Forum for Education Studies 2024, 2(3), 1398.
https://doi.org/10.59400/fes.v2i3.1398

Opinion

Integration of curriculum for English-language educational program (ELEP) at maritime educational and training institutions (METIs)

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CITATION

Tenieshvili A. Integration of curriculum for English-language educational program (ELEP) at maritime educational and training institutions (METIs) Forum for Education Studies. 2024; 2(3): 1398. https://doi.org/10.59400/fes.v2i3.1398

ARTICLE INFO

Received: 22 May 2024
Accepted: 17 June 2024
Available online: 23 July 2024

Abstract: The current opinion article represents a set of recommendations and pieces of advice related to the development and integration of the curriculum of an English-language educational program (ELEP) at maritime education and training institutions (METIs). The title of the article implies integration of the curriculum of the educational program that would entirely be taught in the English language. In my opinion, such an educational program and its alumni would help METI meet the demands of the modern international maritime labour market. The paper could be interesting and useful for higher education institutions that are oriented on the complete transition of the educational process to an English-language educational program that would be delivered only in the English language. Nowadays there are a lot of educational institutions in the world where educational processes are mainly conducted in native language, and the recommendations given in the present opinion article could be applied by these institutions for the development of the curriculum of ELEP. Consideration of curriculum design is the main topic of the present paper that comprises the most significant issues and details of the topic.

Keywords: English-language educational program; maritime educational and training institutions; recommendations on curriculum design; types of evaluation; maritime english courses

1. Introduction

The main aim of the present opinion article is to offer organization and design of the curriculum for the English-language Educational Program (ELEP) at METIs. In order to ensure its effectiveness and unique character, the program should be different from the curriculum offered by other maritime higher educational institutions. The novelty of the offered educational program is that its curriculum should be organized in a way to enable maritime specialists to work on professional, academic, and administrative positions in the maritime industry in the future. The choice of the field of activity (professional, academic, or administrative) in the future will depend on the individual's personal choice or life circumstances (whether the person will be occupied on sea or shore-based jobs).

2. Literature review

The present paper represents an opinion article on the integration of the curriculum of an English-language educational program (ELEP) suggested by the author, who holds a PhD in English Philology from Tbilisi State Ivane Javakhishvili University (Tbilisi, Georgia) and an MSc in Maritime Affairs majoring in Maritime Education and Training (MET) from World Maritime University (Malmo, Sweden). The combination of the above-mentioned educations and thorough work and analysis

of the following specific literature mainly related to the field of MET made it possible to develop the ideas and recommendations offered in the present work. These works are: “Why change programs don’t produce change”; “A simulation instructor’s handbook”; “Working knowledge, how organizations manage what they know”; “Contradictions in the practices of training for and assessment of competency: A Case study from the maritime domain”; “Practical teaching skills for maritime instructors”; “Crew resource management: Improving team work in high reliability industries”; “The human element: A guide to human behavior in the shipping industry”; “Leaders getting different”; “Beyond technical competence: What we must teach our students: The role of the humanities in maritime education and training”; “Farthing on international shipping; “Curriculum development and design”; “An analysis of curriculum development theory and practice in language studies”; The materials of the following documents developed by the world’s leading maritime organizations were also mentioned and cited in the present opinion article: STCW—International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers 1978, as amended in 2010 (STCW Convention) and Seafarers’ Training, Certification, and Watchkeeping Code (STCW Code; “Global Maritime Professional Body of Knowledge”, IMO Model Course, Maritime English, 3.17; ISM Code).

3. Main body of paper

Maritime Academy, as any Maritime Education and Training Institution (METI) is accountable to ministries and is mainly guided by the law about higher education and various IMO conventions and documents. Its structure should comprise the subdivisions responsible for the following fields: 1) Educational process and the assessment of students at METIs. 2) Material and technical basis. 3) Administration and Quality Management System (QMS).

As the modern maritime world lacks officers and has an excessive supply of ratings, it would be expedient for maritime countries to be oriented toward producing officers. The supply of seafarers to the international maritime labour market depends on the quality of education received at METIs of the country. One of the most important criterium for the success of maritime education is the internationalization of educational programs of maritime nations and raising the percentage of employment of METIs alumni. This in turn depends on the organization of educational processes at METIs, the curricula according to which educational processes are conducted, the qualifications of lecturers, and the equipment of laboratories and Maritime Training Centers (MTC), where the practical part of training is delivered.

The important issue that should be paid attention to is the attraction of women to study at METIs. Women would be a very important human asset to the maritime industry, both from quantitative and qualitative points of view. In many Asian nations, women are very diligent and talented. If they overcome some prejudices caused by traditional upbringing and religious beliefs, they could become a valuable source of human resources supply to the maritime field of the country and the global maritime field in general.

The System of Maritime Education and Training (MET) of the country is very important. As stated by Mukherjee in his book “Farthing on International Shipping.

WMU Studies in Maritime Affairs": "Proficiency and Competence can only be achieved through proper MET" [1] (p. 190). Each METI should work out a strategic plan of development for the next 5 years, which should be followed by those who become heads of METIs. The plan should be updated every 5 years or more often upon necessity caused by changes in national legislation or major amendments to maritime conventions. This should be fulfilled in close cooperation with the Maritime Administration (MA).

