

Modern educational trends in the maritime industry

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Abstract. The paper reveals the potential and importance of training specialists in the field of maritime and river navigation. The trends of the modern educational process applicable to educational institutions of the maritime and river transport industry are considered. The trends of psychophysiological health and behavior among students of educational institutions of the transport industry are considered, the analysis of available studies on the state of psychophysiological health and behavior of officers of the merchant and navy is also carried out. The research revealed data on important changes and positive trends in the development of the modern educational system applicable to educational institutions of the transport industry, studied the issues of compliance of students' preparation for the difficulties of future professional activity, as well as the impact of the lack of proper attention to the psychophysiological health of ship and ship crews on their personal qualities. The ways of preventing harm to the psychophysiological health of students of institutions of the marine industry are considered. The conclusion is made that the identified trends are applicable to the industry leader of the GMU named after Adm. F.F. Ushakov.

1 Introduction

Training highly qualified personnel for the transport industry, in particular maritime and river navigation, including the maintenance of ship power plants, auxiliary machines and mechanisms, is a challenging opportunity. Professional employees forge successful performance of any company, being its core, which also indicates the relevance of the target topic.

However, prior to entering the workplace, future employees should first be properly trained, obtain from their teachers, managers and senior students in-demand theoretical knowledge and practical skills, general and in-depth understanding of challenges they may encounter, but just as importantly – of the ways to do splendidly. Among others, the paper aims to explore some specific features that appear to describe contemporary trends in higher and professional education, to examine data and surveys available on challenges an employee may encounter in maritime and river navigation and based on the findings, to propose possible ways to prevent or resolve difficulties that seafarers may encounter when they start their professional activity, while still at university.

2 Materials and Methods

Modern education, including maritime and river navigation educational institutions, is characterized by the following features [1, 14]:

Digitalization of learning activities. It has greatly modified the education system, mostly for the better.

Modern means of digitalization and digital learning tools help students to obtain the most up-to-date information, to learn it in multiple ways, forms and formats, which has a positive effect on learning experiences. In addition, based on the latest data indicating that young people are more absent-minded and less concentrated today, various interactive digitalization tools are designed to involve students in learning procedure and to hold their attention on the topic for two hours in class, which has a positive effect on learners' ability to study and reinforce the learning material.

Interdisciplinary approach. The disciplines taught in transport educational institutions cannot be one-sided. There is a considerable correlation between them, which, in turn, has a positive effect on students, helping them to build a comprehensive vision of their profession, future working conditions and areas of expertise. In other words, any discipline should be delivered in conjunction with contiguous scientific domains. It can also describe a different trend, being its consequence: a high demand for workers with a large and extensive amount of knowledge, computer literacy, socially adapted, and, ultimately, having a number of professional skills and competences, rather than field-specific employees.

The university can be viewed as a student-centered digital educational ecosystem. This approach is valid for a number of reasons, among which the need to foster various individual professional qualities that require full-fledged development and training.

Learners' self-education and self-organization, including through the use of electronic LM, distance learning, electronic library, educational electronic publications, social network services, elements of interactive learning. Maritime and river navigation

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personnel need a number of professional skills and competences, among which abilities to make choice, take responsibility and manage a team and operations during work activities are qualities necessary for ensuring safety of life due to high risks and harsh working conditions.

A survey by the Public Opinion Foundation reports that a vast majority of parents whose children go to school think that distance learning had a negative impact on learners. Besides, this data can be supplemented by maritime and river navigation students whose theoretical knowledge is inextricably intertwined with practical skills and competences that cannot be fully acquired by students outside the educational ecosystem.

Involvement of all mental and emotional spheres in student activities. Later the paper will reiterate that full and versatile development of maritime and river navigation students is of paramount importance on a par with abovementioned theoretical knowledge and practical training. Once correlated, they can contribute to further success and professional activity of a transport industry employee.

Lack of student motivation, which currently tends to decrease through manipulation and provocation. These terms are used in the following meanings: "Manipulation aims to develop pre-specified self-determination whereas provocation aims to excite a subjective position being the backbone of self-determination." "Provocation is a kind of 'challenge', 'excitation' of subjectivity, 'prompting' for question and search. This aspect can be eliminated by creating a comfortable student-centered educational setting. Career guidance in the educational environment is becoming a means of dealing with a number of other challenges like unemployment and another trend – lifelong learning.

In turn, the following patterns, characteristics, and trends were identified in those currently employed in maritime and river navigation, the Russian Navy officers and full-time maritime cadets [2–13, 15, 16]:

High self-esteem prevails, though personal motivation is low, low anxiety (the experiment was conducted among people who had arrived at duty stations 1–2 years before), average neuro-psyche stability, average communicative potential, average adaptive capabilities. These positive findings are attributed to high discipline and organization requirements for navy employees. However, merchant seafarers do not place themselves among their colleagues from a similar field, but contrast themselves to them, noting that they obey a certain set of formal relations providing for subordination, and informal expressed by the phrase: "The ship's company is a big family." This aspect has both positive and negative trends, as despite more sophisticated interpersonal relations between crew members, merchant marine sailors are far more prone to various deviations from psychological personality characteristics.

