SHIFTING FROM GLOBAL MARITIME PROFESSIONAL TO GLOBAL MARITIME CITIZEN

ELECTIVE COURSE DEVELOPMENT FOR THE INCORPORATION OF GLOBAL CITIZENSHIP EDUCATION IN THE MARITIME HIGHER EDUCATION PROGRAM

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Keywords

Global Citizenship Education, Global Maritime Professional, maritime education and training, UN Sustainable Development Goals

Abstract

The evolution of maritime education and framework started with the foundation framework established by the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), which focuses primarily on the technical competence of seafarers. Then, the International Association of Maritime Universities (IAMU) built on the STCW Code framework, producing the Global Maritime Professional Body of Knowledge (GMP BoK) in 2019 with the mission of producing a holistic and resilient education for seafarers in the new age of the maritime industry. This study was developed to advance the two frameworks further, thus completing the evolution from being a competent professional to a global maritime professional and eventually to becoming a Global Maritime Citizen. The development of an elective course for the Global Maritime Citizen Program utilized a conceptual design by the triangulation of the three frameworks, namely the STCW Code, GMP BoK, and the Global Citizenship Education (GCED) framework. The structure of the elective course was patterned after the International Maritime Organization (IMO) model course, which was founded on an outcome-based education. The developed elective course could pave the way for the incorporation of the GCED framework in the development of maritime higher education curricula. This would not only produce graduates who are technically competent and holistically proficient but also prime movers in the accomplishment of the United Nations Sustainable Development Goals (USDG), affecting the maritime industry in a positive and innovative way.

1 INTRODUCTION

With the rising global temperature, the dominance of computer systems coupled with the quest towards faster and more efficient work, and the declining natural and human resources, the maritime industry is heading towards decarbonization, digitalization, and automation (Transport 2040: Automation, Technology, Employment-The Future of Work, 2019). Shipping, as we all know, has ceased to exist and has taken a transformative shift towards a greener, more efficient, and digitalized industry. With the emergence of green technologies such as alternative fuels, wind power systems, and scrubber systems, coupled with the rise of the Maritime Autonomous Surface Ships (MASS), Internet of Things (IoT), cloud computing, and digital twin technology, it had caused a fundamental shift on all aspects of all stakeholders in the maritime industry (Stefani, Apicella, 2022). With the changes trickling down from the top level of the industry, such as the regulatory bodies and shipping companies, all the way down to the primary workforce unit of the shipping industry, the seafarers, a people-centered approach, otherwise known as "just transition" should be implemented to ensure that all stakeholders are moving towards the same goal of decarbonization and efficiency at the same pace (ICS and others, 2022). Such measures are very critical for the attainment of goals set forth by the International Maritime Organization since a small change at the top of the industry chain will snowball toward a significant change at the bottom (Kitada and others, 2024). Therefore, capacity development of seafarers is a must to bridge the skills gap brought forth by the emergence of new trends and technologies in the maritime industry (Amit and others, 2021). The magnitude of the impact of these developments on the future of the seafaring profession can be further supported by staggering numbers, such as the need for 800,000 seafarers to be retrained as a result of the changes brought forth by the net-zero carbon target by 2050 (Kaspersen and others, 2022) magnified by the shift in the core competencies and skills needed in the age of digitalization and automation as well as the disruptions in future career paths from offshore to shore (Transport 2040: Impact of Technology on Seafarers- The Future of Work, 2023).

In order to remedy such challenges, the Maritime Education and Training (MET) plays a critical role in the bridging of those gaps as well as in the preparation of the maritime workforce for any future trends that may arise in the industry (Borda de Água and others, 2020). In response, there are already quite a number of initiatives and recommendations that aim to resolve such challenges. One specific example is the overhauling of the MET wherein the maritime higher education institutions (MHEIs) will focus on general knowledge, understanding, and proficiency (KUPs) to lay out a solid foundation of critical thinking and soft skills while the training institutions together with the shipping operators will be tasked on the specific training needed for the actual work designation of seafarers (DNV, 2023). Stefani and Apicella (2022), together with Demirel (2020) focused on the development of soft skills in addition to hard skills, emphasizing the use of an integrated approach in the education and training of seafarers. The utilization of new educational technologies such as simulators, augmented and virtual reality, and computer systems was also exhausted in the delivery of education and training (Bhardwaj, 2023). However, the lack of motivation by seafarers to fully inculcate the concept of decarbonization and efficiency in their shipboard work and routine has been observed despite the significant awareness of such regulations and ideologies. This is due to the lack of external factors such as financial motivators or incentives by appraisal or career promotion (Dewan, Godina, 2024). However, there are stronger motivation factors aside from external sources that can effectively raise and change the paradigm of seafarers in the importance of considering sustainability in their everyday work, and that is through internal motivation. This includes a fundamental shift in the mindset of the seafarers and the development of "moral responsibility" that it is their duty to perform their work in a manner where environmental impacts and maximum efficiency are considered (Dewan, Godina, 2023).

A developing trend in the curriculum development of educational institutions all around the world is the inculcation of Global Citizenship Education (GCED) into the formal and informal education medium (Alvero, 2023). The GCED was first initiated in 2012 by the United Nations (UN) with the main objective of empowering students to participate and be part of the solution of global challenges. This further evolved into the GCED it is known today by the development of the 2015 United Nations Sustainable Development Goals (USDG) (UNESCO, n.d.). GCED has now developed into an education framework where learning objectives towards the attainment of the 17 USDGs, cover all levels of education from primary to higher education and utilize all means of learning from formal to informal and through various methods of implementation from curriculum integration to extracurricular activities (UNESCO, 2014). The integration of the GCED framework in the existing MET curriculum has the potential to address the problem of internal

motivation cultivation among seafarers in the effective practice of sustainability and efficiency in the shipboard duties and responsibilities.