Curriculum is the most important component of the work of any educational institution. The definition of the curriculum is as follows: "Curriculum is—all the planned opportunities offered by organizations to learners and the experiences learners encounter when the curriculum is implemented. This does not include the hidden curriculum" [2]. A more detailed definition of the curriculum is given in the following definition: "Curriculum—All the planned learning opportunities offered to learners by the educational institution and the experiences learners encounter when the curriculum is implemented. This includes those activities that educators have devised for learners, which are invariably represented in the form of a written document, and the process whereby teachers make decisions to implement those activities given interaction with context variables such as learners, resources, teachers, and the learning environment [2]. For analysis of METI perspectives in integration of English-language educational program (ELEP) by specialty of Maritime Navigation, Maritime Engineering, Maritime Electrical Engineering SWOT (strengths, weaknesses, opportunities, threats) analysis should be implemented.

The draft version of such SWOT analysis is given in **Table 1** (SWOT analysis) below:

Table 1. SWOT analysis.

Strengths	Weaknesses	Opportunities	Threats
Long time history of METI; Experience in preparation of highly-qualified human resources for international maritime field; Availability of proper human resources for implementation of educational program in English; Availability of material and technical resources	Absence of experience in delivery of English-language educational programs (ELEP) at METI	In case of successful integration of English-language educational program by specialty of Maritime Navigation, Maritime Engineering, Maritime Electrical Engineering, METI will acquire international reputation among the world's leading maritime higher educational institutions; Additional financial resources will be attracted to METI and that will help it to establish itself as financially independent higher educational institution; In case if international students show high academic results they can be set as an example to raise motivation for other/local students to improve their academic results, that will lead to the improvement of educational process and preparation of larger numbers of highly qualified seafarers	Lack and inadequacy of different types of resources including human resources at METI may cause difficulties in delivery of English-language educational program by specialty of Maritime Navigation, Maritime Engineering, Maritime Electrical Engineering on the proper level to be established among leading maritime higher educational institutions of the world

All Maritime Education and Training institutions state the purpose of designing an efficient curriculum that would guarantee the production of highly qualified staff for the maritime industry. Cadet is a main product of METI, and for MA cadet is a potential future seafarer who will have to pass certain training courses at MTC and receive corresponding CoCs and CoPs after seagoing practice.

When designing the curriculums, first of all, the following questions should be raised:

1) What should the education received at METI result in?

2) What are general and specific intentions (aims and objectives).

The possible answers to these questions are:

1) Learners should find a job on the international maritime labour market;
2) They should have enough knowledge of maritime field to be employed in shore-based maritime jobs;
3) They should become individuals with higher education, experience, etc.

The effectiveness of the curriculum depends on the following factors:

- Syllabi (how professionally the syllabi of each subject are designed);
- Learning activities (how efficiently syllabi are implemented in practice);
- Assessment approaches;
- Selection of efficient teaching methods relevant to maritime industry and specifics of particular subject.

Besides, the above-mentioned points can be supplemented by the improvement of the quality of the four main elements of national Maritime Education and Training (MET) systems:

- Students
- Staff
- Programs
- Facilities

As it is clearly seen from the above-given SWOT analysis table, lack of adequate human resources can become an issue for successful implementation of the curriculum of an English-language educational program (ELEP).

It is very important to involve highly-qualified specialists in curriculum design—seafarers, curriculum specialists, etc. Borrowing experiences of the countries with outstanding MET history will also be an advantage. Principles of fairness and avoiding nepotism should be applied when employing staff and electing academic personnel for METIs.

In order to ensure the effectiveness of the curriculum, it is necessary that lectures in all subjects are conducted at a certain level by highly qualified lecturers. Apart from that, they should be properly prepared to teach the entire course and each separate lecture. For this purpose, they should be constantly updating their lectures on the basis of information about the newest/latest maritime literature or the information given on the authorized websites related to the maritime industry and have up-to-date knowledge of the innovations in the maritime field. Such a field as maritime industry implies the application of a wide range of methods, skills, and practices in the educational process.

In order to ensure the quality of teaching/learning process, it is necessary to raise the motivation of students. The figures of maritime industry, e.g., demand for seafarers, quality requirements to seafarers' education, etc., should be used as such motivating factors. For example, several years ago, the lack of seafarers on the international maritime labour market was 25,000. If these figures are brought to the students' attention, this could raise their motivation as they will become more certain of their future employment. It should also be explained to them that quality of received knowledge and education is the crucial factor for employment.

In order to design curriculum in the right way it is necessary to find the balance between the following:

- Requirements of maritime field;
- Abilities and interests of learners;
- Human and material resources of the higher educational institution.

Another important contribution to successful development of curriculum of English-language educational program (ELEP) is quality and motivation of students/learners.

The aim of the designers of the curriculum is to adjust the curriculum to the requirements of its following stakeholders:

1) The future students-to-be;
2) The hosting country;
3) Contemporary demands of maritime industry;
4) Fluctuations/changes in maritime industry;
5) International maritime labour market.

