
ANALYSIS OF THE IMPROVEMENT OF MARITIME SAFETY THROUGH SEAFARER SKILLS TRAINING COOPERATION BETWEEN POLTEKPEL SURABAYA AND THE MAIN SHIPPING OFFICE OF TANJUNG PERAK

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ABSTRACT

KEYWORDS

Skills, Sailors, Diklat,
Urbanity, Security,
Cruise

One effort to enhance seafarer skills is by improving knowledge. Increasing knowledge can be achieved through the implementation of training for ship crews. Through training implementation, it is expected to minimize ship accidents caused by human error, thereby improving maritime safety. This research aims to understand the regulations regarding navigation in the Tanjung Perak harbor area and analyze the role of seafarer skills training in enhancing maritime safety. The method used in this research is qualitative. The data used in this study are primary data obtained directly from respondents through questionnaires and secondary data collected from other sources. The research results show that in the event of an accident within the jurisdiction of the Tanjung Perak Port Master, based on the Minister of Transportation's Decree No. 55 of 2006 concerning Procedures for Ship Accident Inspections, if a ship accident occurs, such as sinking, burning, collision, or grounding, the ship's Master or leader who experiences the accident must report it to the Port Master at the nearest or first port visited. The research also indicates that the implementation of seafarer skills training has an impact on maritime safety. Improving maritime safety can be achieved by participating in self-development activities to enhance the quality of ship personnel (seafarers) for better performance.

INTRODUCTION

Indonesia, as an archipelagic nation, is united by vast maritime territories governed by laws and sovereignty outlined in the constitution. In pursuit of national goals based on Pancasila and the 1945 Constitution, including realizing the Archipelagic Outlook and strengthening national resilience, a national transportation system is essential. Maritime activities, encompassing waters, ports, maritime safety and security, and maritime protection, constitute a crucial part of the national transportation system. They play a role in developing an effective and efficient transportation system, facilitating stable and dynamic national distribution (Kerakyan, 1988; Lukijanto & Priyatmono, 2019).

In maritime operations, adherence to operational procedures related to safety, security, and environmental protection is crucial. International regulations, such as the Safety of Life at Sea (SOLAS), Collision Regulations (COLREGS), and Marine Pollution (MARPOL), provide guidelines for ensuring safety, preventing collisions, and minimizing environmental pollution. Despite these regulations, maritime accidents, including sinking, capsizing, grounding, fire, and collisions, continue to rise in Indonesian waters. Investigations attribute 65% of these accidents to human error, highlighting the need for a focus on human factors to minimize maritime accidents. The International Maritime Organization (IMO) encourages research in this area.

Safety at sea is heavily reliant on the safety culture of ship crews. Adhering to procedures can minimize accidents, and optimizing maritime safety involves enhancing crew knowledge. One way to achieve this is through basic skills training for maritime human resources. In response, the government, through the Ministry of Transportation, has initiated empowerment training programs for vocational school students and the general public (Dunn, 2015). This year, training opportunities are also extended to government employees working in maritime transportation. Politeknik Pelayaran Surabaya collaborates with Tanjung Perak Port Authority to provide Basic Safety Training (BST), Advanced Fire Fighting (AFF), and Security Awareness Training (SAT).

Tanjung Perak Port in Surabaya plays a vital role in the connectivity of Indonesia's eastern region. Its strategic position as a major hub for collecting and distributing goods supports local, regional, and international trade. Over the years, the number of ships entering and leaving Tanjung Perak Port has increased significantly. The port's role as a gateway to the eastern part of Indonesia makes it crucial for supporting maritime activities in the region. To enhance safety, security, and comfort in maritime transportation services, the government, through the Ministry of Transportation, provides training programs, including BST, AFF, and SAT, to maritime professionals and the public (Davis & Baulch, 2010).

