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INTRODUCING THE USE OF CASE STUDIES METHODOLOGY IN TRAINING FOR SOFT SKILLS IN MARITIME UNIVERSITIES. THE ISOL-MET PROGRAM

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Abstract. Maritime academies, maritime universities and Departments of Business Administration which specialize in the Shipping Sector face several challenges when preparing students to meet workplace demands in an increasingly complex, knowledge and technology-focused environment. Students usually latter lack generic skills requested by employers such as: critical thinking, creativity, problem solving, communication and teamwork. The present paper presents the innovative aspects of the ISOL-MET (Innovative Soft Skills to Maritime Education and Training) project, meant to bridge the well-known gap in these specific skillsets. The innovative aspects in question cover but are not limited to the content of the courses, their design, as well as the teaching methodology deployed. More specifically, the case study methodology, not so common in the shipping industry, was employed in the Innovative Soft Skills to Maritime Education and Training framework. It involved the development of cases of real incidents occurring both ashore and on-board, recorded through the participation of stakeholders and validated as to content by Panels of Experts and Associate Partners to guarantee their correspondence to the industry's needs. Concerning the teaching methodology, a blend of problem solving and competency-based learning processes were put to use, so that the attitude of the professors as well as the mentality of students would be creatively challenged. The paper describes in detail the methodologies employed and features evaluative feedback from the Intensive Study Program which took place in Greece.

Keywords: maritime education; case study methodology; soft skills in the maritime sector

1. Introduction: Bridging the Gap in an Innovative Way

The aim of the present article is to showcase the methodology and partial results of the European funded Innovative Soft Skills to Maritime Education and Training project and to disseminate and diffuse output generated by the project during its implementation. It is within the scope of the project to diffuse knowledge, increase the uptake of research and innovation project results in the EU as well as to demonstrate the generated impact of the project.

In a 2014 Communication from the European Commission under the title *Innovation in the Blue Economy,* the lack of skilled workforce, knowledgeable in the latest technologies and a range of other disciplines, is recognized as a challenge and a hindering factor of blue economy in Europe. To quote "the inability to transfer research results into goods and services as well as a growing skills gap are affecting knowledge intensive sectors […}in order to develop the potential of the blue economy in Europe, Member States need to put in place policies and local solutions that effectively address these barriers". The year 2023 was chosen by the EU to be the Year of Skills, thus acknowledging the paramount importance of skilling and re-skilling within all sectors of the economy. In the same vein, the New Skills Agenda for Europe confirms this status and promotes action for the improvement of the quality and relevance of training for necessary skills. Without a doubt, a skilled workforce contributes to sustainable growth, encourages innovation and improves the companies' competitiveness. Green and digital transitions offer better job opportunities to skilled workers to fully engage in society.

Blue Economy faces many challenges and not the least important among them is the poor image of the sector-specific activities in the community of the young and the consequently poor information in respect to career opportunities. For a detailed analysis and a vivid discussion of these lacks and the way to mitigate them, consult the SkillSea Closing Conference which took place in Brussels on 31 May 2023, with special emphasis on minutes 5.24.00 to 5.25.00. This has led to the decreased interest of young people across Europe in the maritime professions, while there is a trend towards abandoning seafaring careers at very early stages, which in combination with the ageing trend of European population may create a shortage of qualified personnel. In particular, and as far as shipping is concerned, according to a BIMCO report[3], 16,500 jobs for officers are currently on offer, while an estimated additional 147,500 will be open by 2025, in order to meet the global fleet crewing needs. It is worth noting that the maritime profession does not require only specific industry knowledge from the professionals but also interdisciplinary skills to make them adapt successfully to the multicultural environment and the constantly changing conditions of international shipping. In fact, the sector is going

through a profound technological transformation which is not currently reflected in the existing curricula. Maritime academies face several challenges in preparing students to meet workplace demands in the "liquid modernity" of an increasingly complex, knowledge and technology-based environment. Students often lack generic skills that are requested by employers, such as critical thinking, creativity, problem solving, communication and teamwork.

