

Evaluation of user satisfaction as a key indicator of success in the maritime education quality management system

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Abstract: The quality of maritime education and training (MET) is a key factor in developing competent seafarers. In line with the requirements of ISO 9001:2015 (Clause 4.4), institutions involved in MET must establish and implement criteria and methods for measuring the effectiveness of their processes. Continuous monitoring of key performance indicators (KPIs) is crucial to ensure the ongoing improvement of these processes. This paper examines one such KPI—user satisfaction with the educational process. The analysis is based on a survey conducted among students from secondary maritime schools and maritime faculties in Montenegro and Croatia. Additionally, the research includes active seafarers and representatives of maritime agencies that employ graduates from these institutions. A comparative analysis of all respondents' feedback allows for the identification of potential areas for improvement within MET institutions. The results show a generally consistent level of user satisfaction across different institutions, while also highlighting specific areas needing enhancement—particularly in practical training and the application of acquired knowledge onboard. Feedback from maritime agencies further supports the evaluation of educational quality and offers a valuable basis for refining curricula and training programs.

Keywords: KPI, User satisfaction, Quality of teaching process in Montenegro and Croatia, Maritime education, Quality management.

1. Introduction

The quality of maritime education and training is a key factor in the development of seafarers' competencies. In order to ensure a high level of professional competence, continuous monitoring of KPI is necessary [1][2]. One of the most important KPIs in the educational process is user satisfaction, which includes the perception of pupils, students, active

seafarers and maritime agencies regarding the quality of teaching, i.e. the level of acquired knowledge [3]. Modern quality standards, including ISO 9001:2015, emphasize the importance of defining and implementing methods for monitoring and evaluating educational processes [4]. MET institutions have an obligation to apply effective criteria and methods for measuring performance and improving the quality of teaching [5][6]. This paper focuses on the analysis of user satisfaction with the teaching process in several maritime educational institutions in Montenegro and Croatia. The data obtained through surveys conducted among high school maritime students, maritime university students, active seafarers and maritime agencies were used. The goal of the research is to identify, through a comparative analysis of respondents' answers, the key factors that influence user satisfaction and to propose recommendations for improving the teaching process. The research provides a comprehensive insight into the perception of various actors involved in the educational system of seafarers, thereby contributing to the improvement of the quality of teaching and better alignment of the educational system with the needs of the labor market. By comparing the responses of participants from different institutions, the analysis examines the potential for further action of these institutions in terms of education of pupils, students and active seafarers involved in the teaching and educational process [7]. This analysis is supported by feedback from the maritime agencies that are responsible for the employment of these personnel, considering that pupils and students who graduate from maritime high schools and maritime colleges seek employment mainly in these [8].

2. Overview of institutions, survey questions and answers

A total of 591 participants took part in the surveys, and the following institutions and individuals were involved: two maritime secondary schools and two maritime faculties from Montenegro, as well as one maritime secondary school and one maritime faculty from the Republic of Croatia. Feedback from active seafarers and seafarers boarding agencies was also relevant to us for this research and they were also participants in this research. Table 1 provides a detailed overview of the participants who completed the survey.

Table 1 – Survey participant overview.

Name of the institution/participant in the survey	Number of samples
Maritime High School Kotor	99
Maritime High School Bar	197
Maritime High School Split	104
Faculty of Maritime Studies Kotor, University of Montenegro	61
Maritime and Tourism Faculty Bar	20
Faculty of Maritime Studies Split, University of Split	41
Seafarers	63
Maritime agencies	6
Total	591

2.1. Questions and answers for maritime secondary schools and faculty

The questions posed to pupils and students were as follows:

Question 1: On a scale of 1 to 5, how would you rate your overall satisfaction with the teaching process (teaching methods, transfer of knowledge, examination methods, additional explanations, availability, etc.)?

Question 2: On a scale of 1 to 5, how would you rate your satisfaction with practical teaching during your education?

On a scale of 1 to 5, rate as follows:

- 1- I am not satisfied
- 2- I am slightly satisfied
- 3- I am partially satisfied
- 4- I am satisfied
- 5- I am completely satisfied.