This study explores the integration of the GCED framework into the MET through the development of an elective course in the MHEIs (UNESCO, 2017). The GCED framework was developed on top of the STCW Code and the Global Maritime Professional -Book of Knowledge (GMP-BoK) framework to develop a resilient and relevant elective course. This will serve as the initial steps towards the curriculum integration of GCED into the MET, since the development of the elective course is one of the low-hanging fruits towards the path of complete integration (Benavot, 2021). This study specifically covers the MET curriculum in the BS Marine Engineering Program for Table A-III/1 of the STCW Code, which is for the Officer-In-Charge of the Engineering Watch (OIC-EW) as utilized in the curriculum of the Philippines. This specification is due to the diversity of the curriculum being implemented across different countries and the different local contexts on which the GCED framework will be based.

This study aims to develop an elective course for the initial integration of the GCED framework in the BS Marine Engineering program. To attain such an objective, the following specific objectives should be met:

- Triumviration of the GCED Framework with the STCW Code and the GMP-BoK framework
- Development of the learning outcomes based on the cross-mapping of the GCED-STCW-GMP framework.
- Development of the topics, teaching-learning activities, and the assessment per learning objectives, including the teaching-learning materials that will be used.
- Development of the course package that will guide instructors in the delivery of the elective course

2 METHODOLOGY

The research methodology employs a qualitative approach using exploratory methods, specifically document analysis in assessing the GCED framework and theory triangulation with cross-referencing of the GCED-STCW-GMP framework. The cross-referencing of the GCED framework with the course specialization framework, particularly the one applicable to that specific industry, ensures that the GCED is being used in a way that is relevant and practical for a particular program (UNESCO, 2017). First, the STCW KUPs are mapped out for the OIC-EW program, which is in compliance with the curriculum used in the Philippines (CHED, 2022). This curriculum utilized table A-III/1 of the STCW with some management KUPs needed for the underpinning knowledge such as mechanics and thermodynamics. A cross-mapping was performed with the GMP-BoK across the three learning domains, connecting the relevant intended learning outcomes (ILOs) to the STCW KUPs (Bayotas, 2023). Lastly, to complete the triangulation, the STCW-GMP cross-map was integrated with a GCED framework connecting the relevant learning outcomes (LOs) from relevant USDG across the three learning domains: cognitive, affective, and psychomotor. Once the three coordinates were established, the development of the learning outcomes based on the convergent STCW KUPs, BoK ILOs, and GCED LOs was done using the three coordinates as the criteria for development. The developed learning outcomes were then utilized in the development of the elective course utilizing an outcome-based approach coupled with an adult learning education (ALE) approach (Nikolitsa-Winter and others, 2019).

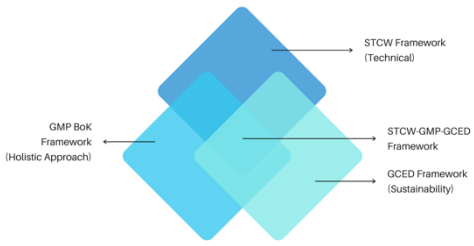

Fig. 1 Concept behind the triangulation of STCW-GMP-GCED framework. Source: Author

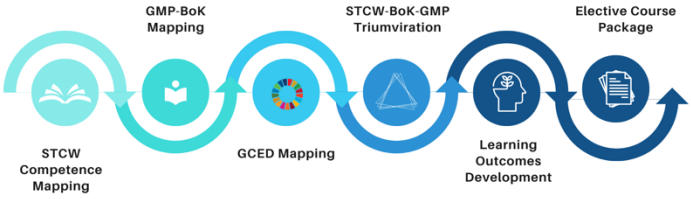

Fig. 2 Process leading to the development of the Global Maritime Citizen Program Elective Course. Source: Author

Figures 1 and 2 show the concept and the process behind the development of the Global Maritime Citizen Program elective course. However, the elective course was limited to five SDGs, which are the most relevant and pressing issues in the maritime industry today and in the near future (Nhleko, 2022) which are the following:

- Just Transition for Seafarers (SDG 8: Decent Work and Economic Growth)
- Women Empowerment in Seafaring (SDG 5: Gender Equality)
- Employment Opportunity (SDG 10: Reduced Inequalities)
- Green Seafaring (SDG 13: Climate Action)
- Mental Health at Sea (SDG 3: Good Health and Well-Being)

3 RESULTS AND DISCUSSION

3.1 GCED Integration into MET: Rationale

Due to increasing globalization, there has been an increase in research studies regarding the incorporation of GCED into the education curriculum, especially in environmental sustainability, diversity, and human rights (Yemeni et al., 2019). GCED is not limited to individual competencies and skills but the macro picture. It is not only focused on a special branch of study but on the complexity of the global relationship. Lastly, it is not concerned only with acquiring the necessary knowledge but with the ethical and moral use of such. GCED is the tool for the attainment of the SDG 4.7 of the UNSDG which is education towards sustainable development. Critical learning forms the core of the integrative and holistic learning approach of GCED (Wintersteiner, Grobbauer, 2019). GCED is founded on a life-long learning approach, which is being delivered not only in a formal educational setting but also supplemented with informal means of education. There are several ways to implement GCED, from being integrated into an existing subject or course, as a separate course/ subject, to extra-curricular activities and projects (UNESCO, 2014). Thus, GCED has been sculptured with the ALE approach in mind (Nikolitsa-Winter and others, 2019). Another way of integrating GCED is using online/ virtual interaction through teleconferencing applications where students can interact with other students coming from different cultural, social, and geographic backgrounds, which will lead to critical global awareness or learning from differences. This will lead to students not being complacent with their prior knowledge and being open to new learnings that might reinvent their prior knowledge (Helm and others, 2023).

