

Training of the Personnel for the Fleet is a Key Question to Ensure Safety at Sea

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THESES

The report is devoted to problems of personnel maintenance of the fleet and in essence reflects the Russian concept of higher maritime education.

In the report a problem of necessity to provide a qualified crew for a vessel comes into question, as being one of the most important parts, ensuring fulfilment of the standards of navigation and safety at sea.

The reasons are considered, according to which a special approach to the formation and check of crews should be created.

A conclusion is made about the necessity to adjust and integrate the systems of the quality standards for training and certifying to ensure proper qualification of the seafarer before his assignment to a vessel, i.e. at the stage of training and certifying. In the report a problem about certifying of the specialists for fishing and navy fleets is raised. In opinion of the author there should be entered and carried out some uniform requirements when training the personnel for the merchant, fishing and navy fleets.

Key problems are picked out, on which the maintenance of conformity of the crew to the modern requirements at the stage of training is rather complicated a task. Mainly it is influenced by the duration and inertia of the existed system of training and certifying.

In the report a concept of the system of training of the seafarers is offered which, in opinion of the author, can help to solve this contradiction, major elements of this system being considered in detail.

MANUSCRIPT

1. Introduction

The international sea community in the last decades takes a complex of measures, directed to improve the safety of navigation and to prevent pollution environments. Systematic checks of ships by the states of the flag of the vessel and states of ports play a decisive role in guaranteeing of observance of the international conventions requirements. It is difficult to overestimate a role of classification societies and regional agreements in revealing substandard vessels and banning their activity. However, when observing the standards of navigation there is a problem, which cannot be solved only by efforts of classification societies and checks by the states of the ports. This is the problem of qualification of the crew of a vessel, first of all - qualification of the Master and qualification of officers on board. Any technically perfect vessel, controlled by an unskilled crew, represents a threat to safety of navigation. According to the Russian Federation Sea Register 82 % of emergencies in the fleet under the Register directly or indirectly are connected with the human factor. As the role of the human factor dominates in a sea accident rate, the following formula is completely obvious: standard vessel + substandard crew = substandard vessel.

The requirements to the competence of the crew members are regulated by the International Convention on Training and Watchkeeping 1978, changed by the Conference in 1995 (STCW). When checking the vessel, the conformity of the crew with the requirements of the STCW as well as with other International Conventions is checked. However, owing to a number of specific peculiarities no check of the vessel can guarantee that her crew is competent enough.

First of all, the crew is the most dynamically changeable part of the vessel. Say, the vessel is checked by the state of the port, recognized as appropriate in accordance with all international requirements and receives a certificate, exempting her from any checks for the next six months. Then her crew is completely or partially replaced; but if the newly arrived members of the crew are not competent enough, there would be a substandard vessel ready for sea, having written confirmation, that all international standards of navigation on board are observed.

Secondly, the order of the control against the STCW rules is essentially different comparing the same procedure concerning other international conventions. According to Clause I/4 and Section A-I/4 of the STCW Code the standard procedure is limited by a check of the number of seafarers on board and their diplomas. The abilities of the seafarers to observe the order of watchkeeping stipulated by the Convention are checked if the following cases took place:

- collision, grounding, ground contact, or
- illegal discharge of substances or
- faulty or dangerous maneuvering or
- the vessel was maintained in such a manner that it represented
- a danger to people, property or environment.

Thus, when the checks against other conventions are directed to prevent incidents or preconditions to them, **the check of the crew competence can be carried out after the incident has taken place only, or could clearly have happened.**

2. Complications while Training Seafarers at the Level of Modern Requirements

What is a solution? How to ensure a standard crew for a standard vessel? The sole decision is to have an organized system of the quality standards for training and certifying of seafarers that could ensure an appropriate qualification of seamen before their assignment to a vessel, that is, at the stage of training and certifying. According to Russian researches the period of 1960 - 1980 was the most favorable as to the level of safety of navigation for the merchant fleet of the USSR. During those years the index of a safety level did not exceed 0.1 %, while the similar parameter for the countries of a convenient flag was about 1 % and more, and for many leading countries it was between 0.1 and 0.2 %. The high level of safety of navigation during that period was reached with the help of the system, in which the actions of the state shipowners and those of the state maritime educational institutions were strictly supervised vertically by central bodies of the state and divisions of the apparatus of Ministry of merchant marine. The extremely high level of training of all level seafarers was provided with a precisely working network of specialized maritime educational institutions of various categories. Just these two factors - rigidity of actions of the centralized system and high quality of personnel training - could hold an accident rate at a low level.