In order to design successful curriculum economic, social and political state of the country should be studied and following research should be implemented. The economic, political and social state of:

- The country of the Hosting institution;
- The countries from where the students are supposed to come;
- Analysis of the state of the global maritime industry;
- Ways of integration of lifelong learning strategies (LLL) in curricula by creating adequate web platform e.g., www.moodle.com.

It would be helpful to design curriculum in more efficient way if PESTELE (political, economic, social-cultural, technological, environmental, legal, ethical) analysis of the hosting country and of the countries the international students are supposed to arrive from is performed. The curriculum should be designed in a manner to be attractive to the following stakeholders:

- International students;
- Shipping industry;
- Global maritime regulating bodies (IMO);
- Local government.

To a certain extent, the curriculum should meet the requirements of all above-mentioned stakeholders.

It would be expedient to offer to the attention of the readers of the present report the concept map of curriculum development and design process (please see **Figure 1**).

Curriculum should be relevant to the learners' needs and background knowledge. Thus, learning objectives and learning outcomes should be based on the specific character of the maritime field, taking into consideration the national school curriculum that defines the academic level of students entering higher educational institutions. Proper development and optimal implementation of curricula is a guarantee of the improvement of the MET system and raising the level of education students receive at METIs:

It would be efficient if shipping companies and types of vessels owned by these companies were taken into consideration when designing curriculum.

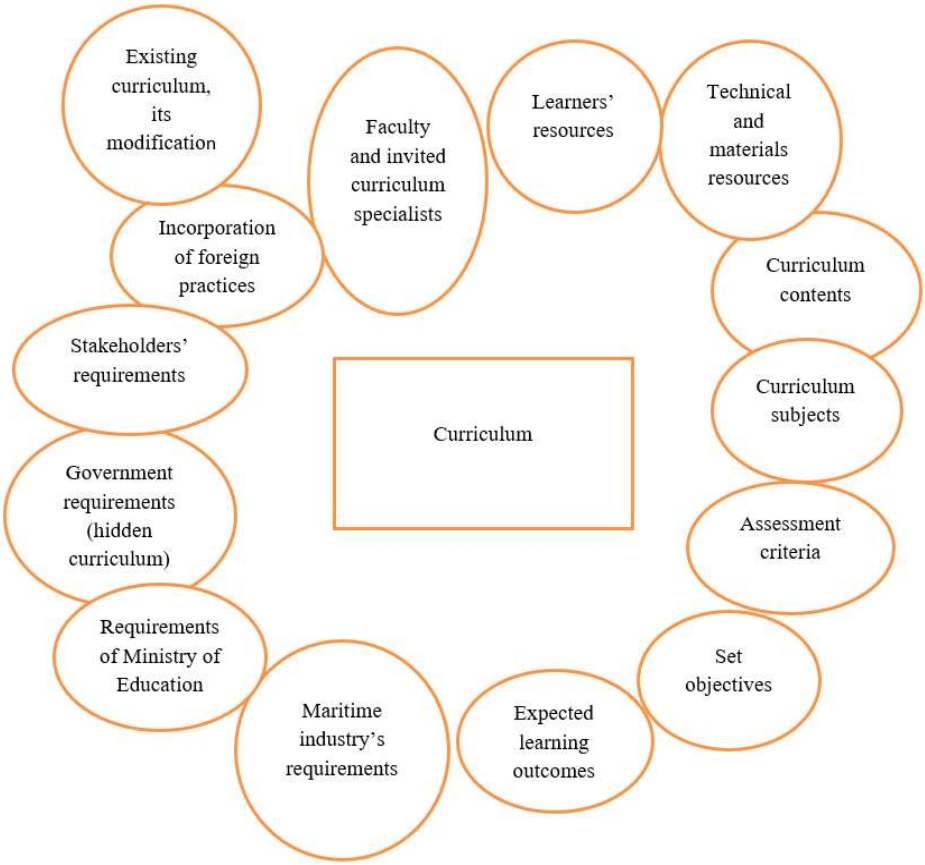

Figure 1. Concept map of curriculum development and design process.

To define the interrelation of learning outcomes and aims and underline their more concrete nature, Fisher and Muirhead mention in their book "Practical teaching skills for maritime instructors": "Learning outcomes are much more specific than aims" [3]. It is necessary to mention that learning outcomes are entailed from the aims and objectives and should be conforming to them [3]. The aims and objectives of METI curricula should be based on the constantly changing demands of the maritime industry.

The contents of the curriculum and the subjects to be taught should be selected on the basis of the existing model of curriculum, adding subjects from global maritime sources such as Global Maritime Professional or the curricula of other maritime higher educational institutions; in this way, incorporating new trends of MET that meet the requirements of modern maritime industry. In the case of MET, it may be new training facilities, updated simulators, and adequately trained instructors.

The integration and modernization of existing curriculum should be gradual; one-time incorporation of numerous subjects and various novelties may entail unexpected changes in the quality of education and level of knowledge of graduates. The reason for that is the specific character of systems of national education of different countries and the necessity to adapt model courses to these systems in order to make them practically applicable. This is the main reason why unified curricula for METIs have not been developed so far and IMO Model courses are offered only as guidance. The latest attempt to integrate one is the proposal made in the above-mentioned source, Global Maritime Professional Body of Knowledge, 2019.