The following properties and features were found to be important within the team: mutual sympathy, positive emotional attitudes, common interests and needs, absence of egocentric desires and aspirations, mutual complementarity of individual characteristics. These features could not have developed differently due to the fact that all officers and crew members are very much

aware of working and living conditions being confined and isolated from the rest of society for a long time.

During the period of aboard practical training, marine and river navigation students are subject to several stresses that can adversely affect their psychological health indicators due to maladjustment processes, volitional tension, and increased desire for rest. These results prove the need for special trainings, classes and practices based on various interactive and digital means that can prepare students for future employment and teach them to overcome a number of personal difficulties and problems that they are likely to encounter. In other words, besides theoretical knowledge, internship and navigation practical training, cadets need to take a number of special classes, study disciplines that can develop correct behavioral patterns. Marine and river navigation cadets take classes in Conflict Resolution. However, despite being able to foster nervous and mental stability, human interactions as well as ways to relieve stresses, rueful feelings are left unaddressed during studies.

Cadets can also become physiologically stressed ashore. During the studies, cadets are involved in university life and activities, which fosters a number of important personal qualities. However, ongoing psycho-emotional and physical stress can adversely affect learners' performance and their well-being, which calls for the need to organize student leisure activities. This would reduce several possible disobediences to regulations, reduce the overall level of all possible stresses. Leisure activities can be understood as some types of activities that differ as much as possible from learning and co-curricular activities. They can be supported by well-equipped sports grounds and gyms, clubs and hobby groups, recreation rooms or spaces, otherwise referred to as co-working, or collaboration and involvement centers designed to fit students' preferences and desires.

Most cadets were found to have reactive anxiety, somewhat less personal anxiety, which denotes stress instability, nervousness. These results can be argued by adaptation processes and several impacts that took place in the past few years. They are attributed to the COVID-19 pandemic, as well as students' concerns about future employment in the field of marine and river navigation due to biased and unfair attitude to Russian seafarers from foreign companies. This hindrance can be removed through close cooperation between internship and placement departments in educational institutions and companies and organizations that are able to place all students and ensure further employment, because students are mostly worried about whether they make the right career choice, about learning outcomes, fears of being disappointed with their efforts, means and time wasted. In other words, students can mostly benefit from being accompanied, supervised, and supported by the most relevant support information for them to achieve the goals common for the cadet and the training system – becoming a qualified and mentally stable professional.

The difference between risky jobs and mainstream jobs proves reliable and conscious self-regulation to be a professionally significant competence for risky jobs that require special abilities to handle stress. A detailed study

of accidents, incidents and specific hazardous situations likely to occur and actually occurred on sea and river vessels will help prepare cadets for difficulties in their professional activities and avoid the risks of misconducts in an emergency, of taking hasty or affective decisions that could damage crew members, cargo or ship.

Senior maritime students should possess the following extremely important and necessary qualities: mature technical and abstract thinking, discipline and diligence, endurance, responsibility, desire for self-improvement, strong-willed qualities, stress tolerance, initiative and independence, purposefulness, communication skills, organizational skills. Fourth-year students should possess professional qualities and skills, attitude to work (assertiveness, diligence, responsibility), sociability, flexibility, ability to work in a team, command of foreign languages. Based on surveys and interviews, merchant fleet officers (captains and engineers) should possess the following features: increased emotional and behavioral control, high tolerance for boredom and daily routine, obedience with traditional moral standards, sociability, cynicism (as suspicion, associated with alienation), decreased anxiety, annoyance, depression, general psychological distress, discomfort in social situations, indecision, poorly controlled anger. This perspective again focuses the attention of educational institutions on the fact that academic program, disciplines and practical training delivered to students may differ in many respects from what they may encounter, when on board ship, performing professional duties, which again makes it important and significant to pay more attention to individual personal preparation of each student.

Maritime navigation staff handle various types of stress including intellectual, sensory, monotony, polytonism, physical, emotional, waiting time, motivational, fatigue, which suggests the need for psychological support for seafarers, aligned with national character, and for the establishment of psychological culture institution. Besides continuous monitoring of the way they feel, prevention of neuroses and various deviations, etc. psychological support involves the establishment of the framework for delivering not only specialist technical and navigation disciplines, but also training the mental culture and perception of one's own profession with all the difficulties and challenges entailed, not excluding ethics and etiquette.