2.1.1. Satisfaction with the teaching process

The results of the survey show certain differences between the responses of pupils and students in the perception of the quality of the teaching process:

Pupils of maritime secondary schools: They mostly expressed medium to high satisfaction with the teaching process, with grades 3 (partially satisfied) and 4 (satisfied) being the most frequently chosen. The smallest number of students assigned the grade 1 (not satisfied), while the grade 5 (completely satisfied) was assigned in a smaller percentage.

Maritime faculty students: They showed slightly higher dissatisfaction compared to students, with a significant number of respondents assigning a

grade of 3, and grades of 4 and 5 were slightly less common than among students. This may indicate that students, having a higher level of education and higher expectations from the teaching staff and teaching methods, set stricter criteria in the assessment.

2.1.2. Satisfaction with practical training

The results of the survey related to practical training indicate slightly lower levels of satisfaction compared to the teaching process:

Pupils of secondary maritime schools: A large number of students evaluated the practical training with a grade of 3 (partially satisfied), while grades 4 and 5 were represented to a lesser extent than with the teaching process. Also, a slightly higher number of grades 2 (very slightly satisfied) was recorded, which may indicate room for improvement in practical teaching in secondary schools.

Maritime faculty students: Satisfaction with practical teaching is somewhat lower compared to high school students. The most common grades were 2 and 3, which suggests that students consider that practical training does not fully meet their needs. This result may be due to the insufficient connection of the faculty with the industry, the lack of concrete exercises on real maritime facilities or the lack of adequate training equipment.

In general, secondary school students show somewhat higher satisfaction with both the teaching process and practical training compared to maritime faculty students. Students express certain reservations, especially when it comes to practical training, which indicates the need for further improvements in the organization and quality of these aspects of education. These results indicate the importance of continuous evaluation and improvement of teaching methods, but also the need to strengthen cooperation between educational institutions and the economy in order to make practical training as relevant and efficient as possible.

2.2 Questions and answers for active seafarers

The questions answered by the active seafarers are as follows:

Question 1: How much knowledge did you have of the professional areas, which you applied on board, and which you studied during education/training, before your first time boarding the ship?

On a scale of 1 to 5, rate as follows:

- 1- I had no knowledge
- 2- I had very little knowledge
- 3- I had partial knowledge
- 4- I had solid knowledge

5- I had complete knowledge.

Question 2. Based on your opinion/experience, on a scale of 1 to 5, how would you rate the support and assistance provided by maritime educational institutions in developing your competence (i.e., the overall competency of seafarers)?

On a scale of 1 to 5, rate as follows:

- 1- there is no support
- 2- there is very little support
- 3- there is partial support
- 4- there is solid support
- 5- there is full support.

2.2.1. Knowledge acquired before first boarding the ship

The results of the survey show that there is a significant difference in the perception of acquired knowledge among seafarers.

The largest number of respondents rated their initial knowledge as partial to solid (rating 3 and 4), which indicates that many seafarers felt that they had basic preparation, but that there was room for improvement in practical application. A smaller number of seafarers gave a score of 5 (complete knowledge), which means that only a certain part of the respondents felt fully prepared for the professional challenges on board. Low results (grade 1-2) are also present, which suggests that part of the seafarers considered that the educational system did not provide an adequate basis for working on a ship.

These answers indicate the need for a stronger focus on practical skills during education, as well as a better connection between theoretical teaching with real working conditions on board.

2.2.2. Support of educational institutions in the development of seafarers' competencies

The question related to the support provided by educational institutions to seafarers in developing professional competencies also showed diverse responses. The majority of respondents rated this support as partial (rating 3), which means that the seafarers recognized a certain contribution of the education system, but considered that it was not enough. Solid support (grade 4) was recorded by a smaller number of respondents, which indicates that certain institutions were more successful in providing adequate support to students. Low satisfaction (grade 1-2) was reported by a number of seafarers, which suggests that some seafarers felt that they received no or very limited support during their education and early career.

These results point to the need to improve the mentoring system, provide additional training and strengthen links with the industry in order to provide better support to future seafarers. In general, seafarers assessed that they acquired certain basic knowledge through the education system, but that its quality varied. While some seafarers felt that they were well prepared for work on board, a number of them highlighted shortcomings in practical training and insufficient support from educational institutions in the development of their competencies. These results highlight the need for better alignment of educational programs with the real needs of the maritime industry, as well as for the development of additional training and support during the beginning of a professional career.