The other important issue for successful integration of ELEP curriculum is to bring syllabi of curriculum to the conformance with IMO model courses that can now be purchased on the site of the International Maritime Organization (https://www.imo.org/en/publications/Pages/Default.aspx). The permanent guidance by and usage of IMO model courses would be useful in order to ensure that information given in IMO model courses is correctly interpreted and implemented in practice and there is no misunderstanding in enumeration of topics, allocation of hours to certain topics, and all facilities and appliances are used adequately.

The division of subjects at METI is significant for further understanding the organization of curriculum at METIs. The point is that METIs offer horizontal and vertical organization of the curriculum. Vertical includes basic subjects such as math, chemistry, etc. on which the teaching of specialized subjects can be based. Horizontal includes: parallel specific subjects, both professional technical and professional soft [4].

It is also very important to define whether the curriculum will be subject-centered, learner-centered, or problem-centered and base the curriculum on the selected criterion. In the case of the maritime industry, the curriculum may be defined as subject-centered, but as the maritime field is constantly changing and all innovations require certain attention from METI and have to be integrated in the syllabi, the curriculum of METI can also be defined as problem-centered. It is very important to allocate time rationally to achieve balance between time available and the breadth and depth of material to be studied.

Curriculum design

During the process of curriculum design, the designers should give priority to subjects that are the most significant for the maritime field on the current stage, those that are not easily acquired by the students in a particular country. Curriculum should include maritime and technical subjects, humanities, and subjects that consider linguistic, cultural, and sociological aspects of communication on board a ship, including even elements of history and religion. The foundation course should comprise such subjects as mathematics, natural sciences (physics, chemistry, geography), informatics, and physical training. Global Maritime Professional [4] offers such knowledge clusters as general humanities and social sciences and the cluster of English language and maritime communication within the foundation course.

Integration of humanities oriented on the development of social skills and knowledge would help to update the curriculum of METI to the level of higher education, as METIs are generally professionally oriented higher education institutions with curriculum that usually experience a lack of subjects providing general knowledge to their students. This is an important issue that ensures raising the individual to the level of the person holding higher education degrees.

One should ensure that there is a balance between subject areas and complimentary (soft) subjects in the maritime institution curriculum.

When developing curriculum for such an international field as maritime industry, one should avoid national specifics and colouring as it is a well-known fact that “the

curriculum more reflects society than leads society to change. It is especially important for the curriculum that is the subject of the present opinion article as it is aimed at international students who are going to be occupied in international maritime industry.

Within the foundation course the general humanities cluster should offer integration of the following subjects aimed at development of intercultural awareness:

- History of world religions/historical review of different world regions;
- Cultural issues/history of world cultures.

These subjects are necessary to develop intercultural awareness in students that would facilitate their adaptation to multinational crews. Intercultural awareness can be achieved following the recommendations given by Karen Markoe in her article "Beyond technical competence: What we must teach our students: The role of the humanities in maritime education and training" that was presented at the International Maritime Lecturers' Association's Conference in 2012—IMLA 20. In her article, Markoe makes the following suggestion: "Include foreign languages and literature in the curriculum; choose texts that include readings from many cultures, especially those that will be unfamiliar to most undergraduates; teach the basics of the world's great religions in the humanities courses that are required for future merchant mariners; make visits to museums and concert halls a regular part of the curriculum, especially to those institutions that emphasize the music and art beyond the borders of the nation" [5]. Knowledge of other cultures would contribute to seafarers' mutual understanding, raising intercultural awareness and intercultural competence, and forming a good working environment.

Thus, along with the knowledge clusters offered in the foundation studies, professional soft elements offered in GMP 2019 should be considered "under the same umbrella". They are:

- Technological awareness
- Leadership, teamwork, and discipline
- Effective (interpersonal communication)
- Sustainable development
- Human resource management
- Intercultural/diversity awareness and sensitivity
- Progressive mindset and lifelong learning
- Environmental awareness, sustainability, and stewardship
- Decision-making and proactivity
- Mentorship
- Professional and ethical responsibility

Some of these topics can be rendered as separate subjects (e.g., leadership, teamwork, and discipline; human resource management), but others could be united in some courses or could be covered as a separate topic within certain learning courses.

All these topics and some taken from foundation courses, such as general humanities and maritime communication, can be considered within such phenomena as social dynamics.

As the phenomenon of lifelong learning (LLL) is included in the professional soft element within the progressive mindset and lifelong learning, it should also be considered and integrated in the educational process and foreseen by the ELEP curriculum. In order to ensure adequate development of curriculum, it would also be

expedient to design a united LLL internet-based platform for alumni of maritime universities. To start with this project, alumni of IAMU member universities could be added to such a platform.