The importance of safety in the maritime sector is evident, with 60%-80% of ship accidents attributed to human error. Crew members undergo training before starting their actual duties, emphasizing the significance of Basic Safety Training (BST) to ensure skills in operating safety equipment. As technology advances, maritime industries increasingly use modern, automated, and complex equipment, emphasizing the need for competent and knowledgeable crew members. Diklat programs are essential in minimizing human error-related accidents and promoting maritime safety (Froholdt & Hansen, 2011; Hadiyatno & Rahmawati, 2016). Researchers are conducting a study on the Analysis of Improved Safety and Security in Maritime Transportation through Training in collaboration with Politeknik Pelayaran Surabaya and Tanjung Perak Port Authority.

The study delves into the intricate aspects of maritime regulations at the Tanjung Perak Shipping Office and the pivotal role played by seafarer skill training (diklat) in bolstering maritime safety and security. The core problem statements guiding this investigation are twofold. Firstly, an exploration of the structured framework governing navigation regulations at the Tanjung Perak Shipping Office. This involves an in-depth examination of how the maritime sector is overseen and managed in this vital region. Secondly, an analysis of the extent to which seafarer skill training contributes to the enhancement of maritime safety and security. This inquiry aims to uncover the tangible impact of skill development programs on the competency and preparedness of seafarers in navigating potential challenges and ensuring the safety of maritime activities (Ćorović, 2013). Aligned with the delineated problem statements, the objectives of this research are clear. Firstly, to gain comprehensive insights into the regulatory landscape of maritime navigation at the Tanjung Perak Shipping Office. Secondly, to conduct a thorough analysis of the role played by seafarer skill training programs in elevating the standards of maritime safety and security.

RESEARCH METHOD

This qualitative study employs a case study approach to delve into intricate phenomena. Qualitative research, as described by (Creswell, W. John & Creswell, 2018), is instrumental in uncovering and comprehending the underlying aspects of phenomena that may be challenging to grasp thoroughly. It focuses on discoveries that statistical procedures or other quantitative methods cannot yield. The research relies on both primary and secondary data. Primary data,

acquired directly from respondents through questionnaires, is complemented by secondary data obtained from literature, journals, and other supporting sources (Lukijanto & Priyatmono, 2019).

The study utilizes various techniques for comprehensive and natural data collection. The primary method involves in-depth interviews with research subjects, lasting approximately 15–30 minutes. These interviews, conducted at the participants' designated offices during their leisure time, are essential for obtaining verbal statements. The questions prepared by the researcher may be adjusted based on the information provided by the participants (Rahman et al., 2017).

Observation is another technique used to gather secondary data supporting the primary information. This involves collecting authentic evidence such as photos, letters, and other documents related to the training program. The researcher acts as a participant observer during this activity, ensuring a non-intrusive role in the observed events.

Data analysis follows the steps outlined by (Miles et al., 2014): data condensation, data display, and conclusion drawing and verification. Data condensation involves selecting, focusing, simplifying, abstracting, and transforming written field notes or transcriptions. The process includes selecting pertinent dimensions, focusing on crucial data, abstracting summaries, and simplifying and transforming the collected data. In the data display phase, the researcher analyzes and presents the information systematically for a clear understanding of the events, actions, or incidents in a narrative text (McCusker & Gunaydin, 2015). The goal is to find meaning in the obtained data, presenting it coherently and selectively.

The conclusion drawing and verification stage involve summarizing the data based on the research focus, drawing preliminary conclusions, and seeking supporting or contradicting data. Verification is performed by comparing the conclusions with relevant theories, conducting a member check, and making general conclusions for the research report. The analysis during data collection includes transcribing interview results, observations, and documentation, followed by creating a summary list of interviews and observations.

RESULTS AND DISCUSSION

A. Seafarer Skills Training

The Surabaya Maritime Polytechnic has conducted maritime training programs to enhance skills on board, including Basic Safety Training (BST), Advanced Fire Fighting (AFF), and Security Awareness Training (SAT).

