ requirements has been determined: emphasis has been placed on the complexity of the assessment when applying for a job (explanations are presented below).

We also note that if before the year 2015 employers mainly concluded on the competence of potential employees based on the results of tests compiled by crewing employees and personal interviews, then after the year 2015 the situation has changed dramatically.

In particular, a survey conducted by the authors in order to establish key changes in the requirements for future crew members from the perspective of employers (ship owners), as well as working conditions, revealed the following:

- Firstly, when training future seafarers, special attention should be paid to the specific working conditions on board. Taking into account the duration of flights, transitions (including ballast ones), autonomy and isolation of space, there is an urgent need to realize a vital need for a person being the need for communication;
- Secondly, it has been determined that the percentage of the Russian-speaking crew employment at the moment is not high. In particular, in the largest port city of the South of Russia, only one company currently represented on the transport market focuses on the formation of exclusively Russian crews (PAO “Novoship”, which is part of the Sovcomflot group of companies), while annually the leading maritime university in the south produces more than 100 specialists). In this regard, yesterday’s cadets have to send their resumes to crewing agencies engaged in forming multinational crews, which also implies the specifics in students training;
- Thirdly, there has been revealed the opinion of employers denoting that a graduate of a maritime university should not only demonstrate competency in professional terminology (each specialty has both general terms and specific ones) and business correspondence skills but also be able to communicate on everyday topics with the representatives of various nationalities. They must have an extensive vocabulary and the ability to hold a business and personal conversation.

The recruitment algorithm involves several stages shown in Fig. 1.

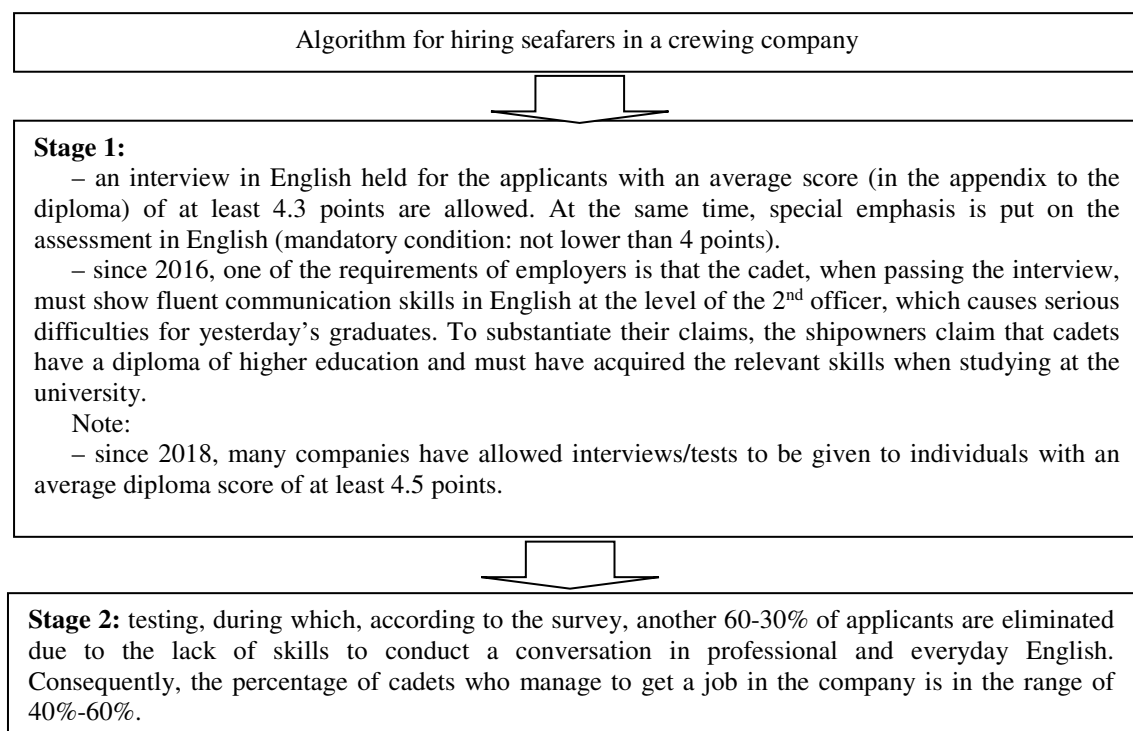


Fig. 1. Algorithm for hiring seafarers in a crewing company (compiled by the authors based on the results of a survey of crewing companies' representatives).