The integration of GCED globally is not yet mainstream, with a significant number of countries either not yet aware of such a concept or in the initial stages of implementation. There are countries that have already

affirmed and developed the concept of the GCED (position 1); some only recognize the concept (position 2), and most ignore the concept of GCED (position 3). Developed countries usually belong to position 1, and developing countries usually belong to position 3 (Cox, 2017). Especially in MET, despite trends towards decarbonization (Nhleko, 2022).

The GCED framework was designed to be utilized in a universal way with no preferred level of education or field of specialization. The level of the learning outcomes that must be extracted from the framework will be based on the level of education of the students and should be taken considering the context from a global to a local perspective. The framework only serves as a complementary guideline in the reinforcement of the curriculum, which needs to be updated regularly based on the current issues and landscape of the particular industry experiences (UNESCO, 2017). Effective implementation of GCED into a curriculum requires revising the curriculum itself, putting emphasis on the holistic development of the learner across cognitive, affective, and psychomotor domains (Alvero, 2023). MET curriculum could evolve from static to dynamic with the incorporation of GCED aided with the help of cooperation and communication from other stakeholders to determine the current and future needs. METIs should consider these current and future needs in the preparation of the future maritime workforce (Demirel, 2020), which will require more and new competence (Amit and others, 2021).

MET, generally, is not yet well-versed with SDGs, and the curriculum is not significantly in line with the SDGs. SDGs should be incorporated into the MET because it is an integral tool in shaping the mindset and attitude of future seafarers, which could be a catalyst in the attainment of the industry goals towards decarbonization and efficiency (Mkpandiok, Ukpai, 2017). GCED will support the development of a mindset towards sustainability (Ozdemir and others, 2023), which is being mindful of the environmental impacts of the ship's operation (Stefani, Apicella, 2022) (Thanapolou and others, 2022) since climate change education is an integral part of GCED (APCEIU, 2021). GCED will also initiate the phenomenon of double-loop learning among seafarers, where the established mindset and knowledge are still being evaluated based on current facts and data and can be modified accordingly. Preparation for decarbonization and digitalization requires critical thinking, continuous adaptation, and improvement in attitude and knowledge, which GCED provides. These are also the same factors that spell the effectivity of seafarers towards energy-efficient operations in which education and training are critical drivers (Dewan, Godina, 2024). This changes the nature of MET from being a vocational-dominant program to a program more academic in nature (Borde de Água and others, 2020). This is supported by Manuel (2016) and Boguslawski and others (2021), who stated that such transformation is needed in MET to also expand the future career paths of seafarers in preparation for the displacement caused by automation and artificial intelligence (AI), thereby making them futureproof.

GCED is recommended to be fully implemented in MHEIs (tertiary level) due to the complexity of its nature and the global scale of its application and scope. In addition, it has been found that younger seafarers are less knowledgeable and aware of the environmental impact of decarbonization and efficient operations. Gender disparity also occurs with young women seafarers having less awareness and knowledge. Thus, the implementation of GCED at the tertiary level can remedy such gaps and can serve as an equalizer in gender inequality. It has also been established that in default, seafarers have a high interest in acquiring the necessary knowledge and skills to support decarbonization and efficient operation. However, a lack of comprehensive training and motivation occurs (Dewan, Godina, 2024) (Dewan, Godina, 2023).

The implementation of GCED in MHEIs presents challenges, including a higher workload for instructors, increased preparation, more training for the instructors, and additional work in project preparations. However, this can be resolved by adopting flexibility in the implementation of the GCED in the curriculum (Müller, 2022). The incorporation of GCED into the MET can be made with ease using the GMP-BoK, particularly KSA no. 25 (environmental awareness, sustainability & stewardship) (Kitada and others, 2024). For a more effective implementation, it should go beyond the integration of a singular subject or course rather than overhauling the curriculum towards a transformative and transdisciplinary approach, especially for environmental sustainability. It should also be an institutional effort in order to foster student engagement that will stir them towards the habit and practice of exercising the principles of SDG in their future profession (European Union, 2021).

In line with the rationale stated above, the first step in fully integrating the GCED framework into the MET

curriculum is introducing low-hanging fruit, which entails a simpler structure and a more plug-and-play nature. This is through the introduction of elective courses. However, to ensure that such an elective course is relevant to the maritime industry, the GCED framework will be mapped against the KUPs of the STCW and the ILOs of the GMP-BoK.

3.2 STCW-GMP-GCED Triumvirate

First, the levels of achievements are mapped out for an OIC-EW level (level A) with elements of level B in accordance with the curriculum being used in the Philippines. The knowledge, skills, and attitudes (KSAs) under the category of Professional—Soft Skills are the focused areas relevant to the GCED framework (Kitada and others, 2024). The levels of achievement across the three learning domains are shown in Tables 1 (cognitive), 2 (affective), and 3 (psychomotor).