Nowadays the international sea community personified by IMO has accepted functions of the strict control in questions of creation of effective systems of safe management of ships in the states of a flag of a vessel; the ISM Code and the STCW Convention 78/95 being tools in this work.

It is necessary to bear in mind, that, even in view of rules and requirements of the STCW Convention, it is not so easy to ensure the conformity of the crew to the modern requirements owing to some basic inertia of the system of training and certifying. It takes more time to train a junior officer (an officer of the watch or an engineer of the watch), than to build a new vessel. Yet eight or twelve years later the graduate of a maritime educational institution will become a master or a chief engineer. Over these years engineering will change, methods of work, requirements to the specialist and even the contents of the profession will considerably change. It is necessary to recognise that the key positions on board are inevitably occupied by the specialists, who, while being trained and certified, could not be kept up with the modern requirements. And, at the same time, they are obliged to meet the modern requirements.

3. Principles of the Russian Concept of the Higher Maritime Education

A system of training and certifying of seafarers could solve the above-mentioned contradiction provided it would have the following features:

- The training given means future "targets"; it is designed to meet both the existing requirements to a specialist and also those predicted for the future;
- When training a specialist a theoretical base of his knowledge is laid and those abilities of his are developed which can give him an opportunity for his independent development and adaptation to the ever-changing requirements and conditions of work;
- Any next promotion (and the exchange of the diploma) is allowed as a follow-up procedure after an extension course of training, in which all changes of duties and of a level of responsibility have been taken into account;

- Any specialist, even not to be promoted, regularly takes a refreshing course of training, which systematizes new requirements and technologies, and also updates skills, necessary in extreme situations, seldom met in usual practice.

In our opinion, the system of the higher maritime education in Russia has all qualities listed above.

Used in our country by decades (since 1944) the system of higher maritime education, when the theoretical knowledge of graduates exceeds official duties of a junior officer, has advantages without question. In accordance with the STCW, one has to get a certain experience of working at a position before being promoted to a higher position on board. **However, such an experience is absolutely not that that one needs for the next position.** Actually, it is necessary to be able to acquire the experience for the next position. For example, a watchkeeping officer must get an experience of the Chief Officer's job, and the Chief Officer should learn from the Master and get his experience. To get such an experience faster and better is much easier for those, whose theoretical knowledge is good enough, who understands WHAT, WHEN, WHY and HOW is going on on-board. For this reason we give a theoretical knowledge to a watchkeeping officer for the level of management, determined by table A-II/2 of the STCW Code, while his practical training is for the level of operation (table A-III/1 of the STCW Code).

It is important, that in the Russian system the teaching in higher maritime educational institutions is carried out by the experts who both have certain experience of working on board together with valid sea diplomas and are constantly engaged in a scientific activity connected with prospect of development of the sea transport. The research work of the experts of maritime high school is not only a contribution to the development of prospective directions of the sea science, but, first of all, an opportunity to see and operatively take into account for the educational purposes a condition and prospect of development of the fleet. Examples of such a work for the future in our Academy can be a training course for cadets on the use of automatic identifying systems (AIS) for prevention of collisions at sea, and a course on the requirements of the Polar Code.

I am glad to mention here that at conferences and at personal meetings I meet similar opinions on the majority of questions mentioned by me from the the chiefs of many educational institutions, training and simulator centres of all over the world.

Approval of the STCW and putting it in force has put rather difficult questions before Sea Administrations of the countries, which have an advanced system of maritime education. Is it necessary to go on training the specialists for the level exceeding the requirements of the STCW? And if for some countries introducing of the STCW meant an increase in quality of training of the specialists, for a number of states it could result in a decrease of a level of training down to the minimum standards of the STCW. The Ministry of Transport of the Russian Federation has taken a precise and the only right standpoint: the STCW Code defines minimum standards of quality of training. Introducing of the STCW in Russia has increased in some aspects a quality of practical training of seafarers without any decrease of the level in a general professional training already achieved in the country.