2.3. Questions and answers for Maritime agencies

The questions answered by the Maritime agencies are as follows:

Question 1: On a scale of 1 to 5, how would you rate your experience with the level of professional knowledge of candidates applying for a job in your company/companies for the first time?

Question 2: Based on the employment applications at your company/interviews/ you conduct for the first time with interested personnel, what is your opinion about the quality of education in maritime school institutions in Montenegro?

On a scale of 1 to 5, rate as follows:

- 1- show poor knowledge
- 2- show very little knowledge
- 3- show partial knowledge
- 4- show satisfactory knowledge
- 5- show excellent knowledge.

2.3.1. Professional knowledge of the candidate when applying for a job for the first time

The responses of the maritime agencies indicate different opinions regarding the level of professional knowledge of the candidates. The most common ratings were medium values (3 and 4), which means that most agencies consider that the candidates have basic or satisfactory professional knowledge, but that there are areas in which their preparation should be improved. A smaller number of agencies rated the candidate's knowledge as excellent (5), which suggests that only a small percentage of candidates come with a high level of professional competence. Low grades (1 and 2) were also present, which indicates that some of the candidates show weak or very weak knowledge, which may be a consequence of the lack of practical training during their education.

These results emphasize the importance of improving educational programs and strengthening cooperation between educational institutions and maritime companies, so that future seafarers are better prepared for the challenges of working on board.

2.3.2. Quality of education in maritime schools and faculties

When it comes to the perception of the quality of education in maritime schools and colleges, the following responses were received from seafarer embarkation agencies. The largest number of answers ranged from "partially satisfactory" to "satisfactory" (grade 3 and 4), which indicates that the agencies recognize certain positive aspects of the education system, but at the same time recognize its shortcomings. Very few agencies rated the education system as "excellent" (5), which suggests that educational institutions have not yet reached a high standard in preparing future seafarers. A certain percentage of respondents gave low marks (1 and 2), which indicates that part of the agencies believe that the educational system does not provide sufficient quality of training and theoretical knowledge for the needs of the maritime industry.

These data indicate the need for the modernization of teaching methods, the improvement of practical training and the strengthening of cooperation between maritime educational institutions and employers in the maritime sector. The results of the survey show that maritime agencies are moderately satisfied with the level of knowledge of candidates and the quality of maritime education. While some the agencies recognize certain qualities of the educational system, there is also a significant percentage of those who believe that candidates are not sufficiently prepared for real challenges on the labor market. These findings highlight the need for continuous improvement of educational programs, particularly in the field of practical training, to ensure that seafarers applying for employment possess the competencies that meet industry standards.

3. User satisfaction evaluation

Based on the survey conducted, the results of user satisfaction were analyzed in three key categories: low, average and high satisfaction. This classification provides a clearer overview of the dominant trends in the perception of the teaching process and practical training.

The results of the survey for all participants from the aspect of user satisfaction are presented. A satisfaction level scale was created for the responses: 1 and 2- low satisfaction; 3- average satisfaction and 4 and 5- high satisfaction.

3.1. Maritime high schools and maritime faculties

3.1.1. Satisfaction with the teaching process

Analyzing the responses of all respondents, it can be seen that the majority of pupils and students show average to high satisfaction with the teaching process. Namely, the majority of respondents assigned grades 3, 4 and 5, which means that they are mostly partially or completely satisfied with the teaching process (Figure 1). The percentage of respondents with low satisfaction (grade 1-2) is relatively small, but present, especially among students. High school students rate the teaching process somewhat more positively compared to college students, among whom there is a slight increase in the percentage of those who gave lower ratings.

These results indicate a generally positive perception of the teaching process, but also room for improvement, especially in the segments of teaching methods and lecturers' approaches. Figure 1 illustrates the results given by high school maritime students to the question about satisfaction with the teaching process.

