Enhancing Green Skills in Maritime English Course

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Abstract: The aim of MET has always been to equip graduates with a set of professional skills necessary for their successful performance in the industry. In order to provide sustainable development and face challenges of the current environmental situation in the world, the educational system shall focus much attention on green skills development at MET institutions. The present paper is aimed at specifying most effective ways of enhancing green skills in Maritime English course.

To explore the attitude to green skills development and the ways to embed green skills into Maritime English course, an online questionnaire survey was undertaken for students and educators of Kherson State Maritime Academy (KSMA). Maritime professionals were also interviewed concerning their experiences of green skills related to the workplace. The survey identified that in spite of their importance for the industry there is a gap between the green skills needed aboard ship and the skills actually being developed at MET institutions. The majority of maritime professionals do not consider that students always possess the relevant skills to provide safety and increase efficiency of this sector. In addition, the survey revealed that there is no clear concept of green skills.

Keywords: green skills, maritime education and training (MET), Maritime English course.

1. Introduction

Global changes connected with climate threats, environmental degradation, possible food shortage, technological innovations, high carbon emissions, wide spread of viral diseases demand new approaches to the organization of our lives. As stated in a report (Maritime Skills Commission Annual Report 2021), "the maritime sector has a unique role to play in the decarbonisation process. Whilst there is a huge focus on technology, there is often less discussion on the skills required to enable the transition".

Maritime industry provides the largest scope of the world transportation services, so that's quite clear why green skills issues concerning this sphere attract attention of researchers. Reducing the amount of carbon dioxide emitted from ships, energy-sufficient use of ships, and seafarers' awareness of these issues are the dominating research topics in current articles. Among them, enhancing green skills of future seafarers is of paramount importance for the future of seafaring and the civilization survival in general.

Maritime training institutions should be ready to adapt their curricula and activities content to the challenges awaiting their students in future job roles. MET institutions offering education and training at all levels are in general able to respond to the industry needs and to fill the skill gaps (Current Skills Needs 2020). The aim is to ensure that maritime professionals possess key digital, green and soft management skills for the rapidly changing maritime labour market.

2. Literature Review

Realizing the need to introduce green skills content into the educational process at MET institutions, researchers of environmental issues focus on various aspects concerning the educators' role in the process. Green skills are understood as skills related to reducing environmental impact and supporting economic restructuring with the purpose of attaining cleaner, more climate resilient and efficient economies that preserve environmental sustainability and provide decent work condition (Pavlova 2018). The structure of green skills is considered to consist of three dimensions: knowledge, skills, and attitude (Ibrahim et al. 2020). Green skills support sustainable economy, society and the environment through activities performed in the industries, businesses and the community.

A group of academics (Beşikçi et al. 2021) based their research on the assumption that awareness and knowledge of seafarers about the energy efficiency should be enough for practicing low carbon-energy efficiency operations. It was observed that the basic knowledge levels of the seafarers concerning energy

efficiency were lower than expected. According to the results of the study, one of the main problems here relates to inadequate education and training of seafarers on energy efficiency. The researchers conclude that management level courses at Maritime Faculties can make a great contribution to the awareness and knowledge of seafarers.

Another research moves closer to issues concerning pro-environmental education of future seafarers. The authors (Čulin et al. 2019) state truly that lack of environmental knowledge is identified as a barrier to environmental concern and behaviour and that eliminating knowledge gaps does not necessarily translate to behavior change. The strong point of the study is in reviewing determinants of pro-environmental behaviour and in provision of practical suggestions for educators to plan and execute educational activities to increase the willingness of seafarers to adopt environmentally-friendly practices. Emphasis on evoking students' emotional reactions by alternative knowledge transfer (fiction films, open discussions, field trips, success stories etc.) is viewed as an effective way for educators at maritime universities to form students' protective behaviour towards the environment.

In one more study (Hamid et al. 2019), the idea above that generic green skills can be shaped through teaching and learning, designed by lecturers using diverse teaching methods, but they are not proven methods of developing practical green skills among students, is refrained.

The approach suggested as a result of implementing an innovative programme is not the least important (Santos 2016); it is not always necessary to change attitudes in order to change behavior. In fact, a focus-designed local programme encouraged behaviour change first, which resulted in subsequent normative support for green institutional decisions (i.e. changing norms by changing behavior). In other words, maritime institutions and individual educators should set behavioural examples in addition to transferring knowledge: education activities should be performed in an environmentally-friendly manner (reduction of paper consumption, division of solid waste, no-smoking policy and the like).

Dayue Fan (2016) continued their discussion by asserting that green skills can be instilled in students through various teaching and learning activities. Academics, though, should be clearly and accurately aware that green skills are relevant to green practices, and green practices are exposition of one's self-awareness.

Focusing on the problem of developing the future maritime industry professional, a group of educators (Água et al. 2020) set the aim of filling the existing gap between education and training programmes, while integrating the 21st century professional skills. Besides raising awareness of the educational and training challenges ahead, more effective teaching methods are suggested in order to meet the needs, particularly supporting double loop learning, together with a pragmatic proposal for a realistic programme at master's level.