Focus Areas	Remembering	Undestanding	Applying	Analyzing	Evaluating	Creating
Professional-Soft Elements						
18. Technological Awareness (Global)	A	A	A	B		
19. Leadership, Teamwork, and Discipline	A	A	A	B		
20. Effective (Interpersonal) Communication	A	A	A	B		
21. Sustainable Development	A	A	B			
22. Human Resource Management	A	A	B			
23. Cultural/ Diversity Awareness, Sustainability, and Stewardship	A	A	A			
24. Progressive Mindset and Lifelong Learning	A	A				
25. Environmental Awareness, Sustainability, and Stewardship	A	A	A			
26. Decision-Making and Proactivity	A	A	B	B		
27. Mentorship	A	A	B	B		
28. Professionalism and Ethical Responsibility	A	A	A	B		

Table 1 Level of achievement in cognitive domain. Source: Author

Focus Areas	Receive (Awareness)	Respond (React)	Value (Understand & Act)	Organize Personal Value System	Internalize Value System (Adopt0
Professional-Soft Elements					
18. Technological Awareness (Global)	A	A	A	B	B
19. Leadership, Teamwork, and Discipline	A	A	A	B	B
20. Effective (Interpersonal) Communication	A	A	A	B	B
21. Sustainable Development	A	A	B	B	B
22. Human Resource Management	A	A	A	B	B
23. Cultural/ Diversity Awareness, Sustainability, and Stewardship	A	A	A	B	B
24. Progressive Mindset and Lifelong Learning	A	A	A	B	B
25. Environmental Awareness, Sustainability, and Stewardship	A	A	A	A	B
26. Decision-Making and Proactivity	A	B	B	B	

27. Mentorship	A	A	B	B	B
28. Professionalism and Ethical Responsibility	A	A	A	B	B

Table 2 Level of achievement in the affective domain. Source: Author

Focus Areas	Perception (Awareness)	Set	Guided Response	Mechanism (Basic Proficiency)	Complex Overt Response (Expert)	Adaptation	Organization
Professional-Soft Elements							
18. Technological Awareness (Global)							
19. Leadership, Teamwork, and Discipline							
20. Effective (Interpersonal) Communication							
21. Sustainable Development							
22. Human Resource Management							
23. Cultural/ Diversity Awareness, Sustainability, and Stewardship							
24. Progressive Mindset and Lifelong Learning							
25. Environmental Awareness, Sustainability, and Stewardship							
26. Decision-Making and Proactivity							
27. Mentorship							
28. Professionalism and Ethical Responsibility							

Table 3 Level of achievement in the psychomotor domain. Source: Author

It is noteworthy that the GMP-BoK only covers the level of achievement for A and B in two learning domains: cognitive and affective. The psychomotor domain of such skills is expected to be demonstrated. after the academic program and into the actual working environment as a professional. The BoK is only concerned with developing the attitude as well as the knowledge needed to prepare students to apply such skills in the actual working environment. After the levels of achievement have been mapped. The ILOs can therefore be determined for the two learning domains as shown in tables 4 and 5.

Focus Areas	Remembering	Undestanding	Applying	Analyzing	Evaluating	Creating
Professional-Soft Elements						
21. Sustainable Development	**Define** sustainable development as a concept and **describe** its underpinning values and areas of relevance in the maritime domain.	**Explain** the evolution of the concept of sustainable development including any areas of contention and **discuss** the importance of the concept	**Execute** sustainable development plans in a controlled/ closed maritime environment			

23. Cultural/ Diversity Awareness, Sustainability, and Stewardship	**Describe** cultural/ diversity awareness & sensitivity. **State** the relevance of such awareness and sensitivity for GMP performance	**Distinguish** between different factors that influence diversity awareness and sensitivity and **explain** how they may affect maritime operations using specific cases	**Demonstrate** the ability to work in a multicultural environment and **show** optimum awareness and sensitivity to diversity in specific contexts			
25. Environmental Awareness, Sustainability, and Stewardship	**Describe** the notion of environmental awareness, sustainability, and stewardship	**Clarify** the responsibility of the GMP in respect of environment sustainability and stewardship and **explain** global efforts/ activities for environmental stewardship in particular in the maritime industry	**Demonstrate** environmental awareness and stewardship in simulated or real scenarios and **use** relevant equipment for environment preservation in compliance with all relevant legal instruments			

Table 4 ILOs for the cognitive domain of selected KSAs. Source: Author

Focus Areas	Receive (Awareness)	Respond (React)	Value (Understand & Act)	Organize Personal Value System	Internalize Value System (Adopt0
Professional-Soft Elements					
21. Sustainable Development	**Name** the UN's Sustainable Development Goals (SDGs) and **point** to the maritime sector's responsibility to participate in achieving them	**Conform** own actions to the achievement of the sustainable development goals and **volunteer** for initiatives for their achievement in the maritime context	**Justify** the adoption of sustainable practices in the maritime field	**Identify** unsustainable practices and values in self and other and **modify** own behavior for more sustainable outcomes	**Discriminate** between different motives for sustainable development and **influence** a professional commitment to sustainable development values in others
23. Cultural/ Diversity Awareness, Sustainability, and Stewardship	**Recognize** the existence of diversity in the maritime industry	**Discuss** the importance of cultural awareness and diversity in the maritime field	**Demonstrate** cultural awareness and **show** sensitivity and respect towards individual and cultural differences while **valuing** diversity	**Identify** the challenges associated with a multicultural atmosphere and the advantages of workspace diversity	**Balance** respect of societal culture with the professional culture required in the maritime industry and **influence** the continuing development of this professional culture while maintaining respect for diversity
25. Environmental Awareness, Sustainability, and Stewardship	**Recognize** the importance of environmental awareness, sustainability, and stewardship as related to the maritime industry	**Conform** to established environmental and sustainability standards/ procedures in the maritime industry	**Demonstrate** a genuine appreciation for the environment and sustainable development with relation to the maritime industry	**Prioritize** environmental management and sustainable development	**Display** a professional commitment to environmental management and sustainable development and influence others