Shipping is an international industry exploiting human and other resources from all over the world and, as such, the cooperation among partners of different cultural background is necessary to simulate the actual conditions seafarers and employees will face when entering the business world. To the extent where there are common problems and challenges faced by all partners involved, common solutions are needed to address them in a harmonized way. Unfortunately, transnational cooperation, a precondition for the implementation of any educational program such as ISOL-MET (Innovative Soft Skills to Maritime Education and Training, the title being rather self-explanatory of the mission) varies considerably across EU countries and, in many cases, the outputs of such initiatives are not easily integrated in the METs national educational systems.

To palliate to these lacks and shortcomings, the ISOL-MET project is aiming at providing answers and reaching the goals described above by focusing on educating, training and skilling the young, based on the fundamental pillars of Sustainability in Blue Economy, in the maritime transport framework and with regard to the developments driven by globalization and digitalization. It is an initiative aiming to explore how the case method can be creatively applied to teaching and developing soft skills in the classroom. The basic case study narrative examines issues that arise in the contexts of ships, offices, and maritime communities. One of the major project components was researching, writing, and refining case studies on topics ranging from diversity and growth mindset to a controversy over what constitutes a leader onboard the ship. The ensuing efforts were geared towards transferring knowledge as well as best practices from the industry to academia by using social innovative tools and codifying tacit knowledge and experience. Partners involved were selected based on their contribution to the project's objectives and shared knowledge and expertise. The project is complementary to other Erasmus projects such as the MINE-EMI which has delivered a Master Program that corresponds to the contemporary trends and emerging issues of the shipping industry, and the SKILLSEA (Future proof skills for the maritime transport sector) program[1] which aims at producing a sustainable skills strategy for maritime and related activities, both at sea and ashore.

2. Methodology. Bridging the gap: innovative educational material developed by ISOL-MET

The present article is based on the research conducted by the ISOL-MET Consortium Partners, namely, the University of the Aegean in Greece, the Conference

of Peripheral Maritime Regions (CPMR) of Europe, the Nikola Vaptsarov Naval Academy in Bulgaria, the Piri Reis University in Turkey, the Constanta Maritime University in Romania, the Akademia Morska Szczecin in Poland and the PPP Learn Sole Ownership Company in Greece. The various methods employed in the course of the project and partially showcased in the present paper included a thorough Needs Analysis conducted with various shareholders, the decoding of the data provided and their robust classification under core categories, the collection of relevant testimonies from practitioners of different strata of the maritime world through semi-structured and unstructured interviews and questionnaires, the compilation of study cases drawn from the pool of testimonies mentioned above, the elaboration and development of said cases so as to constitute appropriate teaching material and the piloting of the teaching sessions built around the materials in question in the Intensive Study Program conducted on Chios Island in 2022.

The ISOL-MET consortium designed comprehensive and cohesive courses for the development of the much-wanted soft skills in the curricula of maritime-education related institutions, which in their turn will train the future sea and shore-based professionals. Specifically, skills much needed in the learners' toolboxes were introduced, such as the cooperation in the context of interdisciplinary groups, the communication between sea and shore-based maritime personnel, leadership, management of multicultural groups etc. In this context, ISOL-MET focused on satisfying the needs of students for entering the shipping market, educators for new educational tools and the shipping community for qualified personnel.

ISOL-MET's innovative perspective can be deciphered in three of the projects' constructs:

- the content of the courses, which combine hard knowledge and soft skills
- the design of the courses based on the case study methodology
- and the teaching and learning methodology involved.

We will presently analyse these elements as to their innovative aspects.