Objectives of Basic Safety Training (BST):

1. Understand the importance of safety.
2. Recognize the significance of accident prevention.
3. Understand the importance of implementing Occupational Safety and Health (OSH) values in the workplace.
4. Recognize the importance of accident prevention in the workplace.

Objectives of Security Awareness Training (SAT) is understand how to maintain security stability on board. Objectives of Advanced Fire Fighting (AFF) is understand the procedures for using firefighting equipment and extinguishing fires on board.

In 2023, Surabaya Maritime Polytechnic collaborated with the Tanjung Perak Main Shipping Office (KSU) through a Cooperation Agreement between Surabaya Maritime Polytechnic and the Tanjung Perak Main Shipping Office regarding the Implementation of Maritime Education and Training, as well as Research and Community Service Number: HK.201/2/05/POLTEKPEL.SBY-2023 and Number HK.201/01/05/SBY.Tpr/2023. This collaboration aimed to conduct skill training programs (BST, AFF, and SAT) for employees

within the Tanjung Perak Main Shipping Office to support their roles in ensuring maritime safety through the enhancement of human resources' quality (Sunarto, 2015).

The distribution of participant categories for the training conducted is shown in Table 4.1, detailing the age groups of participants in different months

Table 4.1 Distribution of Participant Age Categories

| No. | Age Group | Number of Participants in Months - | | | | |
|-----------------------------|-----------|------------------------------------|------|------------|-------|------------|
| | | August | July | May | March | February |
| 1 | 0 - 20 | 182 | 296 | 162 | 1 | 94 |
| 2 | 21 - 25 | 129 | 151 | 23 | 13 | 61 |
| 3 | 26 - 30 | 59 | 28 | 7 | 11 | 16 |
| 4 | 31 - 35 | 29 | 7 | 11 | 7 | 19 |
| 5 | 36 - 40 | 18 | 3 | 19 | 8 | 10 |
| 6 | 41 - 60 | 13 | 1 | 45 | 12 | 23 |
| Total Training Participants | | 430 | 486 | 267 | 52 | 223 |

The data indicates that a significant number of young participants attended the maritime skills training over a specific period. Age and educational level are directly related factors to performance, especially in the maritime profession, where the productive age enhances the performance of crew members (ABK).

Interest in improving maritime competency and soft skills poses a challenge for our seafarers. A seafarer's career involves continuous competency development. For instance, to work on a tanker, one needs more than just a certification. They must have tanker operation skills certified by Basic Oil and Chemical Tanker training, and for more advanced roles, they need Advanced certification for both oil and chemical tankers. This is just a small example, and if seafarers aspire to work on larger vessels with higher ranks, navigating broader sea routes, they must upgrade their competencies, certified by higher-level endorsements (Syarifuddin et al., 2016; Van Meter & Van Horn, 1975).

Raising one's professional level is not an easy task for a seafarer, as it directly correlates with income or salary. Competency development is a crucial factor in enhancing human resource quality, including in the maritime profession. The interest in such development is closely related to job satisfaction. While specific studies on job satisfaction and development interest among seafarers are limited, research by Mazhari (2018) highlights the competency of merchant ship officers in the global shipping labor market, emphasizing the 'knowing-doing' gap. The study finds that seafarers with lower wages and career challenges on land tend to have lower motivation for training and may not represent the competencies they should possess. Conversely, seafarers with higher responsibilities and appropriate wages show higher motivation for training (Ziarati et al., 2012). Income or wages play a determining role in motivating individuals to pursue education and training.

The success of a training program is not only measured by its execution and achievement of planned targets but also requires continuous efforts in the form of evaluation and analysis for better implementation and quality improvement. The outcome of an education and training process is in the form of trained participants, and the real benefit is seen in their actual performance in their respective workplaces. Post-training evaluation is essential to reveal the real impact and benefits of an education and training program.