Table 5 ILOs for the affective domain of selected KSAs. Source: Author

Once the ILOs for the learning domains based on the level of achievement have been determined, the STCW KUPs will be mapped based on the curriculum issued by the administration. Table 6 shows the relevant KUPs plotted against the courses being delivered in the BS Marine Engineering program. It can be observed that the elements of GCED can be dominantly found in function 4 of the STCW table, while in the BoK, the relevant elements are under the Professional- Soft Elements category.

Competence	Code	Knowledge, Understanding, and Proficiency	SHIPCON	MARLAW	MGMT	ROBOT	COMPRE	SHIPPING BUSINESS	
Function 4: Controlling the operation of the ship and care for persons onboard at the operational level									
	Prevention of the pollution of the marine environment								
Ensure the compliance with the pollution prevention requirements	4.1.1	Knowledge of the precautions to be taken to prevent pollution of the marine environment							
	4.1.2	Anti-pollution procedures and all associated equipment							
	4.1.3	Importance of proactive measures to protect the marine environment							
Monitor compliance with legislative requirements	4.6.1	Basic working knowledge of the relevant IMO conventions concerning safety of life at sea, security, and protection of the marine environment							

Table 6 STCW KUPs mapping. Source: Author

Lastly, the STCW and BoK mappings were cross-mapped with the GCED framework, leading to the development of a triumvirate mapping, as shown in Table 7. The formed matrix served as the basis for the crafting of the relevant learning outcomes for the development of the elective course package. This matrix can also be used in the full integration of the GCED in the MET curriculum since the matrix provides the criteria needed to satisfy the three frameworks, ensuring a technical, interdisciplinary, and sustainability component of the developed learning outcomes. The convergence of the three coordinates generated possible learning outcomes. These learning outcomes were still simplified by merging related outcomes, deleting redundant outcomes, and integrating lower-level outcomes into the highest-level outcome available. The final list of learning outcomes were then used in the development of the elective course.

BoK ILO	Prevention of the Pollution of the Marine Environment: Knowledge of the Precautions to be Taken to Prevent Pollution of the Marine Environment				
Cognitive Domain					
Define sustainable development as a concept and describe its underpinning values and areas of relevance in the maritime domain.					
Explain the evolution of the concept of sustainable development including any areas of contention and discuss the importance of the concept					
Describe the notion of environmental awareness, sustainability, and stewardship					
Clarify the responsibility of the GMP in respect of environment sustainability and stewardship and explain global efforts/ activities for environmental stewardship in particular in the maritime industry					

List the professional and ethical responsibilities of GMP					
Affective Domain					
Name the UN's Sustainable Development Goals (SDGs) and point to the maritime sector's responsibility to participate in achieving them					
Conform own actions to the achievement of the sustainable development goals and volunteer for initiatives for their achievement in the maritime context					
Justify the adoption of sustainable practices in the maritime field					
Identify unsustainable practices and values in self and other and modify own behavior for more sustainable outcomes					
Recognize the importance of environmental awareness, sustainability, and stewardship as related to the maritime industry					
Conform to established environmental and sustainability standards/ procedures in the maritime industry					
Demonstrate a genuine appreciation for the environment and sustainable development with relation to the maritime industry					
	The learner knows the basic premise of climate change and the role of the oceans in moderating our climate. The learner is able to show people the impact humanity is having on oceans and the value of clean and healthy oceans.	The learner understands the threats to ocean systems, such as pollution, and can explain the relative fragility of ocean ecosystems.	The learner is aware of opportunities for the sustainable use of marine resources and is able to debate sustainable methods of using the ocean and marine resources.	The learner knows which human activities- on a global, national, local, and individual level contribute most to climate change. The learner is able to collaborate with others and develop strategies to combat climate change.	The learner knows the main ecological, social, cultural, and economic consequences of climate change at all levels and how these factors can catalyze themselves. The learner is able to understand his/he personal impact on the world's climate

