

Modern Cadet Training. The Challenge Between the Various Training Systems and New Demands Set by the Industry

K. Formela¹, R. Bošnjak² & V. Pusch³

¹ *Gdynia Maritime University, Gdynia, Poland*

² *University of Split, Split, Croatia*

³ *BSM (Deutschland) Services GmbH & Co., Hamburg, Germany*

ABSTRACT: Maritime transport responsible for as much as 90% of world trade, currently suffers from a shortage of qualified officers. The 2010 International Convention on Standards of Training and Watchkeeping (STCW) encourages the international community to promote employment at sea among young people, especially females. So far, the Cadet Record Book (CRB), based on International Seafarers' Federation (ISF) requirements is the basic and only document confirming obtaining the required qualifications by cadets to become an officer. Due to the continuous progress of technology and the maritime industry demands, the companies are developing their own (more detailed) cadet training systems. Such solutions enable a more detailed approach to training which results in better preparation for future work at sea. In this paper, one such system is presented in detail, which is already in use by one of the company and compares it to present training requirements.

1 INTRODUCTION

The IMO STCW Convention requires that a cadet's seagoing service must be recorded in a training record book approved by the maritime administration responsible for issuing certificates of competence. Widely used On Board Training Record Book for Officers in Charge of a Navigational Watch, to take account of the amended competence requirements in STCW 2010, which entered into force in January 2012. The revised Record Book takes full account of the competence standards stipulated by STCW 2010, such as the use of Electronic Chart Display and Information Systems (ECDIS) for Deck Cadets, application of leadership and team working skills and proactive measures to protect the marine environment. The training tasks included have been developed to ensure that cadets make the best use of their seagoing service, and to help supervising officers make an objective evaluation of whether cadets are competent.

The Record Book can be used by trainees in order to provide documentary evidence to government appointed assessors of having completed a properly structured on-board training programme in accordance with STCW 2010.

However, due to the continuous development of shipping industry, companies started using digital platforms which is based on ISF Record Book but there are more detailed in the area of the specific vessel type and company Safety Management Manual as part of company Quality Documented Management System (QDMS).

Therefore, the objective of this study is not only to present in detail such a design of structured training plan which meets the requirements and needs of the fleet owned by vessels of various types and purposes, but it is also aimed to investigate the process of implementing and on-board realization such a training plan, and its assessment in the perspective of

cadets. Based on these, conclusions may be drawn not only with respect to the formal and industry and shipowner's requirements but also the potential of structuralized training plan over time. Last but not least, these findings can help devise policies on future cadets' training process.

For the purposes of this research, cadets registered in the BSM Cadet Training Program were requested to complete the anonymous survey on a voluntary base. At the end of survey period feedback has been received from 283 cadets (45%).

The remainder of this paper is structured as follows. First, the method by which data on training plans was conducted and collected was presented. Then, on this basis, the results of the surveys were presented, which allowed to draw observations. These are discussed in Chapter 4, which also outlines some recommendations for future policy in the context of cadets' training process. The last section concludes the article.

2 MATERIALS AND METHODS

The research aimed to investigate the process of implementing and on-board realization such a training plan, and its assessment in the perspective of cadets. For this purpose, a questionnaire was prepared, which cadets from the BSM company registered in the Cadet Training Program filled in during their training period. The analysis of the feedback provided by the cadets allowed to formulate answers to the questions presented in chapter 2.3 regarding the process of implementing and on-board realization of a training plan and also the perspective of cadets related to the specific Training Plan implementation.

