

UDC 377.1

DOI <https://doi.org/10.24919/2308-4863/61-4-19>

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TEACHING RISK ASSESSMENT IN MARITIME ENGLISH COURSE

The author emphasizes the necessity of teaching risk assessment provisions at the English lessons in higher maritime educational institutions in order to increase nautical students' knowledge and ability to apply risk assessment techniques and as the final result it could help in the decrease of the ship safety-related deficiencies.

The paper demonstrates the practical implementation of the module Risk Assessment in the Maritime English course for the nautical Master of Science students. The module Risk Assessment consists of the four parts: Part A – How to Identify Hazards? Part B – Are your Risk Assessment documents ready? Part C – How to Control Risk? Part D – Do it, which is based on case-study, and competency assessment. Each Part of the module is aimed at developing required skills by the students: 1) to identify hazards and classify work activities, 2) to describe elements of a risk assessment and complete Risk Assessment Form and Permit to Work, 3) to give advice on how to develop and implement control measures, 4) to provide alternative solutions to reduce the risk. The essential competency which students will be able to demonstrate is to describe the basic principles and procedure of risk assessment. The module includes authentic risk assessment documents and provides information on the peculiarities of their adequate completion and regular updating. In Part A students learn to identify routine/low risk jobs and non-routine/high risk jobs and recommend the response actions to match a risk category. Part B includes such authentic documents as Risk Assessment Form, Toolbox Talk Meeting Record and Permit to Work. Students study the documents in detail by performing various interactive tasks. They fill in the forms for different types of work, analyze them, state the difference and role-play a Toolbox Talk meeting with the crew. In Part C students are acquainted with the Hierarchy of controls, Last minute risk assessment, Job safety analysis, Safety sheets. Each Part is supplied with mini cases for students to analyze by applying the gained knowledge, quickly understand the essence of the problem and to find its solution in a limited time.

Key words: risk assessment, Maritime English, professional training, competency, hazard, control measures.

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ВИКЛАДАННЯ МОДУЛЯ RISK ASSESSMENT НА КУРСІ МОРСЬКОЇ АНГЛІЙСЬКОЇ МОВИ

Автор наголошує на необхідності викладання майбутнім судноводіям положень оцінки ризиків на заняттях англійської мови у вищих морських навчальних закладах з метою підвищення їх рівня знань та вміння застосовувати методи оцінки ризиків і, як кінцевий результат, сприяти зниженню недоліків пов'язаних з безпекою роботи на судні.

У статті демонструється практична імплементація модуля «Оцінка ризиків» у курс морської англійської мови для студентів магістратури. Модуль «Оцінка ризиків» складається з чотирьох частин: Частина А – Як визначити небезпеку? Частина В – Чи готові ваші документи з оцінки ризиків? Частина С – Як контролювати ризик? Частина D – Do it, яка базується на використанні кейс-методу. Кожна частина модуля спрямована на розвиток у студентів необхідних навичок: 1) ідентифікувати різні небезпеки та класифікувати робочу діяльність, 2) описувати елементи оцінки ризику та заповнювати форму оцінки ризику та дозвіл на роботу, 3) давати поради щодо розробки та впровадження заходів контролю, 4) надавати альтернативні рішення для зменшення ризику. Головна компетенція, яку студенти зможуть продемонструвати, полягає в тому, щоб описувати основні принципи та процедуру оцінки ризику. Модуль містить автентичні документи з оцінки ризиків та надає інформацію про особливості їх належного заповнення та регулярного оновлення. У частині А студенти навчаються визначати рутинні види робіт з низьким ризиком і нестандартні види робіт з високим ризиком і рекомендувати заходи безпеки відповідно до категорії ризику. Частина В включає такі автентичні документи, як Risk Assessment Form, Toolbox Talk Meeting Record та Permit to Work. Студенти детально вивчають

документи, виконуючи різні інтерактивні завдання. Вони заповнюють форми для різних типів робіт, аналізують їх, констатують відмінності та розігрують рольову зустріч *Toolbox Talk* з командою. У частині С студенти знайомляться з ієрархією засобів контролю, *Last minute risk assessment*, *Job safety analysis*, *Safety sheets*. Кожна частина містить міні-кейси, які студенти повинні проаналізувати, застосовуючи отримані знання, виявити проблему та запропонувати її вирішення.