2.1 Innovative educational material developed by ISOL-MET: the course content dimension

Currently, courses in Maritime Universities rarely focus on soft skills. Cadets know how to navigate vessels from point A to B or how to maintain deck and machinery equipment. While this is very important knowledge indeed it is not sufficient for addressing the range of challenges which arise in the modern shipping era. Nowadays, a ship is a business mechanism, with strong ties to the ship owner's office, the charterer's office, the forwarding office, etc. The ship's crew should act as a team, ready to overcome problems arising on their way. It should also be knowledgeable about the shipping business, so as to better understand its role in the process and to better communicate with all stakeholders of the maritime transport community. Officers should act as team leaders and masters should also be the ships' managers

(Bradley 2018; Shea 2005, p. 73; Surugiu and Dragomir 2010; Broadhurst et al. 2017). Besides, often being a Master mariner nowadays is not only the culmination of a career, but also the beginning of another, a shore-based one. On the other hand, students in Business Schools or Shipping Departments, which are rather limited in number, get educated in Shipping management without being "marinated" by dipping into real world "maritime" study cases (Iakovaki 2011).

The existing educational systems are often criticized for failing to provide graduates with the competencies to understand a knowledge base and to continue learning long after graduation (Iakovaki and Agiorgousi 2019; Iakovaki and Progoulaki 2010). Many students conceive learning as a process of acquiring facts and memorizing rather than understanding relationships, while they also believe that teachers are responsible for "exporting" their knowledge, rather than the students being responsible for their own learning. Generally speaking, the ISOL-MET project delivers to students a wide variety of tools, which helps them put together a team, become leaders, managers, improve communication with all stakeholders and understand the business of which they are part. More specifically, in this context, the introduction of soft skills is a prerequisite so as to be able to respond to the contemporary challenges of the maritime profession while getting prepared for their onshore professional life (Campara et al. 2017; Luke 2017). In respect to the content of the courses, the case study methodology is used as an efficient and effective process to define the content of courses and because of the wide range levels of knowledge and experience of the participants, student-centred strategies were selected to bridge the gap of asymmetrical backgrounds and multilevel classes. The case-study method is known for its effectiveness in developing "real-life" professional skills, encouraging learning through students' application of knowledge to maritime business cases, enhancing the relevance of their learning and promoting their understanding of concepts (Dul and Hak 2008; Rashid et al. 2019). Courses were designed to satisfy both industry needs and IMO's model courses standards.

2.2 Innovative educational material developed by ISOL-MET: the course design dimension

As per the project's proposal, the Case Studies' collection identified and analyzed during the project's lifetime were originally classified by topic (people management, wellbeing & resilience, emotional intelligence, growth mindset, etc) and bound to be presented in a uniform way; description of the incident as recorded, analysis of the factors that lead to the specific incident and prevention activities.

During the very first stages of the project meetings, it became clear that a complementary framework had to be built on how to choose eligible Case Studies. Because it involved the collaboration of many different specialists from different countries in the information gathering process, an unambiguous scheme

was provided, one that would be understood by all partners. It was by no means to be a simple checklist but rather a tool with a twofold purpose. On the receiving end, it serves to filter, classify, and interpret the input received by the partners, the result of consultation with various shareholders and field specialists. On the producing end, the framework is meant to provide a guide of integration of input in any form: content, skills, methodology, and their implications in a modern, appropriate, and theoretically sound manner which maximises the synergy of the partnership. In the future, if more practitioners wish to compile similar sets of case studies, the framework will be there to help them navigate through the dangerous waters of life-narratives. Good soft skills cases, which relate to the content and learning outcomes of the course, are ones that engage students the most and develop skills. Good cases are based on a real person facing a real problem and seeking a solution to that problem. The case is a puzzle that needs to be solved. It tells a story that involves conflicts or issues for a protagonist, someone to whom the students can relate. The best cases are the ones with no "perfect" answer. A good case for teaching soft skills presents the personality, cultural, and social facts of the problem and requires students to grapple with the nuances of the situation. Either explicitly through role-playing, or implicitly through the questioning strategy of the instructor, the student's lens for the case is the very complicated vantage point of an investigator. A good teaching case encourages unraveling the dynamic interplay between the inductive and deductive methods of discovery. As decisions and maritime work environment issues become more complex and interdependent, it is important for students to learn to distinguish between a major or minor issue, separate problems from symptoms, make defensible decisions and provide evidence (from the case) to support them. It must be a case that reads somewhat like a good novel with an interesting problem with real people the students can identify with in some way.