Table 7 STCW-BoK-GCED triumvirate mapping. Source: Author

3.3 Global Maritime Citizen Program Elective Course Development

Once the learning outcomes have been determined from the triumvirate of the STCW-BoK-GCED, the elective course can then be developed with the guidelines set forth by the GCED framework for elective course development (UNESCO, 2014). This also employs an outcome-based approach with dynamic teaching-learning activities and with a legacy project activity at the end of the course. The legacy project is the most important part of the course as it will transform the learnings of the students from the four corners of the classroom towards application in the real world. The legacy project enables the students to choose which among the SDGs they want to help attain by formulating a project geared towards the community or the industry that is within their capabilities. The instructor's role in the execution of such is only limited from a mentor's standpoint, who only provides guidance and assistance in the completion of the chosen project. The primary measure of the success of the project relies on the positive change or impact the project has contributed to the industry or community. Table 8 shows the course information of the elective course and Table 9 shows one learning outcome addressing SDG 8: Decent Work and Economic Growth. LO 1.1

also includes the introduction to GCED along with the 17 UNSDGs. The whole course has two main outcomes, the first one is concerned with the development of the cognitive and affective domain towards the five SDGs, while the second outcome deals with the application of the developed affective and cognitive learning with the coupling of the psychomotor domain which entails the students to develop and implement a legacy project that would impact the community or industry in a positive and simple way. The teaching-learning activity also follows the guidelines wherein a myriad of interactive activities are designed to foster the engagement of the students while ensuring that the learning outcomes are established. The teaching-learning activities, as well as the teaching materials and equipment, enable the delivery of the course in a flexible manner: face-to-face class, online class, or even hybrid set-up.

.Course Code	E101/ D101
Course Descriptive Title	Global Citizenship Education for Maritime Students
Description and Coverage	Global Citizenship Education for Maritime Students is an elective course which aims to integrate the GCED values and principle to future merchant marine officers. The primary goal of this elective course is to transform global maritime professionals into global maritime citizens by making them aware, critic, and apply the 17 SDGs (Sustainable Development Goals) towards the current and prominent issues that the maritime industry is facing today. This will be a weekend elective course that will discuss five important issues in the maritime industry namely just transition, gender equality in seafaring, green seafaring, equal job opportunities to all, and mental health at sea. This course is primarily divided to three stages: awareness, reflection, and application. A legacy project is expected to be accomplished at the end of the course.
Course Outcomes	CO1: Examine relevant issues in the maritime industry by incorporating the principles of GCED CO2: Develop a legacy project which shows the application of the GCED principles towards relevant issues in the maritime industry
References	**References:** **R1:** Belcher, P., Belcher, P., International Labour Office, Sampson, H., Seafarers International Research Centre, Thomas, M., Zhao, M., & Veiga, J. (2003). *Women seafarers: Global employment policies and practices*. International Labour Organization. **R2:** Gaudelli, W. (2016). *Global citizenship education: Everyday transcendence*. Routledge. **R3:** Great Britain: Maritime and Coastguard Agency. (n.d.). *Wellbeing at sea: A guide for organisations*. **Additional References:** ● *Attack on seafarers a 'war crime' – Human rights at sea*. (2022, April 20). The Manila Times. https://www.manilatimes.net/2022/04/20/business/maritime/attack-on-seafarers-a-war-crime-human-rights-at-sea/1840530

Facility and Equipment	● Multimedia Equipment
	● Whiteboard
	● Tablets and Laptops
	● Stationaries:
	  o Manila Paper
	  o Markers
	  o Scotch Tape
	● Teleconferencing Application (Zoom, Google Meet)

Table 8 Representative course information portion of the elective course package. Source: Author

Learning Outcomes	Topic	Teaching-Learning Activity (TLA)	Equipment, Materials and References
CO1: Examine relevant issues in the maritime industry by incorporating the principles of GCED			

LO 1.1:
 	
Examine relevant issues in the maritime industry by incorporating the principles of GCED
 	
"Just Transition for Seafarers" (SDG: Good Jobs and Economic Growth)
	Just Transition for Seafarers
	
	Introduction to GCED
	● What are the 17 Sustainable Development Goals developed by the UN?
	● What is the history and background of the development of the SDGs?
	● Which of the SDGs are relevant to the maritime industry and why?
		Teaching Activity- Learning Activity:
		
		● Introduction of Participants and Facilitators
		● Setting of Expectations
		● Icebreaker Activity: Group Game: No One's Left Behind-tasks where the primary objective is the completion of the challenges without leaving one of your group member's
			Equipment and Materials:
			
			● Multimedia Equipment
			● Whiteboard
			● Tablets and Laptops
			● Stationaries:
			  ▪ Manila Paper
			  ▪ Markers
			  ▪ Scotch Tape
			● Teleconferencing Application (Zoom,

Learning Outcomes	Topic	Teaching-Learning Activity (TLA)	Equipment, Materials and References
	● What is GCED? Just Transition for Seafarers ● What is Just Transition? ● What is the reason behind the Just Transition Movement? ● Which of the SDGs is the Just Transition movement fall under and why? ● What are the different developments in the field of seafaring in recent years? ● What are the advantages and disadvantages of these developments?	behind ● Speaker's Talk ● Question and Answer Portion ● Activity #1: Develop a manifesto for advocating Just Transition for Seafarers and present your manifesto to your fellow participants ● Recap of the Discussion and Learning ● Posting of reflections and learnings to the GMC Mural Wall	Google Meet) ● Microphone **References:** ● **R1** ● **R2** ● **R3**

Table 9 Representative course outcome, learning. Source: Author

4 CONCLUSION

Based on the results and discussion, it is concluded that the triumvirate of the GCED Framework, along with the STCW Code and GMP BoK, was developed due to the converging themes of the three frameworks. Function 4 of the STCW Code Table A-III/1 contains competencies and KUPs geared towards the protection of the marine environment and sustainable marine practice, while the category professional-soft skills of the GMP-BoK contains KSAs also geared towards environmental protection, sustainability, and diversity. This learning objective from the two mentioned frameworks converged perfectly with the GCED framework, especially with the learning outcomes of SDGs 3,5,8,10,13. With the cross-mapping and triangulation of the three frameworks which served as the coordinates of the matrix, a set of criteria considering all three frameworks are developed, ensuring that the learning outcomes developed contain the technical element of the STCW, the holistic approach of the BoK, and the moral, social, ethical, and environmental responsibility of the GCED framework. The development of the learning outcomes using the matrix further includes the merging of related LOs, deletion of redundant ones, and the incorporation of the lower and higher level LOs, leading to the same outcome. This will lead to the development of the elective course package guided by the guidelines set forth by the UNESCO framework. This contains the topics, relevant teaching-learning activities as well as the learning materials needed in the fulfilment of the learning outcomes. Lastly, the integration of the aforementioned part with the course information formed the totality of the course package, which can be utilized by the instructors in the delivery of the elective course.