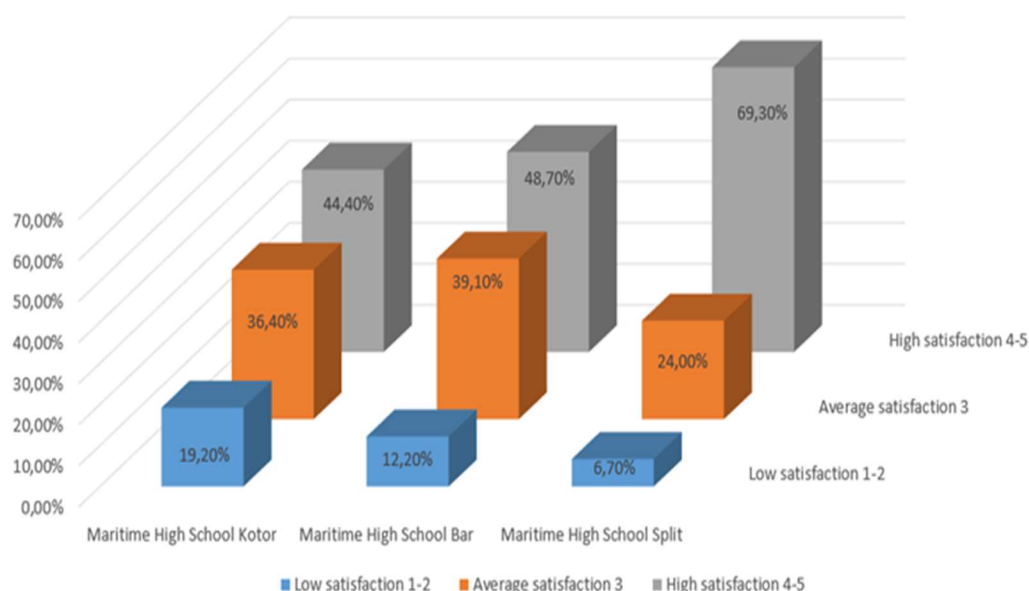


Fig. 1. Presentation of students' answers - satisfaction with the teaching process.

Figure 2 shows the results given by maritime faculty students in response to the question about satisfaction with the teaching process.

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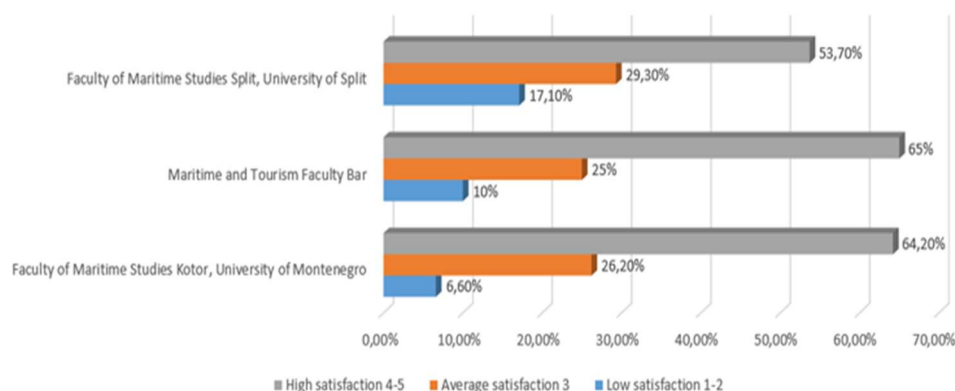


Fig. 2. Display of students' satisfaction with the teaching process.

3.1.2. Satisfaction with practical training

Compared to the teaching process, satisfaction with practical training shows slightly lower values, and the distribution of grades is similar. Collectively, high satisfaction (grade 4-5) has the highest percentage among students of maritime secondary schools, followed by average satisfaction (grade 3), which suggests that most students recognize certain qualities of practical teaching, but believe that there is room for improvement. Low satisfaction (grades 1-2) is more common for practical training than for the teaching process, especially among maritime faculty students. This trend may indicate a lack of practical exercises aligned with industry needs. High satisfaction (grade 4-5) is less pronounced than with the teaching process, which emphasizes the need for additional investments in practical education. Figure 3 shows the results given by high school maritime students to the question about their satisfaction with practical training.