It is necessary to study the cultural, economic, and social situation of the countries from which future students of METI are supposed to arrive. The main purpose of it is to select students based on gender criteria. For this purpose, it would be necessary to carry out research in order to find out if the women are supposed to arrive and enter METI. Depending on the results of the research on gender equality issues, the special issues leading to upbringing gender tolerance in students should be integrated into the curriculum. This is necessary to regulate the curriculum and make it more effective. Thus, it is necessary to integrate gender equality issues into the curriculum in order to bring up respect in seafarers for women seafarers. That would attract women to the maritime industry and to METIs.

Social dynamics in maritime context include such categories as interrelationships, communication, and interaction between seafarers, taking into consideration social, cultural, linguistic, and age-related barriers, as well as specific types of interaction between crew members on board conditioned by the ship's hierarchal system. This system is mainly relevant for the ship environment, and due to its specifics, it would seem very strange in other working situations.

In the contemporary world, we generally confront multinational and multilingual crews that form about 60% of today's maritime world. Impact of cultural differences on communication, overcoming cultural barriers, role of maritime English and Standard Marine Communication Phrases (SMCP), importance of teamwork, and consequently crew resource management, bridge team management—all these are crucial issues that determine and control social dynamics in maritime context.

Seafarers are usually educated in specialized maritime educational institutions and receive certain knowledge about subjects that are believed to contribute not only to their professional development as future seafarers but also to their psychological preparation, which implies the development of certain mentalities (ways of thinking) as they should be prepared to work on the international level and deal with people of different national, cultural, and linguistic backgrounds.

Effective teamwork and proper social interaction between members of the crew are as important and contribute as much to the efficient shipping and avoidance of accidents as the level of professional preparation and training of seafarers does. Thus, Flin states in his work, "Crew resource management: Improving teamwork in high-reliability industries" that "core skill modules in CRM course typically include teamwork, leadership, situational awareness, decision-making, communication, and personal limitations" [6]. Most of these topics are offered in professional soft elements.

The issues of importance on board a ship from the viewpoint of social dynamics include interrelationships between members of the crew, social interaction, social facts, and social types that can be confronted in the maritime field and should be studied in advance in order to avoid and solve conflicts on board. As it has already been mentioned, social dynamics and models of social facts are dependent on such criteria as culture, age, gender, and position in the ship's hierarchy. All these criteria represent barriers that should be overcome for the purpose of successful

communication between members of a ship's crew on board a ship.

As it was mentioned earlier, culture is a very important criteria in the modern maritime world when two-thirds of the world's crews are formed by multinational crews. Intercultural awareness is the very phenomenon that can be crucial in establishing good relations and the development of mutual understanding and mutual respect towards people of different nationalities, as it usually represents a significant means to understand people's behavior and motivation for their behaviour.

One of the most important components of social dynamics on board a ship is interrelationships between members of the crew within the ship's hierarchy. Obedience and fairness are clues to successful interrelation between the ratings and the officers, provided that roles are distributed evenly, each party knows its rights, obligations, and responsibilities, and there is no misuse of power—a very important factor to avoid conflicts due to the vertical organization of the ship's hierarchy. But it was not always this way, especially in homogeneous crews, or crews consisting only of two or three nationalities, when contradicting groups were frequently formed on board ships. This issue has been solved, and social hierarchy has become especially well organized and controlled in the era of globalization in the maritime field.

One of the barriers to successful communication that should be overcome in the modern world of multinational ships' crews is the linguistic barrier. Mastering ME and SMCP is an important step in this direction. It also represents an important means for the acquisition of communication skills, as English is the official language of maritime communication. As most accidents at sea happen due to human factors that, in turn, depend on communication, proper knowledge of ME and SMCP is crucial. Therefore, proper usage of SMCP as a mechanism preventing accidents happening due to human errors often caused by communication problems should be made mandatory. Incorporation of a requirement for holding a certificate or equivalent document proving the proper knowledge of SMCP according to the field of specialization could be a solution to a problem of miscommunication on board ships due to linguistic misunderstandings. Communication between members of the crew is important as it reduces "dialogue insufficiency" on personal and professional levels; in addition, this phenomenon implies not only communication itself but the organization of the work process, dependent on organizational culture and organizational awareness of the individuals conditioned by several factors, including such extremely different ones as the culture of the individual and technologies used.

Besides, the ways of overcoming barriers between members of the crew, respect for the individual social space of seafarers, and tactful non-violation of this space by other members of the crew irrespective of their specialty and position on board can be one of the components for establishing good relationships, resulting in a good atmosphere and high work performance that would guarantee safety on board ships. All these qualities can be rendered to the learners within the "hidden curriculum" and through professional soft elements, thus upbringing them in the learners in order to prepare them for the work in the maritime field.

For the English-language program by specialty of Maritime Navigation, Maritime Engineering, and Maritime Electrical Engineering, it is very important to observe the division of the Maritime English course into two parts. IMO model course "Maritime English, 3.17" offers division of Maritime English into General Maritime

English and Specific Maritime English (e.g., English for Navigation, English for Maritime Mechanical Engineering, English for Maritime Electrical Engineering, etc.) [7].