2.1 BSM Company overview

As the source for the purpose of this paper Bernhard Schulte Shipmanagement (BSM) resources were used. BSM company is an integrated maritime solutions provider. Managing a fleet of over 650 vessels, 20,000 seafarers and 2,000 shore-based employees enable the delivery of safe, reliable and efficient ship management services through a network of 11 ship management, 25 crew service and four wholly-owned maritime training centres across the world. Alongside comprehensive ship management services, BSM offers a suite of complementary maritime solutions that are customised to meet individual customer requirements. As a member of the Schulte Group, BSM benefits from its over 135 years of experience in the shipping industry. The main business areas of the Schulte Group are ship owning, which has the longest tradition in the Schulte family and is the core business of Bernhard Schulte, and ship management operated through Bernhard Schulte Shipmanagement (BSM). The Schulte Group additionally controls several specialized maritime services companies, such as Mariapps Marine Solutions, a leading maritime software development company, and Schulte Marine Concept, the newbuilding supervision arm of the Group. Other services provided by member

companies of the Schulte Group are crew and guest catering, inspection services, port agency services, and many more.

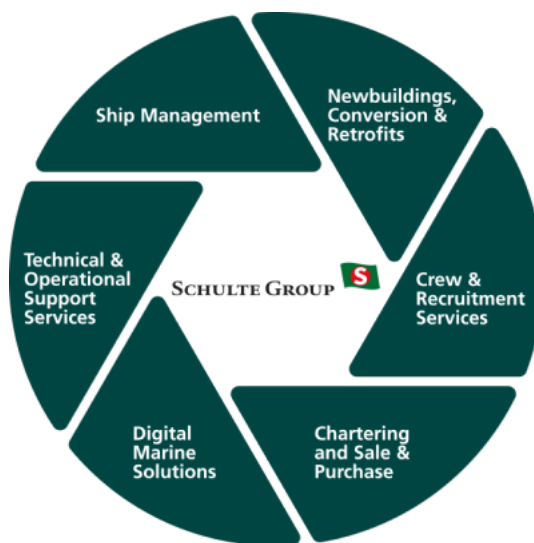


Figure 1. The main business areas of the Schulte Group

2.2 BSM Cadet career development and training program overview

BSM maintains a programme that caters for the recruitment, selection, placement and development of future Deck, Engine, Gas and Electro Technical Officers within the company. Completion of the cadet program during maritime practice is one of the formal requirements enabling future promotion to an officer position. From the company's perspective, it is a guarantee of reliable preparation for future work, which is based on procedures and practices used within the company.

2.2.1 BSM Cadets career development and training plan

A Cadet is a graduate or undergraduate from a university or academy approved by BSM. The duration of Cadetship on board a sea-going ship is 12 months or as per local administration. The maximum period for re-joining after completion of the Cadetship is 24 months. BSM allows a maximum of two attempts to pass the COC examination. Cadets who fail to pass the examination are removed from the Cadet Programme. An Apprentice Officer is a COC holder who completed the Cadetship. He requires additional onboard training to reach the level of competence as required by BSM to perform Deck, Engine or Electro Technical Officers duties without supervision. The maximum duration as Apprentice Officer is 12 months of sea-going service. Apprentice Officers who fail to meet the standard of performance set by BSM are removed from the Cadet Programme. The career development path is presented on the diagram in Figure 2