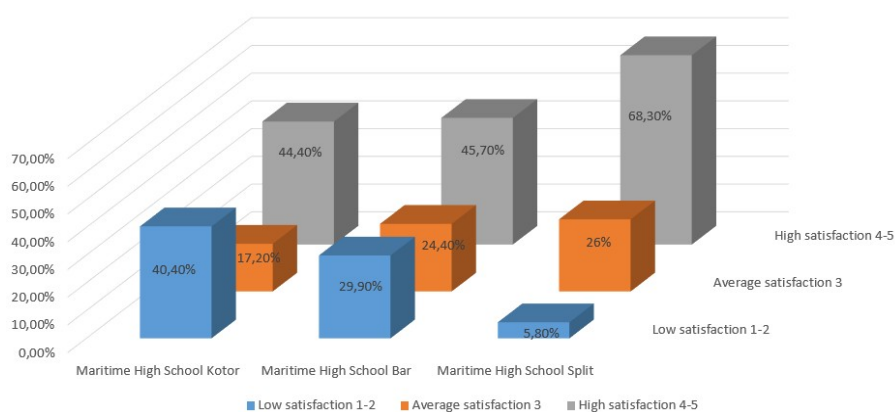


Fig. 3. *Presentation of students' answers regarding satisfaction with practical teaching.*

Figure 4 shows the results given by maritime faculty students in response to the question about satisfaction with practical training.

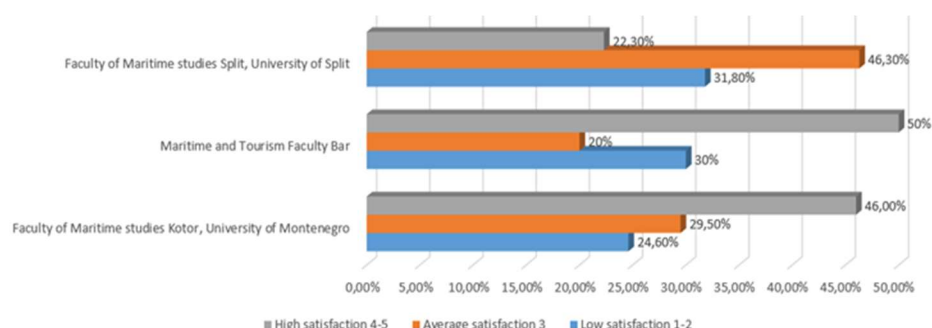


Fig. 4. *Presentation of students' answers - satisfaction with practical teaching.*

Overall user satisfaction is higher for the teaching process than for practical training. On average, students of maritime secondary schools are somewhat more satisfied than faculty students, especially when it comes to the teaching process. Practical training is the segment that requires the most improvement, since the highest number of grades 1-2 is recorded in this category, especially among students.

These results emphasize the importance of continuous improvement of the educational system, in order to provide users with better quality theoretical and practical education that meets the needs of the modern maritime industry.

As in this paper we processed the comments of pupils and students from Montenegro and Croatia at MET institutions. It can be noticed that the responses of pupils from the Maritime Secondary School from Croatia are consistent when it comes to the quality of the teaching process and the quality of practical training, and they are at a higher level compared to their colleagues in Montenegro. When it comes to comparing the answers of students of MET institutions in Montenegro and Croatia, the responses of students from Croatia show a slight decline in the quality of the teaching process as well as in the quality of practical training compared to students in Montenegro.

3.3. Seafarers

Based on the responses of active seafarers to two key questions and applying a satisfaction scale (1-2 - low satisfaction, 3 - average satisfaction, 4-5 - high satisfaction), the survey of the satisfaction of active seafarers

covered two key areas: acquired knowledge before first boarding a ship – an assessment of how much knowledge gained during education was applicable in practice; support of educational institutions in the development of seafarers' competencies – an assessment of the extent to which maritime education institutions provided seafarers with support in building their professional skills.