Introducing of some standards of the STCW, of the uniform certificates in particular, alongside with some positive effects, has, in our opinion, some negative consequences. The STCW Code has brought down a role of some educational institutions, equalized them by

putting in line those who can hardly carry out the minimum requirements and those who have been successfully preparing seafarers at a considerably higher level for a long time. In our country there has always been a record about received maritime education in the endorsement certificates of seafarers. Considering it as an important characteristic of the specialist, the Sea Administration of Russia in the new forms of the certificates in addition to the columns stipulated by the STCW has entered the column "Maritime Education": where, when and which of the maritime educational institutions the certified specialist has finished.

4. Why Does a Sea Specialist Need an Academic Education?

A doubtless plus of the Russian system of preparation of seafarers is that they are given not only a special training, but an academic education as well. What for does a seafarer need the academic education? A trivial the answer is: to increase a prestige of maritime training, and to give an opportunity to find a job ashore if a seafarer does not want or is not able to work on board for any reasons. This is only one of the reasons, and not the main one. An all-round academic education is necessary for a seafarer for a number of more important reasons.

First of all, there is a great number of types of the ship equipment for the same purposes on ships of the world fleet with various characteristics and produced by different manufacturers; it is impossible to study all of them beforehand, therefore, one must master the unfamiliar equipment right after coming on board. The above-said demand a deep knowledge of theoretical fundamentals and principles of functioning of the ship equipment.

Secondly, the general tendency to a faster promotion owing to the shortage of officers in the world fleet requires to speed up the process of obtaining new professional skills. A specialist with a good knowledge of theory who is able to think and analyse independently is capable of doing it.

Thirdly, the ever-accelerating technical progress steadily cuts the period of application of social and professional skills in actual practice. In the 20th century the professional and social skills had to be changed completely at least 2 - 3 times during the life of a seaman. One and the same generation of navigators, for example, began their professional career with deck logs, sectorial radio beacons, Morse code, multivolume International Signal Code, and finished it with navigation satellite systems, electronic charts, and global means and networks of communication. The 21th century promises to speed up this process many times as fast. One should expect that in near future the main characteristic of the specialist will become not a level of his today's knowledge and skills (it goes without question), but his ability to self-perfection, to learn the new, and to adapt to ever-changing conditions of work. The academic education can grant this request.

In the fourth place, the academic education as opposed to coaching within a limited field of professional skills, actively develops both left and right hemispheres of the brain of the future seafarer. The function of the left hemisphere is known as learning, memorising, handling of standard situations. Function of the right hemisphere is general knowledge, automated actions, associations, critical situations. And if in standard situations there is not likely to be a great difference in actions of a narrowly trained and a widely educated specialists, in critical situations the advantage of the widely educated specialist with advanced thinking and imagination is doubtless. To the paradoxical question - Does descriptive geometry help to avoid a collision at sea? – it is necessary to answer in the affirmative. Yes, developing

spatioperceptual imagination, developing the right hemisphere of the brain it indirectly helps to find the correct decision in a critical situation.

Finally, shipping industry does not mean ships only. The prospects of development of the world merchant fleet largely depend on what kind of experts define and carry out the policy for all branches of the shipping industry; for shipping companies and sea administrations, educational institutions and scientific research institutes, classification societies and insurance companies, ports and trade unions. The above segments of the industry being various, the general requirements for their employees are a wide outlook, good theoretical knowledge, ability to analyze and to make independent decisions, and, which is very important, their experience of working on board. Those experts who have received higher maritime education and made successful career on board are reserve for replenishing the staff of the shore segment of the shipping industry.

5. Direct Links with Shipping Companies Make an Important Part of the System of Maritime Education and Training

The system of higher maritime education in our country has traditionally been sound thanks to direct links between maritime educational institutions and shipowners, the shipping companies of Russia. We prepare our graduates in compliance with procedures being used in the shipping companies; our teachers take some training on ships and at departments of the shipping companies. We have got a set-up feedback, e.g. companies' responses on the quality of our graduates training, and their characterization during their first year with the companies.