Another potential pitfall involved the fact that the languages, cultures, organizational behaviors and overall diversity of learners, practitioners, crew, and subject matter specialists, unless given due prominence, were going to become hurdles. For example, there were various interpretations of what constituted a good illustration of the construct "gender bias" which, once fully understood and interpreted, enhanced and buttressed the diversity of the endeavor. Such obstacles led to focusing and refocusing the consortium's efforts on producing case study material from real-life narratives, in order to create *Best Practices* that could be shared. Examples include, but are not limited to, the elaboration of an Invitation Letter specifying the reasons for constrains and the margins of eligibility, addressing all out Interlocutors and putting the accent on the human factor, the creation of a map of the Incidents or Accidents to be analyzed, with placeholders for place, time and real-life elements but also feelings, impulses, instincts, thoughts, perceptions, values and beliefs, the compilation of a complementary set of questions, following the pattern of "could it be that...", which was then added to the toolbox of the

interview guide with concrete examples to boot, corresponding to the different skills described in the proposal. Another thing that became clear along the process of interviewing was that the Maritime Sector being an idiosyncratic one, the Panel of Experts had the tendency to recount heroic tales which were not suited to our idea of modern Leadership and Soft Skills. So, calibrating their experience to the actual project needs was necessary. Also, we had sessions of model interviews broadcasted to all Partners and we elaborated examples and counterexamples of templates to be used.

There are reasons to believe that the above guidelines not only reinforce the innovative character of the project but also contribute to the paradigm shift intended as far as the educational and training material and the evaluation methods were concerned. Each case study being unique and distinctive yields a wealth of information about the theory and practice of maritime industry across the globe, but having the incremental advantage of being filtered for relevancy, currency, actuality, validity and street credit with the help of the framework created for that purpose will enhance its value and make it stand the test of time. Engaging the case study will provide educators with more than just a comparative analysis of practice and it will offer process and contextual insights into how current theories are formulated, modified, and reconstituted within different contexts, but having an "in the know" access to how these cases were selected and compiled will empower them to own the material in question and maybe in the foreseeable future start collecting their own. The Handbook will be available at the project's website[2], as well all to partners websites open and accessible by all interested parties.

2.3 Innovative educational material developed by ISOL-MET: the teaching and learning methodology dimension

One of the goals set by ISOL-MET as early as the proposal stage was not only to educate leaders and managers but also to change the attitude of the professors along with the mentality of students and graduates. In respect to the teaching methods, tools such as specific communicative events analysis, role playing and simulation practices were used and the selected teaching methods helped students shape their experiences in a supportive environment, in many cases an altogether new challenge for them.

The teaching and learning methodology, a combination of problem-solving and competency-based learning processes was implemented for the first time in the course of the first pilot of the Intensive Study Program conducted in Chios Island in 2022. The duration of the program spanned from 4 to 10 April, and participants included teachers and students from Poland, Turkey, Romania, and Bulgaria from both METs and universities sectors. The working day started at 9.30 and finished at 12.30 for the pure educational processes, either in the form of classical lessons or in the form of collaborations between the various groups. The whole team went

on excursions and ate together at lunchtime. Some students chose to work with the other groups outside the official working hours, but this is something they decided for themselves. The working language was English and the whole project was quite interactive. The main goal was to conduct pilot teaching sessions where each country's group would use the case studies created by them to teach Soft Skills in the field of Shipping and to get 360 degrees feedback on them. Participants were enabled to apply the content of each course in a realistic context immediately, to engage in the learning process, to better interact with their course mates and to diverge from the confines of their normal self-imposed limitations or boundaries. The students were familiarized with the case study methodology and proceeded to analyse the incidents to present their view upon the subject.

From a first-person account on how to accomplish the above, "once the case is under way, you want to concentrate on three things: "individual comments, group thinking, and your teaching plan". A case discussion places you in a continuing cycle of questioning, listening, and responding". Also, "asking questions is key to executing your strategy for the session. Of course, your most immediate concern is to generate focused participation. This makes your first question critical." To start the session, the instructors were encouraged to "use an Initial question that dramatically puts students in the shoes of the decision maker facing a harrowing dilemma in the form of a high stakes decision." The instructor's goal is to create a controversy within the class because he/she does not want the learners to jump to conclusions too soon. He/she must branch off these questions into sub questions to have the students dig deeper into the learning objectives of the case.