Presenting their perception of how to incorporate green skills ideas into lectures, a group of academics (Hamid et al. 2019) specify that all undergraduate programmes in public higher learning institutions should incorporate generic green skills in the curricula.

The current absence of scientific articles on enhancing students' green mindset in the process of learning Maritime English indicates the necessity to develop transitional environmental content as additions to training modules.

3. Methodology

The purpose of the paper is to specify most effective ways of enhancing green skills in Maritime English course.

New training content is needed to keep up with the new skills that are emerging. Three possible options are outlined (Harris and Sunley 2021): to add modules to the existing maritime courses; to introduce entirely new courses that explore the application of new technologies, and to add maritime modules into advanced courses.

Nearly all the ideas about maritime institutions activities concerning enhancement of green skills may be applied in teaching and learning Maritime English with certain alterations due to the specificity of the discipline. Regretfully, researches on green skills development in the Maritime English course are rare. Instead, practical elaborations provide some insights for adopting them in teaching and learning Maritime English.

As there is no specially developed Maritime English language syllabus on green skills promotion, training materials for teaching adult students are basically about including issues of sustainability and ways of reducing greenhouse gas emissions in the English lessons at which students are involved in reading texts on different energy sources and reporting on these to each other. This type of planning helps combine environmental

education and language instruction. By including 'green touches' into each module, teachers make students feel drastically important effect of green skills on our future lives.

Students may be streamed (GreenHeart Education) to become more environmentally-friendly by: learning about and comparing environmental/sustainability issues of various locations: global warning and climate change, air and water pollution, garbage, overconsumption of natural resources; exploring carbon footprint and energy audits; creating environmentally related blogs/websites; learning cultural concepts such as needs versus wants, facts versus beliefs versus opinions, rights versus responsibilities; writing essays/emails on environmental issues concerning maritime industry.

Seafarers' perception of the significance of environmental issues for their work is distinctly seen in the diagram (Čampara et al. 2017) of the courses that should be included in the seafarers' education programme, among them *Marine Environment Protection* and *Marine Ecology*.

In order to enhance green skills training, the entire educational approach at MET institutions shall move to "greening" course syllabi. After a series of our successful interdisciplinary cooperation with instructors and lecturers engaged in teaching specialized disciplines like *Geography of Shipping* and *Meteorology*, there came a decision of continuing it with a complementing action of embedding green skills into Maritime English course. Such initiatives can be realized only through joint efforts of the instructors of Maritime English and specialized disciplines (e.g. *Marine Ecology*, *Maritime Law, Economics*, *Innovative Technologies and Technical Means of Navigation*). Together they shall impair the value of green skills to maritime students of today. In future, such skills can be a key to professional success. The joint actions of instructors and lecturers should help students acquire green knowledge and skills and apply them in maritime industry environment. The focus of our research lies within the content of Maritime English course and specialized disciplines listed in the curriculum of the Navigation Department.

The analysis of syllabi of the abovementioned disciplines for maritime cadets narrowed the "green" content to three areas – "Environmental Concerns", "Oil Pollution Prevention" and "Operational Pollution Prevention". It was decided that by adding "green" module "Marine Pollution Prevention" into Maritime English course the students will be able to: 1) explain causes of marine pollution; 2) describe shipboard response to oil spills; 3) comment on the MARPOL Annex I-VI regulations. The essential competency was formulated as the following: summarize regulations for marine pollution prevention according to MARPOL. The duration of the module is about three weeks. The detailed content of the module is presented in the table below (*Table 1*).

Table 1. Content of the "green" module

Environmental Concerns	Oil Pollution Prevention	Operational Pollution Prevention
Pollution Sources	Annex I	Annex II
MARPOL	SOPEP	Annex III
Special Areas	SOPEP Locker	Annex IV
	Environmental Protection Communications	Annex V
	Oil Spill Cleanup	Garbage Disposal
		Annex VI
		Ballast Water Management

The instructors of Maritime English shall demonstrate their readiness to effective interdisciplinary cooperation with instructors and lecturers of specialized disciplines. Moreover, they can involve the maritime experts (e.g. graduates from MET institutions, maritime officers) into the training process itself.

Another important aspect to consider is a need of adequate learning resources to embed green skills into Maritime English course – cases for analysis, job-oriented projects for students, authentic documentation. The primary task is to select and adapt the learning resources and exploit opportunities for language learning. Being language instructors, we usually focus on language mastering. A learning content is used by us as a resource for communicative skills development. Whereas, a variety of job-oriented tasks are aimed at provoking students to apply the language learnt into practice.

In our opinion, the most reliable learning resources for enhancing green skills are cases, sea stories, maritime accident reports, extracts from books written by seafarers. The accompanying tasks shall be thoughtfully elaborated; they serve as effective tools for arousing students' interest and motivation to participate in discussions. As a result, the sea stories, cases, etc. help the maritime students understand what is

happening beyond the classroom besides acquiring "green" knowledge from the technical texts in the course books, conventions, codes and manuals (Kudryavtseva et al. 2021).