The International Maritime English Language Program by P. Van Kluijven can be used as guidance for the organization of a maritime English course. For General Maritime English course textbooks like "English for Maritime Studies" by T. N. Blakey can be used. English for Navigation, English for Maritime Engineering, and English for Maritime Electrical Engineering should be rendered to the students via English-English textbooks as the course is oriented toward international learners. In order to ensure the correct choice of the textbooks, the knowledge of general English among students should be checked by placement tests or on the basis of the results of some international tests like TOEFL or IELTS.

Thus, common issues of social dynamics in maritime context are: decision-making, work performance, interaction, intercultural management, learning, professional development, correspondent trainings as learning environment contributes to collectivism and improvement of social relations, sense of teamwork when each individual feels himself as part of the integral "team machine", being aware of his/her tasks and role in the team, usage of communicational skills the individual has worked out for teamwork, and also sense of leadership. In spite of different social models and patterns of behavior any concrete situation requires concrete decision-making based on situational awareness and situational familiarity that are to a certain extent dependent on knowledge, individual features, and experience. As Gregory states in his book "The human element: A guide to human behavior in the shipping industry": "While it is the five senses through which information is collected, it is the context we create for ourselves that mainly controls what we pay attention on and create meaning for" [8]. The issues that constitute social dynamics onboard a ship are rendered to the students within the course of professional soft issues. As mentioned above, some values are transferred through hidden curriculum. The inseparable and very important part of the curriculum (hidden curriculum) of MET institutions is the moral upbringing of students, aiming at developing a sense of discipline in future seafarers—the necessary component of maritime education that ensures their successful work on board.

As it has already been mentioned the curricula should be designed in such a manner to ensure preparation of individuals for academic or professional work either onboard or at sea. For this purpose, Global Maritime Professional—Body of knowledge, 2019, offers Academic cluster that would comprise such issues as:

- Problems recognition/solving;
- Critical thinking academic research;
- Contemporary global issues (of maritime industry).

These issues are vital for fulfilling Navigation function at the management level and can be rendered to the students either as separate subject or within some subject.

For example, technical subjects and issues that develop professional competence of the future Navigators are:

- Navigation
- Navigational aids and equipment
- Automatic pilot

- Celestial Navigation
- Electronic systems of positioning fixing and Navigation
- Echo-sounders
- Compass—magnetic and gyro
- Steering control system
- Meteorology
- Wathckeeping
- Bridge resource management
- Radar navigation
- Navigation using ECDIS
- Emergency procedures
- Search and rescue
- Maritime English
- Visual signaling
- Ship maneuvering and handling
- Cargo handling, stowage and securing
- Prevention of pollution of the marine environment and anti-pollution procedures
- Ship stability
- Ship construction
- Fire prevention and fire-fighting appliances
- Life saving
- Medical aid
- Shipboard personnel management and training
- IMO Conventions
- Ship's Power and Electric systems
- Maritime Economics
- General information on shore-based maritime organizations

As it was with the foundation course and some of the issues of academic cluster, technical issues should be taught as separate subjects, whereas others can be offered as part of certain courses.

In order to profound the knowledge of students with maritime industry, it would be expedient to offer the students a subject that would imply a review of the current state of maritime industry. It can be done via global maritime links, such as the knowledge center of IMO available at the following link: www.imo.org.

The inseparable and very important part of curriculum is assessment of its courses. Tyler, as cited by Soto in the work "An analysis of curriculum development theory and practice in language studies," suggested that "evaluation should be conducted at the beginning and at the end of the instruction process in order to measure the changes developed in the studies" [9]. Besides, students should acquire practical skills for implementation of acquired knowledge in practice.

As assessment represents a significant part of the curriculum, it would be expedient to choose the following types of evaluation/assessment offered by Print:

Formative evaluation is directed towards providing information on learner performance at one or more points during the learning process to determine if changes need to be made.

Summative evaluation is directed toward a general assessment of the degree to

which the larger outcomes have been attained over the entire course or some substantial part of it; that is, evaluation employed at the end of a learning experience to indicate student achievement.

Diagnostic evaluation is directed towards two purposes, either for placement of students properly at the outset of an instructional period or to discover the underlying course of deficiencies in student learning as instruction unfolds [2].

Diagnostic, formative, and summative assessments can be used to assess the student's knowledge before starting the course, during the course, and after completion of the course. In MET, due to the specific character of the field and its practical importance, the formative assessment of knowledge gained during the course in the form of "course assessment" may be considered vital, whereas summative assessment in the form of final grades will help students to sum up their knowledge in this way, transferring it to long-term memory. In order to ensure fairness of assessment, certain marker descriptors should be worked out in order to make the distribution of marks and grades clear for students. Since the maritime field bears practical character for the purpose of assessment, it is relevant to design and apply exercises imitating the working environment being guided by criterion-based assessment. Simulator enables METIs and MTCs to implement it.