The response from participants in the training, including various aspects that indicate implementation indicators, is summarized in Table 4.2

Table 4.2 Summary of Service Evaluation and Priority Improvement Indicators for February

| Aspect | Indicator | NRR | Impr ovem ent | NRR per aspect | NRR measu red | SKM Service Quality | Conclusion |
|-----------|--|-----|---------------------|----------------------|---------------------|---------------------------|---|
| Aspect 1 | Conformity of service requirements with the type of service | 849 | 3 | 3.807 | 0.419 | 93.105 | Quality of Service Unit "A", Performance of Service Unit "Very Good" |
| Aspect 2 | ease of service procedures | 822 | 8 | 3.686 | 0.405 | | |
| Aspect 3 | speed of time in providing services | 798 | 9 | 3.578 | 0.394 | | |
| Aspect 4 | Fairness of costs / rates in service | 864 | 1 | 3.874 | 0.426 | | |
| Aspect 5 | Conformity of service products between those listed in the service standard and the results provided | 836 | 7 | 3.749 | k.412 | | |
| Aspect 6 | Competence/ability of officers in service | 847 | 4 | 3.798 | 0.418 | | |
| Aspect 7 | Behavior of officers in service, related to politeness and friendliness | 856 | 2 | 3.839 | 0.422 | | |
| Aspect 8 | quality of Facilities and Infrastructure | 837 | 6 | 3.753 | 0.413 | | |
| Aspect 9 | Service User Complaint Handling | 841 | 5 | 3.771 | 0.415 | | |
| Aspect 10 | satisfaction level | 858 | | 3,848 | 3.724 | | |

Table 4.3 Summary of Service Evaluation and Priority Improvement Indicators for March

| Aspect | Indicator | NRR | Improv ement | NRR per aspect | NRR measured | SKM Service Quality | Conclusion |
|----------|--|-----|-----------------|----------------------|-----------------|---------------------------|---|
| Aspect 1 | Conformity of service requirements with the type of service | 200 | 3 | 3.846 | 0.423 | 93.5 | Quality of Service Unit "A", Performance of Service Unit "Excellent" |
| Aspect 2 | ease of service procedures | 197 | 5 | 3.788 | 0.417 | | |
| Aspect 3 | speed of time in providing services | 182 | 9 | 3.500 | 0.385 | | |
| Aspect 4 | Fairness of costs / rates in service | 201 | 2 | 3.865 | 0.425 | | |
| Aspect 5 | Conformity of service products between those listed in the service standard and the results provided | 194 | 8 | 3.731 | 0.410 | | |
| Aspect 6 | Competence/ability of officers in service | 200 | 3 | 3.846 | 0.423 | | |

| Aspect | Indicator | NRR | Improvement | NRR per aspect | NRR measured | SKM Service Quality | Conclusion |
|-----------|---|-----|-------------|----------------|--------------|---------------------|------------|
| Aspect 7 | Behavior of officers in service, related to politeness and friendliness | 202 | 1 | 3.885 | 0.427 | | |
| Aspect 8 | quality of Facilities and Infrastructure | 196 | 6 | 3.769 | 0.415 | | |
| Aspect 9 | Service User Complaint Handling | 196 | 6 | 3.769 | 0.415 | | |
| Aspect 10 | satisfaction level | 201 | | 3.865 | 3.740 | | |

Table 4.4 Summary of Service Evaluation and Priority Improvement Indicators for May