Thus, it is obvious that today the following complex, multifaceted challenge is presented to a higher educational institution – to prepare students regarding the specifics of work and the requirements of potential employers.

In this regard, the active use of interdisciplinary links in the educational process, including interdisciplinary classes, should be considered relevant.

A review of the literature on this issue has shown that quite a lot of scientific papers have been devoted to the issues of interdisciplinary interaction at the moment. Thus, for example, the authors share the opinion of Aleshchanova I.V., Frolova N.A. and Zheltukhina M.R. on the idea that interdisciplinarity should be considered as a synthesis of scientific achievements of related linguistic, humanitarian, specialized disciplines to solve the educational tasks set for teachers: the development of a professional terminology [3, p. 80].

The position of L.S. Znikina and Strelnikov P.A. who define interdisciplinary interaction as the basis of integrative competencies of university students seems interesting [4]. Generalization of the results of her own research allowed Bezglasnaya E.A. and Sevastyanova S.A. [5] to conclude on a synergistic effect that appeared in the process of interdisciplinary interaction contributing to the learning process effectiveness.

Komarova E.P., Bakleneva S.A. and Koryakovtseva O.A. reveal the features of the integrated linguo-professional training of cadets in the context of a subject-centered approach [6], while Grigoryeva N.S. and Chubarova T.V. study the phenomenon of interdisciplinarity in theory and practice through the

prism of social policy [7]. In the opinion of the authors, the experience of training future specialists is worthy of attention provided that the efforts of the graduating and fundamental departments are integrated [8], which can significantly benefit the quality of practical training. It is also worth emphasizing that some authors propose to build the learning process within the educational ecosystem [9], which ensures the successful development of each participant, the establishment of a professional profile and an active digital footprint.

Komarova E.P. and Bakleneva S.A. agree that a modern specialist must have the ability to communicate and solve the problems of interpersonal and intercultural interaction, be tolerant to social and cultural differences, have the skills of communicating with people, be able to self-organize and self-educate, which also involves learning based on interdisciplinary interaction [10, p. 64]. Abdulaeva N.M. and Zainalova L.A. also speak in favor of interdisciplinary integration. According to them, it is a key element in students' training [11].

The works of such researchers as Tenishcheva V.F., Kuznetsova Yu.S., Tsyganko E.N., Filonenko V.A., Petkov V.A. and others are also devoted to the issues of interdisciplinary interaction in training the cadets of maritime educational institutions [12–15].

As a result of the survey, as well as the study of scientific literature [1–15], affecting the above issues, as a solution to the task set for the university, the authors propose to conduct interdisciplinary seminars in the learning process, form “thesauri”, and also ensure closer communication between teachers delivering their disciplines to the respective groups. This will ensure,

inter alia, to develop the relevant competencies providing cadets with the necessary knowledge, skills and abilities, increasing their competitiveness in the labor market.

An interdisciplinary seminar involves close cooperation between the teacher of the department of a foreign language and the profile department, which is assigned to the disciplines of the humanitarian or professional cycles. According to the authors' recommendations, training should be given exclusively in a foreign (English) language and based on the fusion of the work programs of the selected academic

disciplines. It is supposed to write a script and compile a thesaurus (mandatory).

As a simple illustration, Table 1 shows the possibility of using interdisciplinary interaction of such disciplines as "Foreign language" and "Leadership and basics of ship crew management", "Management of social and labor relations in ship crews", "Fundamentals of modern etiquette", "International conventions and codes", "History of transport in Russia" for the specialty "Operation of ship electrical equipment and automation equipment".

Table 1. Interdisciplinary interaction between the discipline "Foreign Language" and profile disciplines specific for the specialty "Operation of ship electrical equipment and automation equipment".