4. Data Analysis

To explore the attitude to green skills development and discuss the ways to embed them into training process, four online surveys were conducted for different groups of target audience – students (undergraduates and senior), maritime specialists of management level and the educators of KSMA. The participants were interviewed with the purpose to gain information on the concept of green skills, their values for the industry, experience of implementation of green skills in the workplace.

The questionnaires were designed using Google Form online service; the invitations to participate with the links to follow were spread among the KSMA students, educators and partners. With 90 total participants, the respondents were 35 second-year students, 23 fourth-year students, 25 educators of different faculties and 7 sea-going maritime specialists in positions from the Second Officer to Chief Mate. The survey comprises 5-9 questions (multiple choice and open-ended types), and, taking into consideration a dual nature of green skills (knowledge and behavior), the questions were designed to integrate both cognitive and affective domains. The obtained data have been analyzed to determine parties liable to contribute to and methods to incorporate green skills into Maritime English course, in particular.

To get information on green skills perception, all groups were asked to determine and underline the most important aspect of green skills. The respondents were provided with some options to choose from – knowledge of international and national regulations, green technologies usage, environmental awareness, practical involvement in protecting ecosystems, responsibility for environmental management) or add their own answer. All the participants prioritized practical involvement in protecting ecosystems, such as saving resources and recycling as well as providing energy efficiency, managing garbage and ballast water as the key components of professional skills for seafarers. It is worth to notice that the junior students and educators (respondents without sea-going experience) highlighted environmental awareness as an important aspect of green skills as well. While the maritime specialist and senior students (respondents with sea-going experience) did not consider it such as significant and called attention to responsibility for environmental management. Such discrepancy can be explained by the needs to measure and assess skills and abilities in the workplace rather than behavior.

To determine the area of green skills implementation the interviewees were asked to specify green skills used at sea. As maritime specialists recognize the potential hazards the shipping industry exposes to the marine environment, so they consider the crew need green skills actually being used on everyday basis to provide proper ship operation. As for the students' answers they were more detailed and specified such areas for green skills implementation as garbage treatment onboard and MARPOL regulations (junior students), and, in addition, ballast water operations (senior students).

To analyze the current situation, the students were invited to list green skills they have already obtained. Both junior and senior students mentioned their knowledge of MARPOL regulations, ability to sort, recycle and dispose garbage onboard (junior students), and, in addition, usage of alternative energy sources, willingness to keep the planet clean and safe for humanity (senior students). The students' answers have shown some progress in moving from cognition into sphere of values.

Answering the question what subjects contribute more into green skills development, from the list provided, the students put *Maritime English* on the first position (82% of junior, and 52% of senior students), *Economics* and *Maritime Law* (43% of junior, and 39% of senior students), *Innovative Technologies and Technical Means of Navigation* (35% of senior students). The special place of Maritime English course could be explained by its interdisciplinary nature.

The students were also asked how they plan to develop green skills in future. The majority of the respondents showed their concern for the environment and intention to improve their practical skills at sea with further transferring them ashore, to study more on that topic by themselves and at the lessons, share and discuss new information with their peers and family. Some of them demonstrate their readiness to take responsibility and do proper work as maritime officers, keep marine environment as safe as possible. The students' answers demonstrate conscientious environmental behaviour in daily working activities and mature attitude in terms of self-development and duties.

To investigate the contribution of education into green skills enhancing, the educators and maritime specialists were suggested to think of the specific opportunities or facilities MET institution needs to enhance

green skills. In addition to financial support the maritime specialists pointed out the role of human factor. The policy of MET institutions needs to be focused on student-centered approach and employment of experts from occupational field. The educators' responses also emphasized the necessity of upgrading the entire educational approach and move to "greening" course syllabi. Among the ideas suggested, the institution has to use environmentally friendly technologies, segregate garbage, use solar batteries, promote education on green skills and instruct the personnel to develop them. The respondents stated that there is no need of specific facilities for that purpose, educators should be aware of the concept of environmental education, learning resources, and projects to arouse students' interest in pollution prevention.

To identify the areas for improvement and the ways to enhance green skills training, the educators were asked to share the challenges they encountered in their everyday practice. In spite of the fact the educators teach green skills, the majority (56%) complain about absence of clear concept on such teaching, some of them (28%) experience lack of specific knowledge to embed green skills in their courses. In addition, they are in high need of adequate learning resources – cases for analysis, job-oriented projects for students, authentic documentation, and interdisciplinary cooperation in developing green skills at their courses.

5. Conclusion and Recommendations

The survey identified that, in spite of the importance of green skills for the industry there is a gap between the skills needed aboard and the skills actually trained at MET institutions. Taking into account the importance of Maritime English course as the one that significantly contributes to enhancing green skills, English instructors make efforts to design a "green" course and incorporate knowledge from different subjects, improve communication skills, and build proper attitude to living and working at sea. Though all the participants consider green skills to be an essential part of professional skills, there is a need to design "greening" course syllabus, develop learning resources and apply active learning approaches to promote green skills honing and meet the industry requirements.

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