3.3.1. Knowledge acquired before first boarding the ship

The results of the survey indicate divided responses regarding the level of knowledge seafarers had before they boarded the ship for the first time. The majority of seafarers rated their initial knowledge as average to high (rating 3, 4 and 5). This means that they considered that they were to a certain extent prepared for the practical application of the acquired theoretical knowledge on board. Low satisfaction (grade 1-2) is present among a smaller number of seafarers, which indicates that some felt that the education system did not provide them with enough knowledge before starting their seafaring career. Most responses were in the category of high satisfaction (grade 4-5) followed by average satisfaction (grade 3), which suggests that most seafarers have acquired certain knowledge, but that there is room for improvement.

These results point to the importance of further improving educational programs to ensure that future seafarers are even better prepared for the demands of the maritime sector.

Figure 5 shows the results of surveyed seafarers regarding seafarers' satisfaction with the knowledge acquired in MET institutions prior to their first boarding of the ship.

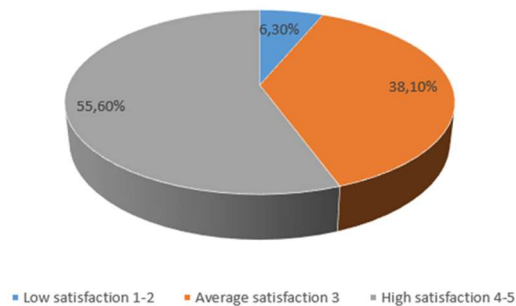


Fig. 5. *Seafarers' satisfaction with the knowledge acquired at the MET institution.*

3.3.2. Support of educational institutions in the development of seafarers' competencies

The evaluation of the support provided by educational institutions to seafarers in developing their competencies also shows divided opinions. High satisfaction (grade 4-5) was somewhat more pronounced than in the previous question, which may indicate that educational institutions largely responded to the needs of seafarers when it comes to developing professional skills. A certain number of respondents rated the support as average (rating 3), which means that the seafarers recognized certain benefits of the educational system, but they felt that this support could have been more significant. Low satisfaction (rating 1-2) was present among some of the respondents, which suggests that some seafarers felt that they did not receive adequate support and guidance after completing their education.

These results highlight the need for a stronger link between educational institutions and the maritime industry, so that future seafarers acquire not only theoretical knowledge, but also practical skills and career development support. Figure 6 shows the results of surveyed seafarers regarding their satisfaction with the support of educational institutions in the development of seafarers' competencies.

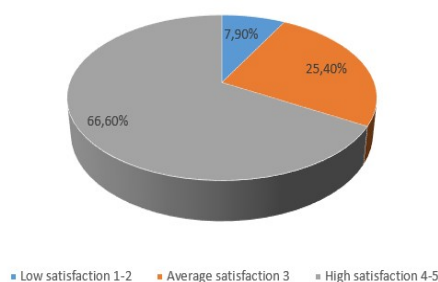


Fig. 6. *Seafarers' satisfaction with the support of MET institutions.*

The overall results of the research show that active seafarers rate their educational experience most often as very satisfactory, while satisfaction with the support of educational institutions is slightly higher than satisfaction with the acquired knowledge. These findings suggest that educational institutions should work on strengthening the practical competencies of students, as well as on providing continuous support to seafarers in their professional development.

3.4. Maritime Agencies

The research involved agencies dealing with seafarer embarkation, and two key aspects were surveyed: Professional knowledge of candidates

applying for a job for the first time - assessment of the level of knowledge that candidates demonstrate when applying for a job for the first time; Quality of education in maritime schools and colleges - agencies' views on the quality of the education system based on interviews and applications of job candidates.

3.4.1. Professional knowledge of the candidate when applying for a job for the first time

The results show different opinions among the agencies regarding the professional knowledge of the candidates. Most of the answers were in the category of average satisfaction (grade 3), which means that candidates often come with partially developed knowledge, but that there is room for improvement in their preparation for work. High satisfaction (grade 4-5) shows that a certain number of candidates demonstrate satisfactory or excellent professional knowledge, which indicates that educational institutions still manage to prepare certain candidates for the labor market (Figure 7). Low satisfaction (grade 1-2) is present to a significant extent, which suggests that some of the candidates demonstrate a low level of professional knowledge, and that there are challenges in their training and practical preparation.