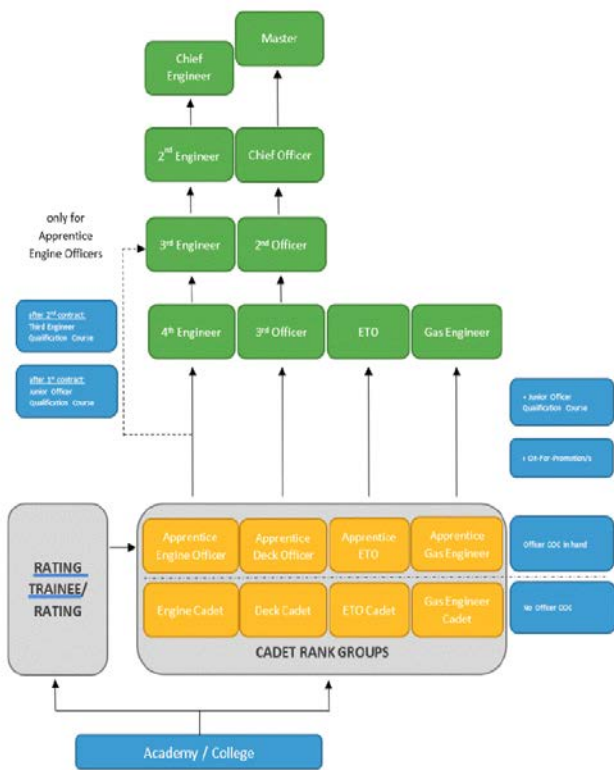


Figure 2. Flow chart regarding the promotions to officers for Cadet rank groups

The Cadet rank is an “Officer” rank, and they should be treated as such and accommodated and organized under the Officers’ facilities. The right Cadet and Apprentice Officer is being placed on the right ship at the right time to facilitate dynamic and diversified professional development. The Human Resource Marine Department is responsible for the development and coordination of the Cadet Programme in conjunction with the Crew Service Centers (CSC).

2.2.2 BSM Cadets Training Plan

Cadets who are assigned to BSM managed ships participating in the Cadet Training Programme, must complete the training plan as available in Cadet Training PAL. The training plans are ship-specific and prepared for each department. STCW requirements for Officers in charge of an Engineering Watch (Engine Cadet and Electro Technical Cadet) and Officers in charge of a Navigational Watch (Deck Cadet) are covered in each training plan. The training plan is aligned with the ISF Cadet Record Book. Additionally, it includes content required by BSM and requested by third parties. The entire training plan is based on cooperating modules (Figure 3), such as: SeaRoster (where the cadet records his hours of work and rest), Timesheet (based on previously registered working hours in SeaRoster) which allows Cadets to assign detailed tasks from the Training Plan to recorded previously work hours in SeaRoster, main Training Plan (which is described in details below) and the Review Section (in which the cadet receives guidance and assessments regarding his learning process at regular intervals).

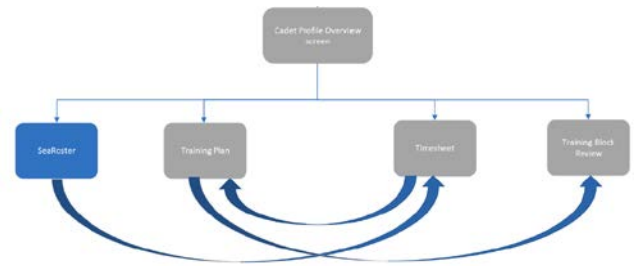


Figure 3. Cadet Training Plan main modules

Each training plan is divided into training blocks. The training content is assigned and graded by the Designated Training Officer onboard and the Training Supervisor ashore at the end of each training block. A final report confirms the completion of the onboard training, shows the general training of the onboard and allows preparation for the Cadet’s next training plan.

A training plan has different layers and is structured in the below-mentioned titles: Training Blocks, Categories, Sections, Titles, Tasks, Sub Tasks as it is shown on the figure 4.

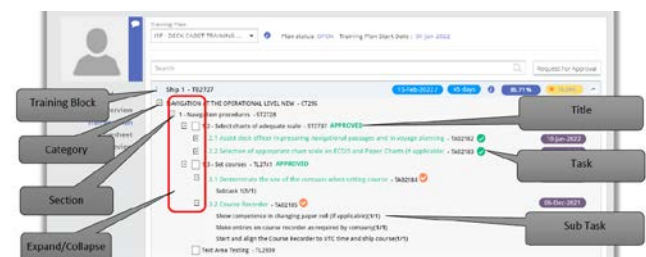


Figure 4. Training Plan structure implemented in BSM Cadet Training Module

The layers can be expanded or collapsed by clicking on the appropriate icon available in front of each layer on the left-hand side. The category and section have an information icon that shows the additional information/instructions for the specific layer when clicked. The training block row includes information about: training Block performance (Results for approved Titles), completion date of Training Block (Expected/Actual), duration date for a Training Block, information Icon (Detailed description of TB content), task Completion (Optional tasks excluded) which presents figure 5.