For future recommendation, this study only includes the initial step by tackling the low hanging fruits in the introduction of GCED in the MET curriculum by the introduction of GCED as a separate course. In order to have a more transformative and interdisciplinary approach in the incorporation of GCED, a full integration approach is needed which will entail the revision and overhauling of the curriculum. Thus, further studies leading to the full integration of the GCED framework into the MET curriculum are needed.

5 REFERENCES

Asia-Pacific Centre of Education for International Understanding, & Office for Climate Education. *Expert meeting for integrating global citizenship education and climate change education*.[online]. APCEIU-OCE, 2021 [Accessed: 01 March 2024]. Available at: https://www.oce.global/en/news/expert-meeting-integrating-climate-change-education-and-global-citizenship-education .

Banavot, A. *Feasibility study on monitoring global citizenship competence in the Asia-Pacific region*. [online]. APCEIU, 2021 [Accessed: 02 March 2024]. Available at: https://www.unescoapceiu.org/post/4084?ckattempt=1 .

Bayotas, MT. BoK- STCW-TRB triumvirate course mapping for learning outcome matrix of BS Marine Engineering program. *Proceedings of the International Association of Maritime Universities Conference* [online]. 2023 [Accessed: 04 March 2024]. Available at: https://iamu-edu.org/aga/ .

Bhardwaj, S. Skilling the maritime sector in the world of digitalization. *IIRE Journal of Maritime Research and Development* [online]. 2023, vol. 7, no. 2 [Accessed: 05 March 2024]. Available at: https://ojsiire.com/index.php/IJMRD/article/view/252/119 .

Bogusławski, K; Gil, M; Nasur, J; Wróbel, K. Implications of autonomous shipping for maritime education and training: The cadet's perspective. *Maritime Economics & Logistics* [online]. 2022, vol. *24,* no. 2, p. 327-343 [Accessed: 05 March 2024]. Available at: https://doi.org/10.1057/s41278-022-00217-x .

Commission on Higher Education, Republic of the Philippines.. *Revised Policies, Standards and Guidelines for the Bachelor of Science in Marine Transportation and Bachelor of Science in Marine Engineering Programs (JCMMC 01 s. 2022)* [online]. Philippines: CHED-MARINA, 2022. [Available at: https://stcw.marina.gov.ph/wp-content/uploads/2016/02/JCMMC-No.-01-series-of-2022.pdf.

Cox, C. Global citizenship concepts in curriculum guidelines of 10 countries: Comparative analysis. *In-Progress Reflections no. 9 on Current and Critical Issues in Curriculum, Learning, and Assessment* [online] 2017.[Accessed: 06 March 2024]. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000247788 .

De Água, PM; Da Silva Frias, AD; Carrasqueira, MD; Daniel, JM. Future of maritime education and training. *Pomorstvo* [online]. 2020, vol. 34, no. 2, p. 345-353 [Accessed: 06 March 2024]. Available at: https://doi.org/10.31217/p.34.2.15 .

Demirel, E. Maritime education and training in the Digital Era. *Universal Journal of Educational Research* [online]. 2020, vol. 8, no. 9, p. 4129-4142 [Accessed: 06 March 2024]. Available at: https://doi.org/10.13189/ujer.2020.080939 .

Det Norske Veritas. *The future of seafarers 2030: A decade of transformation* [online]. DNV, 2023 [Accessed: 07 March 2024]. Available at: https://www.dnv.com/maritime/publications/the-future-of-seafarers-2030-a-decade-of-transformation.html .

Dewan, MH; Godina, R. Effective training of seafarers on energy efficient operations of ships in the maritime industry. *Procedia Computer Science* [online]. 2023, no. 217, p. 1688-1698 [Accessed: 07 March 2024]. Available at: https://doi.org/10.1016/j.procs.2022.12.369 .

Dewan, MH; Godina, R. An overview of seafarers' engagement and training on energy efficient operation of ships. *Marine Policy* [online]. 2024, vol. 160, no. 105980. [Accessed: 07 March 2024]. Available at: https://doi.org/10.1016/j.marpol.2023.105980 .

Dewan, M. H., & Godina, R. Unveiling seafarers' awareness and knowledge on energy-efficient and low-carbon shipping: A decade of IMO regulation enforcement. *Marine Policy* [online]. 2024, vol. *161*, no. 106037 [Accessed: 07 March 2024]. Available at: https://doi.org/10.1016/j.marpol.2024.106037 .

European Union. *Education for environmental sustainability: policies and approaches in European Union member states* [online]. EU, 2021 [Accessed: 08 March 2024]. Available at: https://op.europa.eu/en/publication-detail/-/publication/a193e445-71c6-11ec-9136-01aa75ed71a1 .