These results indicate the need to improve the quality of practical training and strengthen cooperation between educational institutions and industry so that candidates are better prepared for the realistic demands of employers. Figure 7 presents the detailed results of the survey that was carried out in seafarer embarkation agencies, regarding the quality of their knowledge after completing schooling or studying, i.e. when applying for embarkation for the first time.

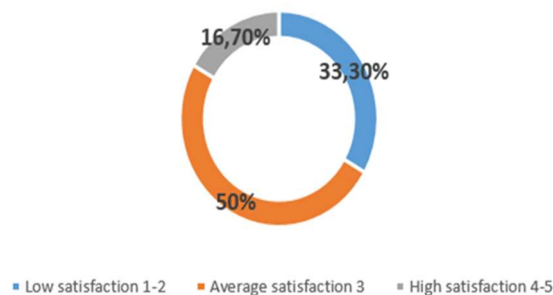


Fig. 7. *The satisfaction of the Maritime Agency with the new knowledge of the candidates for boarding the ship.*

3.4.2. Quality of education in maritime schools and faculties

When it comes to the perception of the quality of educational institutions, the results show that the largest number of responses was in the domain of average rating (3), which means that most agencies believe that the educational system offers a basic level of quality, but that there is significant room for improvement. High satisfaction (4-5) was expressed by a smaller number of respondents, which indicates that some agencies recognize adequate education in certain candidates. Low satisfaction (1-2) is also present to a certain extent, which means that some agencies consider that educational institutions do not fully meet the requirements of the labor market. Figure 8 shows the results of the survey that was conducted in Seafarer Embarkation Agencies regarding their opinion on the quality of work of MET institutions.

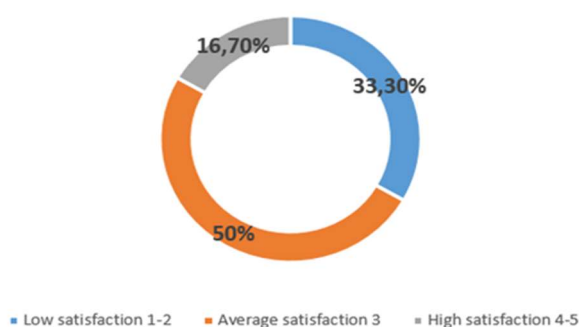


Fig. 8. *Satisfaction of Maritime Agencies with the level of quality of work in MET Institutions.*

This indicates the need to improve educational programs, particularly in the field of practical knowledge and skills, in order to increase the competitiveness of candidates on the labor market. A general analysis of the results indicates that, on average, maritime agencies are moderately satisfied with the level of knowledge of candidates and the quality of education in maritime schools and colleges. However, there are also negative opinions, especially regarding the practical preparation of candidates. These findings suggest that further alignment of educational programs with the needs of the maritime industry is needed to improve the competitiveness and employability of future seafarers.

4. Comparative analysis of respondents' answers

4.1. Comparative analysis of the responses of pupils and students of maritime educational institutions

As part of the research, students of three maritime high schools and students of three maritime faculties answered two key questions. Analyzing their answers, we can see similarities and differences in the perception of the quality of education between pupils and students.

1. Satisfaction with the teaching process

Pupils of secondary maritime schools: The majority of pupils showed average to high satisfaction with the teaching process. The most common grades that were given were 3, 4 and 5, which means that the students generally think that the teaching and the method of knowledge transfer are good, but with room for improvement. A smaller percentage of students gave grades 1 and 2, which indicates that there are cases of serious dissatisfaction with the teaching process.

Students of maritime faculties: The highest number of answers among students was in the range of 4 to 5, followed by average satisfaction, i.e. grade 3, which indicates that the students think that the lectures and work methods are adequate and good, but not completely satisfactory. A certain number of students gave low marks (1 and 2) compared to pupils, which may indicate a greater level of dissatisfaction a greater degree of dissatisfaction with the organization and teaching methodology at the faculty level.

2. Satisfaction with practical training

Pupils of secondary maritime schools: The majority of pupils rated the practical training as average to satisfactory, with grades 3 and 4 predominantly. A number of students gave grades 1 and 2, indicating problems with the availability of practical training, the quality of the instructors or the equipment used.