However, for a number of last years the situation in the merchant fleet has been changing considerably, influencing the existing system of preparation, distribution and use of the sea staff. Some intermediaries, the crewing companies, often come up between us and the shipowners. The opinions of the two on the question of the training do not always coincide; many one-day crewing agencies are not interested in hiring highly skilled, and, therefore, well-paid specialists. Moreover, ruining of direct links with the shipowners and of the feedback from them does not help in improving of the educational process and does not stimulate it. To maintain a high quality of education our policy is aimed to keep and to develop the system of direct links with the shipping companies. We closely co-operate with the Northern, Murmansk, Arctic shipping companies, with the "Unicom" company and with a number of other companies. At the moment the government of Russia has taken the decision to revive the Baltic shipping company (109 vessels by 2010). I am sure that the cooperation between this shipping company and the Academy will be restored during first years of operation of the former.

We work directly with a number of some western companies; we are negotiating for a target preparation of our graduates, that would include both studying peculiarities of ships and procedures of the companies, and, in addition to the English language, studying the language of the state of a flag, as well as its history, traditions, peculiarities of the sea legislation.

6. Other Problems of Certifying Affecting the Safety of Navigation

An important element to guarantee the quality of the course of training and refreshing courses, of estimating the competence of personnel and maintaining this competence at an

appropriate level a system of certifying of educational institutions and simulator centres should be created. The Sea Register of the Russian Federation has issued " Regulations on certifying of educational establishments in compliance with the requirements of the STCW Code " and "Regulations of the quality control for the educational establishments which carry out the training of the sea specialists". The above documents are used at the moment when estimating the quality of the educational process in educational institutions of Russia.

At the moment the Sea Register has raised a question about the necessity of certifying the crewing companies. The crewing companies are completely independent of the shipping companies, though as suppliers of the sea staff they are a part of the technological chain of the Safety Management System for the shipping companies.

An urgent direction in reducing the human factor accident rate is some additional professional and special training of the ship and shore personnel on safety management. In 1999 in RF there was put in force the Rule about training courses on safety management for the ship personnel that defines a necessity of training for Masters, Chief Mates, Chief Engineers and Second Enginners on problems of SMS. The aim of the training, carried out at the maritime academies and simulator centres, is to give the knowledge on understanding of the purposes and problems of the ISM Code and ensuring an effective SMS on board.

The safety of navigation does not depend on seamen only. Our country has got a large fishing fleet, the river - sea fleet, the Navy ships. All these ships go by the same routes, call at the same ports as merchant vessels. In Russia for many years the training of the ship specialists for the fishing fleet and for the river - sea fleet is carried out in accordance with the programs approved by the teaching-methodological association in the field of the water transports, that uses the programs and the experience of the admiral Macarov State Maritime Academy as a base. Nevertheless, lately there was raised a question of the need for complete consolidation of the training process for all four directions under the jurisdiction of the ministry of Transport. Literally a few weeks back such a decision was taken in Russia at last, and in due time, in my opinion. The consolidation will ensure a complete fulfilment of the uniform standards of training and certifying by all participants of "sea transport traffic".

Conclusion

Ensuring safety at sea is our common problem. Maritime educational institutions deal with this problem where they are called for it, at the stage of the training of the specialists for the industry. I shall hardly sin against the truth, if I call this stage a key-stage in the system of processes, measures, ways and approaches, created to ensure both global safety at sea and the safety at a micro-level, i.e. on the vessel. The understanding of it makes us, educational institutions, feel a high degree of the responsibility for the job the world sea community has trusted us with. This responsibility becomes many times as large in view of the process of internationalization, developing fast in sea industry. How to improve our work? How to train the excellent competent specialist of an international level? How to teach him thinking? How to explain to the young person principles of the humanism and of careful attitude towards the environment? We put these questions forward and we discuss them. We are looking for the answers to these questions. Establishing of the association and its activity, as well as that immense job which has already been done and yet to be done is a good evidence for me that we will find the answers to these questions.

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