METI curriculum, due to the specific nature of this higher education institution, always implies technological conception, e.g., application of simulators or equipment in navigational, mechanical, and electro-mechanical laboratories, etc. Since simulator is an important part of the curriculum and plays a significant role in the organization of evaluation and assessment of students' knowledge, it would be expedient to mention the phenomenon on which this powerful tool of MET is based: "Simulation is a realistic imitation in real time of any ship handling, radar and navigation, propulsion, cargo, ballast, or other ship-system incorporating an interface suitable for interactive use by the trainee or candidate either within or outside of the operating environment, and complying with the performance standards prescribed in the relevant parts of STCW code". The definition of simulator mentioned by Carson-Jackson in the book "A simulation instructor's handbook: The learning game": "A simulator is primarily a kinesthetic training aid that allows for manipulation in a realistic environment—A working representation of reality. However, one of the main strengths of simulation is that it combines all three categories of training—visual, aural, and kinesthetic, which makes it a very strong and powerful training tool" [10]. The kinesthetic approach is clearly defined by Knowles as cited by Carson-Jackson: "Given the choice between two techniques, choose the one involving the learners in the most active participation" [2] (p. 17).

According to STCW 95 Section A-I.12, "the simulator shall be capable of simulating the operating capabilities of shipboard equipment concerned to a level of physical realism appropriate to the training and assessment objectives" [11].

As maritime education and training require a competence-based approach and assessment, simulator training is one of the best means for the implementation of competence-based training. As mentioned by Flethcher cited by Emad in "Contradictions in the practices of training for assessment of competency": "There are mainly two concepts of CBT presently in practice, the US and UK model. The UK standards or competencies are considered as units of assessment of workplace activity,

whereas in the US model it is the use of competencies within the learning process that takes priority. The US model is related to a training program, whereas in the UK it refers to training and assessment in the workplace or in a job-like environment—although the focus in the USA has also now shifted to the on-the-job training" [12]. The maritime industry adopted the UK model of CBT.

There are the following types of simulators: navigation equipment, GMDSS, radar, radar and navigation, ship handling, fisheries, inland waterways, dynamic positioning, crane handling, vessel traffic management, search and rescue, oil spill management, propulsion plant, steam generating plant, electrical power plant, refrigeration plant, cargo handling, ballast control, dredging ship, offshore processes, and drilling technologies. Some roles in heavy lift operations require cognitive process and decision-making abilities, e.g., officer coordinating the work of the slinger and crane operator. The essential issue is the correlation between the learning time and competence received being the factor ensuring the quality of work to be performed on board a ship.

As the maritime field is developing very rapidly from a technological point of view, METIs equipment and simulators have to be updated in order to prepare graduates who would meet the requirements of the modern maritime labour market.

In addition to curriculum design, it would be expedient to integrate the methods of work organization popular in the modern world and contemporary maritime industry as well. The phenomenon of knowledge management that has been widely used during the last decades implies organization of knowledge and organizational learning at METI to ensure the stated objectives.

Modern technologies and incorporation of the world wide web into all spheres of human activities serve as facilitators in reaching the objectives stated before the MET institution; new forms of knowledge management and organizational learning, such as e-learning online platforms, are added to the already existing forms of knowledge management, such as data, books, periodicals, etc. It is necessary to distinguish between the following phenomena: "data, information, and knowledge". "Data, information, and knowledge are not interchangeable concepts. Data is a set of discrete, objective facts about events. Information is "data endowed with relevance and purpose. Data becomes information when its creator adds meaning. Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information" [13].

Modern online platforms, such as www.moodle.org, www.moodle.com, www.moodlecloud.com, Camtasia, and other systems, make it possible to organize and offer the learners a lot of knowledge without time and space limitations and ensure a new modern type of organizational learning. The e-learning platform offers different activities that can be added to the training, such as assignments, video training via e-classroom using BigBlueButton or Zoom, etc., and external tools to add video from other internet sites. The materials can be transformed into book format, thus making it more interesting and understandable for the trainees. Any file can be added through the "File" function. Any link can be added through the URL function offered by the e-learning platform. All these features make e-learning applications indispensable tools in the accumulation and dissemination of knowledge to any interested trainees

all over the world without space and time limitations, as was shown in the examples of training, mentorships, and assessment developed by us through the e-learning application “Moodle Cloud." “Seagull Maritime” being the leading provider of competence management solutions and training material, uses these and more sophisticated tools in its activities. These online platforms can also be used for lifelong learning to ensure the involvement of alumni in educational activities.

METIs should have a knowledge management centre processing all new information of the maritime field in this way, being kept up-to-date with novelties and developments of the field. Programs should be constantly updated according to the requirements of the field.

In order to determine goals and objectives for structural change initiatives, it is necessary to see how other more successful METIs work, study their experience, and integrate changes into METI and curriculum structure accordingly. In my opinion, for this purpose the following actions should be taken:

- To establish performance criteria, the quality assurance department of METI should demand that a certain percentage of successful students and graduates who do not conform to the acceptable requirements should be retrained or the monitoring of the quality of studies process and fairness of assessment should be established.
- Educational programs can be redesigned on the basis of programs of METIs of other countries with more significant experience in the MET field. Yet changes should be made carefully taking into consideration the national educational system of the country, specifics of methodology of teaching in a particular country, or orientation of curriculum design on international students, as is the case with the current project. For METI, immediate transition or incorporation of too many changes can be ineffective. Denying old programs, METI may not reach the desired result with the new programs. Therefore, a very often gradual transition is the optimum variant.
- Buying access to relevant maritime literature and MET periodicals. A lot of maritime journals are available online nowadays. Access to these journals can be bought easily. To be aware of the news of maritime field access to the knowledge centre of IMO would be an advantage. Please see the following link: https://www.imo.org/en/KnowledgeCentre/CurrentAwarenessBulletin/Pages/Default.aspx.
- Employing qualified staff for processing maritime literature and MET periodicals. People related to the maritime field should work on these publications. In the process of work, they will gain experience and will be able to elicit more information from these sources and become experienced professionals.
- Employing curriculum specialists for regular updating of the programs and curricula. This measure will ensure the development of curricula in a maximally professional way.
- Integration of change management upon necessity. In a modern globalized world, the maritime field is one of the most globalized fields of human activity. It is very important to integrate changes to METIs, MTCs, and MAs to bring them to one

common standard. This would facilitate cooperation with maritime institutions of other countries and international bodies like the IMO.

- METI should follow the Plan, Act, Do, Check paradigm and plan their actions, take measures to act—carry out all the plans, do—carry on implementation of plans, and check—audit what has been done.
- There should be specialists who would be responsible for knowledge of IMO conventions, the Maritime Labour Convention (MLC), and documentation at METI; they should have regular meetings with academic staff of METI to communicate all the new information to them. In this way, the academic staff will be kept up-to-date, and management should find other ways of staff development.
- Heads of all departments should cooperate with the HR department, and then they should communicate the results of their communication to the Manager/Head of METI. This is quite important, as heads of METIs should have all the information available in order to conduct effective management. As stated by Katz, "Leaders should make problems visible, treat colleagues as partners, slow down to speed up, collaborate across silos" [14].

As stated by Michael in the article "Why change programs don't produce change": "New competencies such as knowledge of the business as a whole, analytical skills, and interpersonal skills are necessary if people are to identify and solve problems as a team. If any of these elements are missing, the change process will break down" [15].

It is a well-known fact that demand for highly qualified seafarers is the main requirement of the ISM code.

Since high qualification of the crew guarantees safety of the vessel, the crew itself, the environment, and the property carried by the vessel as well, all of them are the main objectives of the ISM code.

As stated by Hodges in the article "The ISM Code and the Law of Marine Insurance": "No ordinary, careful and prudent ship owner would send a ship to sea without ensuring that she is not only physically fit but also safely managed—all the more so now that there is an accepted international standard of safe management and operation of ships" [16].

With mandatory application of the ISM Code, ship owners and ship charterers should expand insurance so that safety at sea is ensured both for the vessel, its crew, and for the environment as well. As the objectives of the ISM Code are: to ensure safety at sea, prevention of human injury or loss of life, and avoidance of damage to the environment, in particular to the marine environment, and to property (Art.1.2.1.) [17]. It means that the equipment and machinery of the ship should be kept updated, proper technical maintenance should be carried out regularly in order to persuade the insurance company to pay insurance, and the crew should meet requirements of the STCW Convention from an academic point of view and also from the viewpoint of physical preparation to minimize chances of injury and loss of life on board a ship, thus making the vessel more attractive for the insurance company.

When safety on board a ship is ensured on the proper level and the level of preparation of the crew is guaranteed, both of these factors can be considered as contributors to the third important requirement of the ISM Code: avoidance of damage to the environment. The factors are equally important for ship owners, shipping

companies, local governments, and international maritime regulating bodies like the IMO.

The above-mentioned specifics of ISM code should also be taken into consideration during ELEP curriculum design.

4. Conclusion

One of the advantages of the integration of educational programs that would be entirely taught in English (ELEP) is the fact that such a program would contribute to the development of an international model of seafarer with a raised intercultural awareness level, well-developed language skills, and readiness to work in an international team/crew as supposedly the students of such programs would be nationals of different countries.

Applying all suggested recommendations and pieces of advice given in the present opinion article during curriculum design would contribute and lead to successful implementation of the integration of the English language educational program (ELEP) at METIs. All the advice and recommendations given in the present article can be used as guiding principles for the implementation of the above-mentioned objective.

Conflict of interest: The author declares no conflict of interest.

Abbreviations

BoK	Body of Knowledge
CBT	Competence Based Training
CoC	Certificate of Competency
CoP	Certificate of Proficiency
CRM	Crew Resource Management
GMDSS	Global Maritime Distress and Safety System
GMP	Global Maritime Professional Body of Knowledge 2019
HR	Human Resources
IAMU	International Association of Maritime Universities
IMO	International Maritime Organization
ISM Code	International Safety Management Code
LLL	Lifelong Learning
MA	Maritime Administration
MET	Maritime Education and Training
METI	Maritime Education and Training Institution
MLC	Maritime Labour Convention
MTC	Maritime Training Centre
PESTELE analysis	Political, economic, social-cultural, technological, environmental, legal, ethical analysis
QMS	Quality Management System
SMCP	Standard Marine Communication Phrases
SWOT	Strengths, weaknesses, opportunities, threats
STCW Convention and Code	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers

UK	United Kingdom
WMU	World Maritime University

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