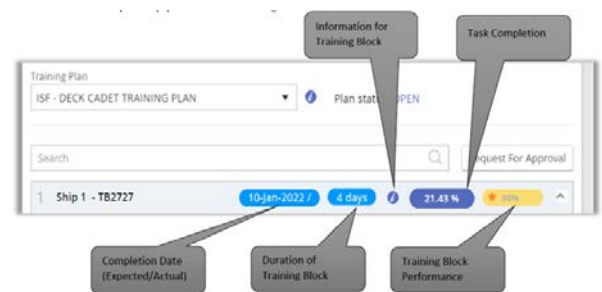


Figure 5. Training Plan layers with additional information's

For a title, additional information will be displayed only after completing the entries for the tasks and requesting a title to be approved by the Training Officer (Figure 6). Depending on the approval status this might be: approval pending, approved or rejects.

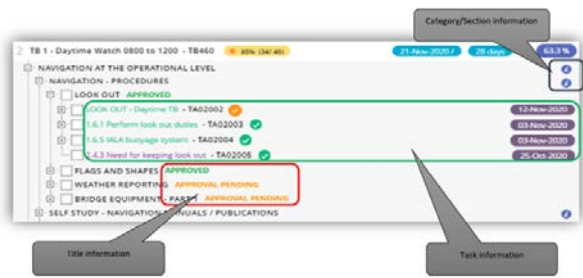


Figure 6. Approval status of tasks in Cadet Training Module

Tasks need to be completed to approve a title. There are 3 different options available for a task: normal (can be completed without additional requirements), including Sub Tasks (require various sub-tasks to be completed) or optional Tasks (can be completed but do not affect the completion status). Once a task is marked as completed, an icon will indicate it as fully completed (Green) or partially completed (Orange). In addition, the completion date will be shown for the task.

A training plan constructed in this way allows Cadets to perform not only all the tasks from the ISF Cadet Record book, but also allows them to learn the detailed specifics of the vessel and internal company regulations and procedures. All tasks are spread over time, which allows them to be completed in a planned and regularly assessed training block. This solution gives a lot of control on monitoring progress in the education process.

2.3 Methodology of the Survey

The survey had been carried out from 9th of September 2022 until 30th of September 2022 and was targeting cadets registered in the BSM Cadet Training Program being on board or ashore. In total 630 cadets were requested to complete the anonymous survey on a voluntary basis. At the end of the survey period feedback was received from 283 cadets (45% response rate). The aim of the survey was to receive information, formulated in the form of Research Questions (RQ) about:

RQ1: What is the role and how important are the processes related to the implementation of the training plan before embarkation?

RQ2: How the training plan is implemented and how it affects routine work during the practice on board the vessel?

RQ3: Are the Training Plan structure in the on-board learning process and the assistance of the Training Officers and Training Supervisors helpful?

RQ4: Can certain recommendations be made based on the above conclusions in order to improve quality of on-board cadets training process?

At the end of the survey the opportunity was given to insert comments which have been used by 205 cadets. These comments are not included in this paper.

3 RESULTS

The responses provided by the cadets were collected and presented in the form of charts. This aggregation of data allows for the separation of groups and their percentages for each answer. This approach allowed for the presentation of conclusions and recommendations regarding the cadet training process, which are included in Chapter 4 of this article.

3.1 The operational process prior joining as vessel

One of the key element of the implementation of the training plan, which is carried out before signing-on to the vessel, is the possibility of a voluntary meeting between the cadet and his Training Supervisor from the shore. During such a meeting, the supervisor has the opportunity to present the requirements that will be set for the cadet during the implementation of the training plan. The meeting also discusses the practical aspect of implementing the tasks from the plan. Of the people who took part in the survey, over 70% participated in such a meeting (see Figure 7).