Ключові слова: оцінка ризиків, морська англійська мова, професійна підготовка, компетентність, небезпека, заходи контролю.

Problem statement. Past analysis of marine accident investigations has revealed that inadequate risk assessment conducted on board ships lead to maritime accidents. The International Management Code for the Safe Operation of Ships and for Pollution Prevention (ISM Code) provided an international standard for the safe operation of ships with risk assessment as one of the principal precepts of the Code (Ghosh, Daszuta, 2019). The primary goal of any risk assessment is to identify the hazards that are involved in a particular process or system and to develop adequate safeguards to prevent or reduce negative consequences from the related hazardous events (Mousavi et al., 2017).

Research analysis. The problem connected with risk assessment in the maritime industry has been deeply studied by M. Mousavi, I. Ghazi, B. Omarac and many others. The researchers A. Samekto, M. Kristiyanti have examined the development of risk management model in maritime industry. S. Ghosh and W. Daszuta reviewed a compilation of empirical research publications regarding ship safety to infer the possible reasons for the failure of risk assessment by focusing on areas (training and competence, procedural approach, process verification, culture and organization) that affect seafarer practices. The findings highlighted the challenges faced by the maritime industry that warrant attention at the organizational level. The challenges were classified as: 1) lack of adequate training and competency in non-technical skills, 2) failure of a procedural approach to risk management, 3) risk perceptions, attitudes, and cultural/organizational factors, and 4) process verification: lack of ownership and identification of safety objectives (Ghosh, Daszuta, 2019). All these articles mostly present risk assessment techniques often used on board ships. But the researchers have not examined the possibility of teaching risk assessment provisions at the English lessons in higher maritime educational institutions in order to increase nautical students' knowledge and ability to apply risk assessment techniques as stipulated by STCW Code Table A-II/2 & A-III/3 (2017).

The purpose of the article is to justify the need to implement module Risk Assessment in the Maritime English course for the nautical Master of Science students.

Presentation of the main material. In order to improve the seafarers professional competence connected with the risk assessment we developed a special module Risk Assessment and implemented it in the Maritime English course for the nautical Master of Science students. Developing of the module Risk Assessment was based on the results of the research conducted by the author concerning the effectiveness of the teaching module Ship Security for second-year nautical Bachelor of Science students (Smelikova, Penza, 2022). The positive results of the previous research supported the decision to introduce new teaching module Risk Assessment in Maritime English course. The main benefits were language learning, an introduction of learners to risk assessment issues, a motivation to identify the risks involved, and how they can work around them: identify potentially hazardous situations; apply appropriate methods to estimate the likelihood that a hazard occurs, and the uncertainty in that estimate; provide alternative solutions to reduce the risk and the final result could help in the decrease of the ship safety-related deficiencies.

According to the Maritime English syllabus the module Risk Assessment is studied by master's students of the Navigation Faculty and is included in the coursebook "Extramiler" approved by Academic Council of Kherson State Maritime Academy. The module is brand new and was developed to provide master's students with knowledge and understanding of Risk Assessment provisions on board a ship through English language learning. The idea is to heighten awareness of safety issues and get students to think about job hazards and how they can be controlled.

The module includes appropriate Risk Assessment documents and provides information on the peculiarities of their adequate completion and regular updating. Well-written documentation will provide good evidence about meeting dates, times, participants, activities and is a key to a successful outcome. Documenting and recording reflects the company's attitude to risk management.

The module Risk Assessment consists of the following parts: Part A – How to Identify Hazards? Part B – Are your Risk Assessment documents ready? Part C – How to Control Risk? Part D – Do it, which is based on the case-study, and competency assessment.

Each Part of the module is aimed at achieving a certain skill by the students: 1) to describe how to identify hazards and classify work activities; 2) to describe elements of a risk assessment and complete Risk Assessment Form and Permit to Work; 3) to give advice on how to develop and implement control measures 4) to provide alternative solutions to reduce the risk.