The findings show that before the voyage, shipboard personnel are most authoritarian and aggressive, moderately though; after the voyage, they are moderately authoritarian and highly aggressive and suspicious. After the voyage, tendencies towards dependence and non-sociability begin to prevail, and these become stable personality traits found to be present in almost all fleet personnel. In a fairly short period of time (during nearly a six-month voyage), professional activity at a statistically significant level increases aggressive behaviors, increases independence from the team and group norms and values, which contributes to marginalized behavior. It significantly increases anxiety and stress. Based on the above, it is again worth mentioning deficient training opportunities for promoting emotional and psychophysiological health of students as future experts

in the industry. It is important that during the first five years at work negative qualities become fully developed and fixed. This can also be due to the perception and behavior pattern characteristic of ship crews, where, in conditions of social isolation, it becomes relevant to hold informal meetings, in which the immediate head (captain, chief engineer) also becomes the leader of the team.

As mentioned earlier, special masterclasses can have a positive impact on psychophysiological health of future employees. After classes, possible conflict situations due to the personal moods of each of the crew members are almost completely transformed into potential cooperation, agreement, compromise.

The poor development of marine and water transport psychology is evidenced by the lack of high-quality textbooks and manuals, methodological programs, courses, curricula.

The survey based on a random anonymous sampling of transport students gave the following data.

3 Results and Discussion

In line with the findings, the following conclusions can be drawn:

- a) More than half of the students do not feel anxious, nervous or stressed at all during the studies;
- b) Daily service causes some stress for students (18) because they do not make enough sense of it, or have some difficulties with their studies due to missed classes, sleep disturbances, and possible unforeseen situations occurring during the service;
- c) Some students (17) feel stressed as they have difficulties interacting with their group mates in a heterogeneous group, uniformity of their daily routine and personal worries about breaking discipline due to the lack of developed habits;
- d) Some students (10) think that stress can be caused by personal reasons, for example, lack of time for leisure or the proper amount of rest free from duties and studies;
- e) Some students (19) think that learning activities can be somehow improved by increasing practical classes and studying information at lectures and other types of classes that could help them in mastering their future profession. In addition, cadets become much more involved in learning experiences if teachers make classes more interactive, practically applicable, rather than using a strictly fixed order. In other words, students have difficulties with their studies due to personal factors when they cannot build rapport and mutual understanding with their teacher;
- f) Some students think they have difficulty finding the material necessary for studies, which also causes some discomfort. They also note that working with teachers who have necessary sources in electronic formats is a more convenient and interesting form of study;
- g) Most of the students seek to identify the conditions necessary to improve learning activities and life and are ready to find compromise and responsibly perform their duties. However, due to the lack of strong adaptation skills, they strive for calm atmosphere, as

they used to have at home, and not in company rooms, etc. In addition, students tend to be more responsible and self-regulated by considering themselves not as cadets receiving higher education, but as individuals striving to obtain relevant and important professional knowledge, independently evaluating the state of their psychophysiological health and making it a priority.

4 Conclusion

As exemplified by Admiral Ushakov Maritime State University, leader among educational institutions of the Ministry of Transport of the Russian Federation, the conclusions are as follows:

1. The university has a well-tailored ecosystem, modern equipment and integrates advanced digital technologies in academic disciplines, theoretical, practical and laboratory studies.
2. Training opportunities for maritime transport students at the university integrates various sciences for in-depth and thorough understanding of processes, devices, mechanisms, and systems that students will deal with doing their jobs in the future, which produces highly qualified professional with extensive knowledge and sharply honed skills.
3. The university with its educational ecosystem carefully controls student self-study that develops several qualities essential for their future professional activities.
4. The university is concerned with student leisure and employment opportunities, organizing their aboard practical training, helping them with employment, providing a wide range of possible leisure activities, encouraging students to do research, which in the foreseeable future will reach a completely new level of interaction between teaching staff and students in the Technopark being constructed for research activities.
5. Based on anonymous surveys, students, being as self-rigorous as possible, keep on performing their duties and learning activities, struggle with anxiety or stress. However, they have clear desires to understand the idea of the processes they are involved in, to receive more practical materials for study and consideration and to be closer to teachers in a social sense: students strive to get on well and communicate with teaching staff, which, unfortunately, is not always possible. Thorough explanations to students about the importance of fulfilling their duties as one of the stages of training will make them more attuned to comply with and responsibly fulfill all the tasks assigned. In addition, individual approach should be applied to each student, in other words, students appreciate when they are perceived as some personality having fairly developed age-related social skills. No doubt, this format will make them more involved in learning activities, create a solid foundation for the teacher-student social institution and bring the modern educational system closer to the standards that the world community is straining after.
6. In the overall scientific environment, it is necessary to give favorable consideration to the field of scientific knowledge that could be referred to as maritime psychology.
7. The university fosters the best features in cadets, being future navy officers, has an extensive system of adaptation activities, including a wide range of activities that can prepare them to become worthy representatives of the transport industry.

With their actions, university employees are bringing closer the day when the educational system and higher education institutions will reach a whole new level of interaction between students and teachers. Despite considerable efforts anticipated, there is a strong and permanent view that all plans and goals will be fulfilled – like the will and determination of a sailor in the Russian fleet.

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