Did you participate in a Cadet Training Module familiarization meeting carried out by Training Supervisors?

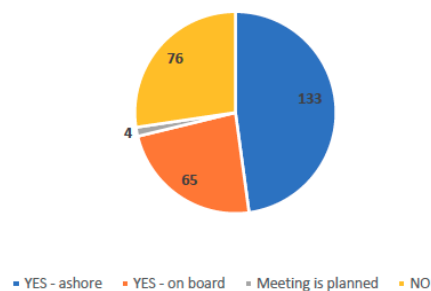


Figure 7. Participating in a meeting with the Training Supervisor

Approximately 85% of cadets who participated in the meeting expressed a positive opinion (strongly agree or agree) about it. Only 5% of respondents did not share the opinion that this meeting would help them easier implementation of their training plan. 10% of cadets could not clearly state whether such a meeting was necessary. A detailed summary of responses is presented on Figure 8.

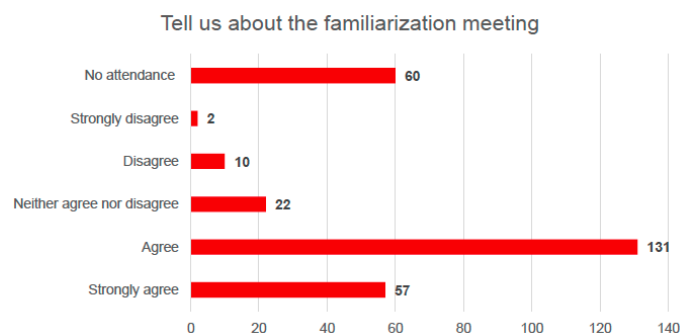


Figure 8. The usefulness of the meeting in terms of future implementation of the training plan

3.2 On board operation and handling of the Cadet Module

One of the concerns raised during meetings with cadets was the availability of free time to make entries in the training plan. A specific question was asked to cadets already implementing such a plan whether there is enough time for it. The answers to this question are presented on the figure 9.

Is there enough time available to you for making entries in your Training Plan?

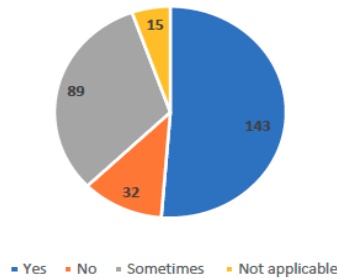


Figure 9. Availability of time to make entries in the training plan.

3.3 Cadet Training Module as a training support

As mentioned earlier, the main purpose of the training module is to support the cadet in the learning process during sea practice. Due to the large number of tasks to be performed during on-board period, the module allows for their appropriate distribution in time and regular assessment of progress. The survey asked whether the module supports them in the on-board learning process. The results are presented in figure 10.

The PAL Cadet Training Module is supporting me during my on board training?

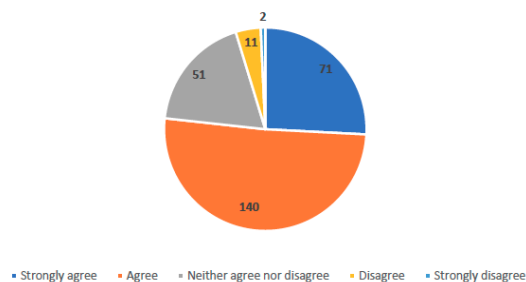


Figure 10. Cadet Training Module as a training support

More than three-quarters of the surveyed cadets confirmed that the implemented training module supports them in the on-board learning process. 51 out of 275 cadets who took part in the survey could not clearly define role of the training module. Only 5% answered that the training plan did not help them in the process of acquiring new skills. Detailed data regarding the answer to this question are included in Figure 10. Also one of the questions in the survey was about the structure of the training plan itself.