After completing the module students pass a computer test on LMS Moodle and also students' oral competence in risk assessment is checked in the form of interaction with a teacher.

Part A contains three lessons. The first lesson devoted to the topic *How to assess the risks in your workplace*. It is a requirement of legislation, common company practice, and common sense, that all work tasks should be subject to an assessment of risks. Once the works has been started it is necessary to monitor the worksite for any change in conditions that might alter the hazards and controls in place. If there is any concern, it is important to stop the job, reassess the controls and, if necessary, re-plan and re-assess the task. At the end of the lesson students create a flow-chart "How to assess the risks in your workplace?" to help the crew with the identification of the risks involved and to create a safe work site.

On the second lesson *How to classify work activities* students learn to identify routine/low risk jobs and non-routine/high risk jobs, give definitions to them, list their own examples of low risk and high-risk jobs, and justify their choice. To define a job in one of the two categories, students have to set out guidelines to determine the separate high risk jobs.

The third lesson *Risk Matrix* provides basic grading scale, some information about its purpose, working principles and vocabulary specific for its content. An example of the score of the combination of likelihood and severity/consequence is illustrated in the risk matrix provided in the lesson. The score of the combination of likelihood and severity/consequence will decipher what response should be taken for the risk. And students have to match a risk category with the recommended response actions. Then they read the case and calculate the risk level a crewmember is exposed to and list safety measures to protect him.

Part B comprises three lessons. On the lesson *Risk Assessment Form* students work with the authentic document Risk Assessment Form and perform tasks based on it. They fill in the risk assessment form according to the type of activity and instruction:

1. Task – specify the job in multiple small tasks. For instance, painting spots in a ballast tank consist of entry of the tank, cleaning the area before painting, painting and clearing the area after painting.

2. Hazard – specify for each task a specific hazard. For instance, the task communication has the hazard '(verbal) communication problems' because of failing equipment or other vessels talking on the same frequency.

3. Consequence – specify for each hazard the consequence, what can happen. For instance, falling of a ladder has the consequence of serious injuries.

4. Risk – specify the risks by filling in the boxes based on the Risk Matrix. This means that Likelihood of occurrence/Severity/Risk rating needs to be assessed. For instance, a Likelihood of 'likely' and a severity of 'moderate' will result in Medium.

5. Control Measures – the control measures are the measures you set in place for each task. For instance, an electric shock can be controlled by 'isolate system you work on'.

6. Revised Risk – in the revised risk we redo the box 4 but this time we take into account the control measures. This will reduce the Likelihood, the Severity or both.

This document shows how to prepare the work by describing the responsibilities, progress and the various steps necessary for the safe preparations of the job to be carried out. The goal is to involve the entire crew.

The lesson *Toolbox Talk*. Students are acquainted with the importance of conducting a toolbox talk before the work starts as it is a key tool in ensuring that all involved in the work have a clear understanding and awareness of any associated risks. During the lesson students watch a video, check their answers and make notes on basic requirements to a toolbox talk. They write tips for running a toolbox talk effectively, then read the text and compare their ideas. After that they complete the authentic document Toolbox Talk Meeting Record according to the type of job and role-play a Toolbox Talk meeting with the crew.

The lesson *Permit to Work*. This lesson covers permits to work (PTW), which are formal records to confirm that control measures are in place when particular operations are being carried out. A PTW should be a simple formal document stating type of work to be done, time period and the safety controls that must be put in place to avoid injury or death. All companies should prepare a format that is suitable for their ships, and their crews should be trained to use the permit system (Permits to work: a seafarer's friend, 2016).

During this lesson students study the authentic PTW in detail by performing various tasks: match the titles with the parts of PTW; describe the content of each PTW part; complete the sentences about PTW; discuss and answer the questions. For developing speaking skills students in groups complete PTW for

different types of work (Group A: tank inspection, Group B: works outside ship's hull, Group C: electrical repairing, Group D: welding). After that they analyze the permits and state the difference. The final task is to search the site <https://www.nautinst.org/resource-library/mars/mars-reports.html> to choose one of the cases; complete the PTW form with information from the case and conduct a toolbox talk.