Topics in the disciplines "Foreign Language" and "VIC Maritime English"	Disciplines of the specialty 26.05.07 Operation of ship electrical equipment and automation equipment				
	Leadership and basics of crew management	Management of social and labor relations in ship crews	Modern etiquette fundamentals	International conventions and codes	History of transport in Russia
1. The Seafarer. Personal Information.	Psychological structure of personality.	–	–	–	–
2. Free Time.	–	Conditions of work and rest of ship's crew members.	–	–	–
3. Visitors.	–	–	Etiquette of speech cultures. Business conversation. National features of etiquette.	–	–
4. Emergency Situations.	Emergency situation in voyage conditions and its characteristics.	–	–	–	–
5. Sending and Getting Messages.	–	–	Service document being the basis of written business communication.	–	–
6. At the Crewing Office. Plans for the next Voyage.	–	–	Business communication technology. Fundamentals of business communication and negotiation skills.	–	–

7. From Sail to Steam.	-	-	-	-	History of maritime transport. Russian merchant shipping in the sailing era. The emergence of steamships and ships.
8. A Guide to Good Public Speaking.	-	-	Business communication etiquette. Speech etiquette of a business person.	-	-
9. Formal Communications.	-	-	Business communication etiquette. Speech etiquette of a business person.	-	-
10. Aptitude and Appraisal. Self-Assessment.		Training and qualification of crew members of sea and river vessels.	-	-	-
11. Who is calling? Using the telephone in English. Useful phrases for Telephoning.	-	-	Epistolary and telephone etiquette. Ethical standards of telephone conversations.	-	-
12. It Used to be Different. Back in the Old Days.	-	-	-	-	The history of transport development. World and national history of transport.
13. The Historical Development of the Port.	-	-	-	-	Transport of Russia in the 21 st century: achievements and prospects.
14. Marine Protection. The Facts about Pollution.	-	-	-	International Convention for the Prevention of Pollution from Ships (MARPOL 73/74).	-
15. What would you do if...?	Behavior determinants. Social role and role behavior.	-	-	-	-

16. Global situations on board in a mixed crew.	The importance of the psychological aspects of the “human factor” on board.	Training and qualification of crew members of sea and river vessels.	Etiquette in a conflict situation.	–	–
17. Job interview tips. Preparing for an interview.	–	–	Business communication etiquette. Speech etiquette of a business person.	–	–
18. Major international conventions.	–	–	–	Topics 1–6 according to the teaching materials of the discipline.	–
19. Engine department. Responsibilities and duties.	Distribution of personnel. Assigning responsibilities and prioritizing the use of resources.	Employment conditions for the crew of ships of sea and river transport.	–	–	–
20. Drills on board merchant vessels.	Efficient communication. Confidence and leadership; achieving and maintaining awareness and situation.	–	–	–	–
21. Face-to-face questions.	–	–	Business communication etiquette. Speech etiquette of a business person.	–	–

Let us clarify the situation: in this case there are disciplines taught during the 1st and 2nd years of studying, while disciplines taught further, including special ones, also have separate modules that correspond to the topics studied in a foreign language. However, this article does not advise to present the entire working curriculum due to the limitation in the amount of information provided. We also emphasize that in some disciplines there is interdisciplinary interaction on four or more topics, while in others it is only on three (for example, “History of Transport in Russia”). However, in both the first and second cases, interdisciplinary interaction can be traced, which ultimately contributes to delivering interdisciplinary classes.

The basis for the construction of such classes, according to the authors, is the mutually beneficial cooperation of teachers of the departments of a foreign

language and disciplines of the humanities and professional cycles in terms of creating a thesaurus on relevant topics. Of course, achieving the maximum effect is possible when conducting classes in a foreign language, but this is not always possible due to the fact that the disciplines are taught during different academic years and in different semesters. At the same time, partial study of individual topics, as well as control tests on the thesaurus topics, are quite possible. At the same time, special knowledge of a foreign language is not required from teachers (although this is highly welcome): their task is to deliver material and conduct a control survey or test with the answers compiled by a specialist of the Foreign Languages Department. This practice will allow cadets to study the material deeper through drilling and holding conversations on relevant topics (with the participation of two teachers) will create

conditions for reducing the language barrier, which, as practice shows, often arises due to psychological reasons.

4 Conclusion

In order to optimize the process of training future maritime specialists, and regarding the unconditional presence of interdisciplinary relationships in curricula, holding joint seminars and practical classes is relevant and in demand. In this regard, a more detailed study of individual modules of the discipline “Foreign Language” and other disciplines is recommended to compile thesauri necessary for conducting interdisciplinary classes, which will allow conducting classes at a higher quality level, providing students with the opportunity to acquire knowledge and skills of oral and written speech for successful interviewing in crewing companies.