| Aspect | Indicator | NRR | Improvement | NRR per aspect | NRR measured | SKM Service Quality | Conclusion |
|-----------|--|-----|-------------|----------------|--------------|---------------------|--|
| Aspect 1 | Conformity of service requirements with the type of service | 977 | 3 | 3.659 | 0.403 | | |
| Aspect 2 | ease of service procedures | 943 | 5 | 3.532 | 0.389 | | |
| Aspect 3 | speed of time in providing services | 951 | 9 | 3.562 | 0.392 | | |
| Aspect 4 | Fairness of costs / rates in service | 968 | 2 | 3.625 | 0.399 | | |
| Aspect 5 | Conformity of service products between those listed in the service standard and the results provided | 958 | 8 | 3.588 | 0.395 | 89.875 | Quality of Service Unit "A", Performance of Service Unit "Very Good" |
| Aspect 6 | Competence/ability of officers in service | 987 | 3 | 3.697 | 0.407 | | |
| Aspect 7 | Behavior of officers in service, related to politeness and friendliness | 988 | 1 | 3.700 | 0.407 | | |
| Aspect 8 | quality of Facilities and Infrastructure | 988 | 6 | 3.700 | 0.407 | | |
| Aspect 9 | Service User Complaint Handling | 966 | 6 | 3.618 | 0.398 | | |
| Aspect 10 | satisfaction level | 978 | | 3.663 | 3.595 | | |

Table 4. 1 Recapitulation of service assessment and priority improvement of training elements in July

| Aspect | Indicator | NRR | Impr ovem ent | NRR per aspect | NRR measu red | SKM Service Quality | Conclusion |
|-----------|--|------|---------------------|----------------------|---------------------|---------------------------|--|
| Aspect 1 | Conformity of service requirements with the type of service | 1841 | 2 | 3.788 | 0.417 | 92.017 | Quality of Service Unit "A", Performance of Service Unit "Very Good" |
| Aspect 2 | ease of service procedures | 1774 | 8 | 3.650 | 0.402 | | |
| Aspect 3 | speed of time in providing services | 1736 | 9 | 3.572 | 0.393 | | |
| Aspect 4 | Fairness of costs / rates in service | 1800 | 6 | 3.704 | 0.407 | | |
| Aspect 5 | Conformity of service products between those listed in the service standard and the results provided | 1810 | 5 | 3.724 | 0.410 | | |
| Aspect 6 | Competence/ability of officers in service | 1843 | 1 | 3.792 | 0.417 | | |
| Aspect 7 | Behavior of officers in service, related to politeness and friendliness | 1838 | 3 | 3.782 | 0.416 | | |
| Aspect 8 | quality of Facilities and Infrastructure | 1830 | 4 | 3.765 | 0.414 | | |
| Aspect 9 | Service User Complaint Handling | 1790 | 7 | 3.683 | 0.405 | | |
| Aspect 10 | satisfaction level | 1850 | | 3.807 | 3.681 | | |

Table 4. 2 Recapitulation of service assessment and priority improvement of training elements in August

| Aspect | Indicator | NRR | Impr ovem ent | NRR per aspect | NRR measu red | SKM Service Quality | Conclusion |
|-----------|--|------|---------------------|----------------------|---------------------|---------------------------|--|
| Aspect 1 | Conformity of service requirements with the type of service | 1626 | 5 | 3.781 | 0.416 | 93.270 | Quality of Service Unit "A", Performance of Service Unit "Very Good" |
| Aspect 2 | ease of service procedures | 1561 | 9 | 3.630 | 0.399 | | |
| Aspect 3 | speed of time in providing services | 1564 | 8 | 3.637 | 0.400 | | |
| Aspect 4 | Fairness of costs / rates in service | 1673 | 1 | 3.891 | 0.428 | | |
| Aspect 5 | Conformity of service products between those listed in the service standard and the results provided | 1618 | 7 | 3.763 | 0.414 | | |
| Aspect 6 | Competence/ability of officers in service | 1640 | 3 | 3.814 | 0.420 | | |
| Aspect 7 | Behavior of officers in service, related to politeness and friendliness | 1654 | 2 | 3.847 | 0.423 | | |
| Aspect 8 | quality of Facilities and Infrastructure | 1628 | 4 | 3.786 | 0.416 | | |
| Aspect 9 | Service User Complaint Handling | 1620 | 6 | 3.767 | 0.414 | | |
| Aspect 10 | satisfaction level | 1638 | | 3.809 | 3.731 | | |

Service user ratings are important in the service industry, including education. One way that can be used to check the quality of service is to check customer feedback and ensure their satisfaction. This is the concept used in this study, which is to see the quality of the implementation of seafarer skills training through the assessment of participants.