Part C includes three lessons. The first lesson devoted to *Control Measures*, the precautions taken to mitigate either the probability of the accident happening or the severity of the outcome. When deciding what measures to put in place it is important to consider both severity and likelihood, in order to minimize the overall risk. When deciding what new control measures will be required, it is helpful to work through the hierarchy of controls (HOC). Students are acquainted with HOC, read the text and complete the HOC; write down examples to the controls. Also, they learn special vocabulary related to the topic; after that they read and discuss case about work on deck in heavy weather; and finally study the statistics "*Deaths and injuries of merchant vessel crew*" and comment on the reasons of accidents and the necessary control measures.

The second lesson specifies information about *Last Minute Risk Assessment*. Last minute risk assessment (LMRA) is a final and short assessment at the work place of any potential risk involving safety, health and environment. The usage and knowledge of the LMRA is mandatory.

Crewmembers need to perform a LMRA in order to make sure that the risk estimated beforehand as well as the measures taken are consistent with the situation encountered at the work place: because the situation may have changed before the work has started; in order to identify in an early stage any unforeseen danger or risk at the work place; in order to reduce any risk of incidents; in order to confront and control any risk (Last Minute Risk Analysis, 2017).

At the beginning of the lesson students are offered to write five questions they will ask themselves before the work begins using the words from the picture and then discuss these questions. To check their guesses students read the text and complete the sentences about LMRA elements: responsible person, persons involved, when LMRA is considered to be finished. At the study stage students work with new vocabulary: match the words with the definitions and fill in the gaps. On the next stage viewing students complete pre-, while- and post-viewing tasks concerning the LMRA steps. Students apply lesson skills in the final activity – design a poster about LMRA and interview their groupmates.

The third lesson devoted to the topic *Job Safety Analysis and Safety Sheets*. Job safety analysis (JSA) is a risk assessment to identify hazards and mitigate risks for unusual or uncertain activities. JSA is used in a toolbox talk to instruct crew and keep checking safety during work. Together with experts from all disciplines involved in a job responsible person analyze the activity and workplace: what is the job? Which steps are necessary to complete the job? What are the hazards and risks per step? Which measures avoid or minimize risks? From the analysis responsible person apply necessary safety measures and verify if all measures are properly in place and effective.

First students watch a video about JSA, list the JSA steps, complete the table and interview each other on the information for each JSA step.

After that students work with authentic safety sheets, answer the questions about their purpose; brainstorm ideas on safety sheet content; name safety sheets with the type of work they are intended for; describe the control measures of entering enclosed space using the safety sheet.

The lesson is finished with the case which students shall read, title it, analyze it and list necessary preparations and procedures to perform work at heights safely and apply the gained skills in composing a safety sheet about control measures when working at heights and conduct a JSA.

Final activities of the module are: complete the flow-charts for low risk and high risk jobs, compare flow-charts; develop true-false statements on risk assessment procedure and take turns quizzing your group-mates.

Each Part of the module is followed by useful words & phrases. It is a list of active vocabulary and terminology within the field of risk assessment in maritime activities, that enable students to use this terminology in a correct way.

It is important to note that all the videos and authentic documents used in the module should be available for students on Moodle platform, in such a way those that missed a lesson can complete the task having access to learning material.

Conclusions. The module Risk Assessment was developed to provide master's students with knowledge and understanding of Risk Assessment provisions on board a ship through English language learning. Appropriate Risk Assessment documents are used to make students aware of paperwork required. A series of lessons on the theme «Risk Assessment» will help teachers to plan and implement professional content in Maritime English communicative teaching. It is organized in accordance with the requirements of IMO Model Course 3.17, blended learning and CLIL

approach that are aimed at developing students' critical thinking and decision-making skills as well as language skills. We believe that studying risk assessment issues in the process of professional training of future navigators simultaneously with language learning is currently necessary and deserves further study.

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