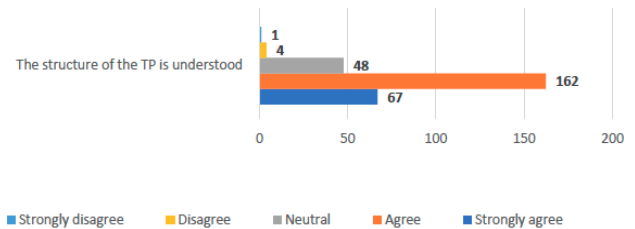


Figure 11. Structure of the Training Plan

As shown in Figure 11, the majority of cadets (approx. 81%) believe that the structure of the training plan is appropriate (strongly agree or agree). Tasks in the training plan distributed over time in this way allow for their better implementation during learning process.

4 DISCUSSION

The obtained results are discussed in Section 4.1. The consecutive Section 4.2 formulates recommendations based on them in order to improve on board training process to meet not only formal requirements, but also those set by the industry/shipping companies, while Section 4.3 discusses limitations and uncertainties related to the performed study. During this meeting, they are introduced to how they can practically implement these tasks on the vessel.

4.1 Findings

The conducted research confirmed how important it is to properly introduce the cadet to the process of implementing the training plan that he will implement during the on-board training period. Often this is their first contract on a seagoing merchant fleet ship. Cadets participating in the meeting with the training supervisor prior to their embarkation have the opportunity to get familiar what are the expectations for their upcoming practice (RQ1).

Cadets who have been properly trained before embarkation have no problem with routinely carrying out the tasks from the training plan. Additional tasks that go beyond the mandatory ISF requirements do not make additional difficulties in routine day-work at vessel. They allow in a structured way to prepare the cadet for future work as an officer with the internal requirements of a given company on a particular type of vessel (RQ2). The organization of the training plan itself, in the opinion of the cadets, helps them in the learning process (RQ3).

4.2 Recommendations

Based on the presented and discussed results, certain recommendations can be drafted (RQ4):

- regular meetings should be organized for new cadets to introduce them to the tasks they will have to complete during their on-board training period;
- in order to verify the obtained results of its reliability, it would be necessary to carry out the cross-national study within other companies and

- compare the different solutions for implementing and on-board realization a specific training plan;
- the training plan for cadets should be extended to include internal company requirements and procedures as well as knowledge of how to operate specific devices on various types of ships.

4.3 Limitations

Any scientific study can be characterized by some limitations, and so is the one described. Firstly, the study only investigated the process of implementing and on-board realization a specific training plan within one specific company - cadets from the BSM company registered in the Cadet Training Program. The results may vary if a wider sample is considered, involving cadets from other companies with different Training Plans. Performing such a cross-industry study would be a good opportunity to also strengthen cooperation and create a global framework for discussion regarding the onboard training process.

Secondly, the design of the study did not allow for statistical verification of its reliability – its purpose was merely to investigate the issues raised without any initial assumptions. This must be addressed and corrected in a cross-national study that should be pursued as suggested in Section 4.2.

Last but not least, the entrants may have misunderstood at least some of the questions. However, none of the respondents raised any concern about the clarity of the questionnaire.

5 CONCLUSIONS

The obtained results showed that structured training plan which cadets have to follow during their on-board period allows to perform not only all the tasks from the ISF Cadet Record book, but also to learn the detailed specifics of the vessel and internal company regulations and procedures. Due to the large number of tasks to be performed during practice, it is important to plan them well in time. The implementation of such a plan sets new standards in the process of training future maritime personnel. They bring many benefits, such as a more comprehensive approach to the specificity and requirements related to a given company's procedures as well as the operation of advanced equipment on highly technologically advanced vessels.

However, it is necessary to point out that this type of solutions require continuous work and improvement of the content included in the training plan. In such a dynamically developing industry as maritime transport, many changes can be observed in applicable procedures and standards. The role of a training supervisor is therefore crucial. Its aim is to constantly monitor and assessment the cadet's training process as well as provide insight into the content he implements, making sure it is up to date.

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