The Instructors were also encouraged to employ active listening techniques, to be alert and receptive to student comments and questions throughout the sessions, to seek clarifications when a student comment was unclear, lead students to topics and assumptions that underlie a diverse series of comments and bring the sessions to a positive closure. As to the case teaching dilemma of the tension between validating responses and pushing students to think critically and to articulate difficult arguments, it was resolved by positing that since case study teaching is a collaborative enterprise, students should be encouraged to venture intellectually. Therefore, confrontational approaches which alienate students and are generally counterproductive should be avoided. Just as building consensus can obscure a greater diversity of opinion, collective safety may come at the cost of critical thinking. Students should be validated and challenged without sacrificing learning and creativity. The validation for participating in the process of collective discovery must be set apart from the eventual value of the students' input. Indeed, students must be made aware that venturing into the discussion—regardless of being right or wrong in their assumptions—is highly valued *per se*. In a study case session, students can get points for simply participating, letting ideas bubble out rapidly and then take time to recap and reshape them. They are encouraged to generate a "list"

of answers or viewpoints, then go to the board and say, "Let's try to summarize where we are in this case. This allows them to get the key points in written form. During the discussion, students need to listen carefully to what their classmates are saying. Strategic recording of class discussion is a tool which can help students recognize that they can learn from each other, not just from the "sage on the stage".

To ensure that students leave class having reached the learning objectives, they need to be debriefed. Important points which connect specifics to general principles must be highlighted. Another approach is to ask students to report out – as groups or as individuals – what they consider to be the summary and conclusion of the session. Or students can take a few minutes and write down their thoughts, by answering a specific question – or a set of questions – designed to elicit the kind of information specified in the learning goals. During the Intensive Study Program, by the end of each case study students were also asked to evaluate the procedure and the results showed that what they learned during this class was different that in other classes and the impact of this class on their experiences and behaviours was strongly positive. Overall, the initial results of the intensive Study program feedback showed a high percentage of student satisfaction.

3. Conclusions and summary

The ISOMET projects aims, always framed in an innovative perspective, were to: bridge the gap between shipping world requirements in respect to human resources soft skills and competences, as well as experience gap of maritime universities' students in respect to the on-board operations and the shipping practices by developing innovative educational material based on the case study methodology, meet the everchanging needs of maritime professionals for ongoing career opportunities even after completing their sea service on board, and, finally, serve as an Exchange Platform for best practices and cultural awareness on maritime education and shipping issues. During the Intensive Study Program, in April 2022, partners experimented with many different methods of case teaching as there were case teachers. We tested methodologies for case-based teaching soft skills. Partners have compiled several sets of guidelines to produce a high-energy case-based class.

The case studies developed by the consortium are a by-product of interviews with various stakeholders from all strata of shipping, not just the academia as is usually the case. This approach provides a record level of validity and reliability regarding the content of the case studies since it incorporates real life examples drawn from the stakeholders' experience. Finetuning the case studies brought to surface a number of hurdles, mainly focused on the need to have follow-up discussions with the interviewees for clarifications. As a result of the ISOL-MET project, the consortium developed a total of twelve case studies. For the purpose of developing the Maritime Case Study Handbook, the content was evaluated by a Panel of Experts comprising both industry experts and academics. The innovative

blend of educational material and teaching methodology focus on providing a real-life perspective of incidents that can occur in daily operations, while providing the opportunity for students to advance their problem-solving abilities and overall soft skills.

The development of educational material to enhance the knowledge and understanding of students is an essential part of the teaching and learning procedure. Developing case study material for cultivating "soft skills" among maritime professions has been at the forefront in the last decade. It is crucial to highlight that the case study methodology has an innovative character, while offering out-of-the-box solutions on recruiting in the framework of Assessment Centres.

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