Also, it is necessary, according to the authors, to note the following. Cadets who graduated from higher educational institutions come to the ship in order to make a career. Additionally, the majority of yesterday’s students begin their careers in positions that require managerial skills (assistant captain, second, third mechanics, chief mechanic). In this regard, we agree with the opinion expressed in [7, p. 172] about the need for the synthesis of disciplinary knowledge for making managerial decisions, which will help achieve career growth, as well as integrate much faster into an international crew.

References

1. E.A. Kapoguzov, R.I. Chupin, Sanctions 2022: Opportunities and limitations of reactive regulation by the Russian state, *Journal of Economic Regulation* **1(22)**, 67–74 (2022) DOI: 10.17835/2078-5429.2022.13.1.067-074
2. The regional trade union of seafarers assessed the prospects for hiring on foreign. Retrieved from: <http://kaliningrad.rbc.ru/kaliningrad/07/03/2022/6220a11a9a7947911fcfe7f>
3. I.V. Aleshchanova, N.A. Frolova, M.R. Zheltukhina, The role of the interdisciplinary context in the formation of the professional terminology, *Primo Aspectu* **4(44)**, 77–82 (2022)
4. L.S. Znikina, P.A. Strelnikov, Interdisciplinary interaction as the basis for the formation of integrative competencies of university students, *Bulletin of the KSU named after. N.A. Nekrasov* **2**, 197–199 (2014)
5. E.A. Bezglasnaya, S.A. Sevastyanova, Improving the system of educational programs in the field of economics in the context of interdisciplinary interaction, *Bulletin of the Samara State University of Economics* **4(114)**, 153–156 (2014)
6. E.P. Komarova, S.A. Bakleneva, O.A. Koryakovtseva, Features of integrated linguistic professional training of cadets in the context of a subject-centered approach, *Language and Culture* **55**, 234–249 (2021)
7. N.S. Grigorieva, T.V. Chubarova, Interdisciplinarity in theory and practice: an example of social policy, *Social Sciences and Modernity* **3**, 166–178 (2020)
8. I.V. Dubova, G.S. Sanacheva, Interactive interaction “HEI-PRODUCTION” in the preparation of bachelors of metallurgy, *Vocational Education in Russia and Abroad* **3(19)**, 130–135 (2015)
9. M.E. Weindorf-Sysoeva, M.L. Subocheva, Educational ecosystem: terminological aspect, *Vocational Education in Russia and Abroad* **4(44)**, 5–11 (2021)
10. I.V. Pevneva, O.L. Tabashnikova, Global competencies in vocational education, *Vocational Education in Russia and Abroad* **2(34)**, 60–68 (2019)
11. I.N.M. Abdulaeva, L.A. Zainalova, Interdisciplinary integration as an effective means of teaching students in basic school, *Vocational Education in Russia and Abroad* **3(35)**, 55–59 (2019)
12. V.F. Tenishcheva, Yu.S. Kuznetsova, E.N. Tsyganko, V.A. Filonenko, V.A. Petkov, Technology of interdisciplinary interaction in a foreign language environment as a means of professional training of marine specialists, *Scientific Notes of the University named after P.F. Lesgaft*, **3(169)**, 351–356 (2019)
13. V.F. Tenishcheva, V.A. Filonenko, V.A. Petkov, Foreign language communication as a means of forming the professional competence of a marine specialist, *Bulletin of the Adyge State University. Series 3: Pedagogy and Psychology* **2(218)**, 86–92 (2018)
14. V.F. Tenishcheva, E.N. Tsyganko, Yu.S. Kuznetsova, Specifics of training a marine engineer to work in a foreign language environment, *Proceedings of the V International Scientific and Practical Conference “Anthropocentric Sciences: An Innovative View on Education and Personal Development”*, pp 246–249 (2017)
15. V.A. Filonenko, V.F. Tenishcheva, V.A. Petkov, Formation of the professional readiness of a marine specialist to work in a foreign language environment, *Bulletin of the Adyge State University. Series 3: Pedagogy and Psychology* **4(228)**, 76–82 (2018)