Maritime faculty students: Students are less satisfied with practical training compared to high school students. The majority of responses ranged from grades 4-5, followed by grade 3, which means that students believe that practical teaching exists, but that it is not sufficiently developed or of high quality. Low grades (1 and 2) are significantly represented, which suggests that students feel a lack of adequate practical preparation for real working conditions.

Suggestions for improving the education system:

- *Improve teaching methods at faculties, including a more interactive approach, more practical examples and industry case studies.*

- *Strengthen the faculty's cooperation with maritime companies so that students have better opportunities for practice and acquiring specific skills.*
- *Improve the technical conditions for practical training, by providing more simulations, training on ships and work with modern equipment [9].*

4. 2. Comparative analysis of responses from seafarers and maritime agencies

Analyzing the responses of seafarers and seafarer boarding agencies, certain similarities and differences can be observed in their perceptions of candidates' level of knowledge and the quality of maritime education. We will compare responses to related questions to identify key points of agreement and disagreement.

1. Perception of the candidate's level of professional knowledge upon first embarkation (seafarers) and when applying for a job (agencies)

Seafarers: Most seafarers rate their initial knowledge as average to high (grade 3, 4 and 5). A relatively small number of seafarers believe that they did not have enough knowledge (grade 1-2), which suggests that, from their perspective, educational institutions have somewhat successfully prepared them.

Agencies: Agencies showed a slightly more critical attitude regarding the professional knowledge of the candidates. Most grades were in the "partial knowledge" category (grade 3), but a significant percentage of grades 1 and 2 were also observed, which indicates that some candidates do not possess a satisfactory level of knowledge. A smaller number of agencies awarded scores of 4 and 5, which means that relatively few candidates demonstrate high or excellent knowledge when applying for a job.

2. Perception of the quality of education in maritime schools and faculty

Seafarers: The majority of seafarers gave grades 4 and 5, which means that many believe that the educational system provided adequate support for their development. A smaller number of respondents gave the support of educational institutions in developing competencies as average (grade 3), which means that only part of the seafarers believe that the educational system provided adequate support for their development. Also, a certain number of seafarers gave low grades (1-2), which suggests that there is dissatisfaction with the educational system among a part of seafarers.

Agencies: On average, agencies are more critical of the quality of education in maritime schools and colleges. The largest number of responses was in the category "partial quality of education" (grade 3), but a higher percentage

of low grades (1-2) compared to seafarers' answers is also noticeable. A very small percentage of agencies consider the education system to be excellent (grade 5), which may indicate the need for serious reforms in educational programs.

Suggestions for improvement:

- *It is necessary to harmonize educational programs with the real needs of the market.*
- *Educational institutions should strengthen cooperation with agencies in order to better understand their requirements and adapt the teaching process.*
- *Strengthening practical teaching and training can help to reduce the gap between theoretical knowledge and practical skills needed for shipboard work [10].*

5. Conclusion

Monitoring user satisfaction with the teaching process is one of the key indicators of the success of educational institutions in the maritime sector. By analyzing the results of surveys conducted among students of maritime high schools, students of maritime faculties, active seafarers and maritime agencies, totaling 591 participants, it was determined that there is general satisfaction with the teaching process. However, there is also room for improvement, especially in the field of practical training and the application of acquired knowledge in real working conditions. The research showed that the majority of students expressed moderate to high satisfaction with the teaching process, but emphasized the need for more practical content and interactive teaching methods. Active sailors estimate that they gained solid theoretical knowledge during the training, but that the practical preparation could have been better.

Maritime agencies, as the end users of the educational system, assess that graduate candidates are generally solidly prepared, but looking at their final grades, it can be concluded that work must be continued to improve the quality of the teaching process at MET institutions.

Based on these results, it can be concluded that the key directions for improving maritime education are the strengthening of practical training through greater cooperation with companies and the organization of additional training that simulates real working conditions. Improvement of teaching methods through the use of modern technologies, case studies and interactive learning approaches, as well as continuous cooperation with the maritime industry.

The obtained results can serve as a basis for further research and the development of new strategies for improving the quality of seafarers' across various maritime countries maybe. In future research, additional attention may be devoted to analyzing specific areas of the curriculum that require reform, as well as investigating the long-term effects of education on seafarers' career success.

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