The tangible manifestation of this service is represented by statements related to adequate equipment or facilities, ease of access to certification locations and registration procedures, visually attractive environment for certification, and the availability of supporting services such as accommodation and sports facilities. Based on the assessment through the training implementation questionnaire, the highest priority value for improvement was obtained related to the behavior of officers in service, related to politeness and friendliness. Participants did not get satisfaction with Attitude so that the score was the lowest among other indicators even the minimum value was also very low. Therefore, training institutions must improve service attitudes towards training participants, including a good understanding from the certification implementer of the needs of participants, the intention and efforts of the implementer to be able to help participants, the availability of instructions and directions or input related to the implementation of certification, and personal attention given fairly or equitably to each participant.

The progress of seafarer skills training institutions will be greatly influenced by the ability of each institution to identify its advantages and disadvantages. Things that are already good can be maintained and things that are still considered lacking must be corrected immediately. One way to identify these advantages and disadvantages is to check customer satisfaction. This is important because customer satisfaction plays a big role in winning the competition in the global era.

CONCLUSION

The conclusions drawn from this research are as follows: 1. To ensure maritime safety as a support for smooth ship traffic at sea, competent, capable, and skilled ship crews are required. Therefore, every ship that will sail must be manned by an adequate and appropriate crew to perform their duties on board based on their positions, considering the size of the ship, ship arrangement, and sailing area. In the event of an accident within the jurisdiction of the Tanjung Perak Port Master, according to the Minister of Transportation's Decree No. 55 of 2006 concerning Procedures for Ship Accident Inspections, if a ship accident occurs, such as sinking, burning, collision, or grounding, the ship's Master or leader who experiences the accident must report it to the Port Master at the nearest or first port visited. The Port Master, after receiving the report of the ship accident, summons the Master, Ship Officers, and Crew Members in writing. Subsequently, the Port Master conducts an examination and prepares a written preliminary examination report of the ship accident to the Director-General of Sea Transportation. The preliminary examination of the ship accident is documented in the Preliminary Examination Report, which includes the ship accident report, conclusions of the preliminary examination results of the ship accident, and other necessary documents. To prevent accidents in shipping activities, better control of human factors participating both on board and on land is necessary. Respondent interviews with the researcher revealed inhibiting factors in the role of the Port Master in implementing maritime safety standards at the Tanjung Perak Port Master's Office, namely the lack of human resources with port certification and natural factors. 2. Maritime safety is a necessity, and therefore, the fulfillment of safety criteria is carried out well. Continuous efforts are made to improve maritime safety. The research results show that the implementation of seafarer skills training has an impact on maritime safety. Improving maritime safety can be achieved by participating in self-development

activities to enhance the quality of ship personnel (seafarers) for better performance. There is still room or opportunity for improving the quality of seafarer skills training implementation, which will enhance the competitiveness of training institutions. The priority or sequence of indicators to be improved for quality improvement may vary from one training institution to another, depending on which receives the lowest rating from training participants.

The Maritime Training Institution is advised to organize seafarer skills training by applying management and following the implementation of training management. This can be achieved by: (1) conducting training based on the training management guidebook and training material book; (2) developing materials according to the needs of training participants and following developments; (3) determining the competencies to be achieved; (4) systematically arranging the materials; (5) selecting a suitable learning method based on the characteristics of training participants; (6) employing competent lecturers/instructors; (7) organizing internships on various types of ships with different cargoes alternately.

The leadership of Poltekpel Surabaya is advised to provide opportunities for lecturers/instructors to develop their knowledge, attitudes, and skills by: (1) providing and completing learning media; (2) providing facilities that support the implementation of training; (3) facilitating lecturers/instructors to improve their knowledge and skills; (4) providing opportunities and facilitating lecturers/instructors to consistently participate in competency development activities.

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