Helm, F; Baroni, A. Global citizenship online in higher education. *Educational Research for Policy and Practice* [online]. 2024, no. 23, p. 1-18 [Accessed: 08 March 2024]. Available at: https://doi.org/10.1007/s10671-023-09351-6 .

International Chamber of Shipping; International Transport Worker's Federation; United Nations Global Compact. *Mapping a maritime just transition for seafarers: position paper*. [online].2022.[Accessed: 12 April 2024]. Available at: https://www.ics-shipping.org/wp-content/uploads/2022/11/Position-Paper-

Mapping-a-Maritime-Just-Transition-for-Seafarers-%E2%80%93-Maritime-Just-Transition-Task-Force-2022-OFFICIAL.pdf.

Kaspersen, RA; Karlsen, HO; Helgesen, H; Giskegjerde, G; Krugerud, CL; Hoffman, PN. *Insights into Seafarer Training and Skills Needed to Support a Decarbonized Shipping Industry* (2022-0814) [online]. Det Norske Veritas, 2022 [Accessed: 09 March 2024]. Available at: https://www.ics-shipping.org/wp-content/uploads/2022/11/LINK-2-document-DNV-Report-Insights-into-Seafarer-Training-and-Skills-for-Decarbonized-Shipping-Nov-2022.pdf .

Kitada, M; Schönborn, A; Bartuseviciene, I; Chkhikvadze, B. People-centred clean energy transition: the role of maritime education and training. *Proceedings of the International Association of Maritime Universities Conference* [online]. 2024 [Accessedt: 01 March 2024]. Available at: https://www.researchgate.net/publication/377466978_People-Centred_Clean_Energy_Transition_The_Role_of_Maritime_Education_and_Training#fullTextFileContent .

Alvero, JC. (2023). Integration of global citizenship competencies in general education courses in a higher education institution in Laguna, Philippines: Basis for curriculum innovation. *Education & Learning in Developing Nations* [online]. 2023, vol. 1, no. 1, p. 112-119 [Accessed: 02 March 2024]. Available at: https://doi.org/10.26480/eldn.02.2023.112.119 .

Manuel, ME. Vocational and academic approaches to maritime education and training (MET): Trends, challenges and opportunities. *WMU Journal of Maritime Affairs* [online]. 2017, vol. 16, no. 3, p. 473-483 [Accessed: 10 March 2024]. Available at: https://doi.org/10.1007/s13437-017-0130-3 .

Mkpandiok, A; Ukpai, UE. Managing maritime education and training for the attainment of sustainable development goals in Nigeria. *World Educator's Forum* [online]. 2017, vol. 9, no. 1 [Accessed: 09 March 2024]. Available at: https://www.globalacademicgroup.com/journals/world%20educators%20forum/Arit%20Mkpandiok.pdf.

Müller, LF. *Student teachers' perspectives on ESD in two cases in Bayern and Baden-Württemberg* [online]. 2022 [Accessed: 10 March 2024]. Available at: https://skemman.is/bitstream/1946/42396/4/Lea%20M%C3%BCller_FinalSubmission_20.05.22.pdf .

Nhleko, Y. *Integrating a sustainability curriculum within the maritime education: case study of a South African university*. [online]. Dissertations, World Maritime University, Sweden, 2022. [Accessed: 12 April 2024]. Available at: https://commons.wmu.se/cgi/viewcontent.cgi?article=3079&context=all_dissertations.

Nikolitsa-Winter, C.; Mauch, W; Maalouf, P. *Addressing global citizenship education in adult learning and education- summary report* [online]. UNESCO Institute for Lifelong Learning, 2019 [Accessed: 11 March 2024]. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000372425 .

Ozdemir, P; Sevim, A; Albayrak, T. Closing the gap between present and future through education: MINE-EMI project. *Case Studies on Transport Policy* [online]. 2023, vol. *11*, no. 100936 [Accessed: 27 February 2024]. Available at: https://doi.org/10.1016/j.cstp.2022.100936 .

Rieckmann, M. *Education for sustainable development goals: Learning objectives*. [online]. UNESCO Publishing, 2017. [Accessed: 12 April 2024]. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000247444.

Rowihil, MS. Sustainable development in maritime education and training: trends, challenges and the way forward. *Maritime Scientific Research* [online]. 2021 [Accessed: 20 February 2024]. Available at: https://strathprints.strath.ac.uk/77215/ .

Sharma, A; Kim, T; Nazir, S. Implications of automation and digitalization for maritime education and training. *Sustainability in the Maritime Domain* [online]. 2021, p. 223-233 [Accessed: 23 February 2024]. Available at: https://doi.org/10.1007/978-3-030-69325-1_11 .

Stefani, A; Apicella, L. A new educational model for marine 4.0 technologies [online]. 2022 [Accessed: 02 March 2024]. Available at: https://doi.org/10.24868/10724.

Thanopoulou, H. A; Tsioumas, V; Schinas, O; Papachristos, D. Sustainability and strategic directions in maritime education and training provision: An exploration of employers' perceptions. *Maritime Transport Conference* [online].2022 [Accessed: 04 March 2024]. Available at: https://doi.org/10.5821/mt.11001 .

Transport 2040: Automation, technology, employment- the future of work [online]. Sweden: World Maritime University, 2019 [Accessed: 01 March 2024]. Available at: http://dx.doi.org/10.21677/itf.20190104 .

Transport 2040: Impact of technology on seafarers- the future of work [online]. Sweden: World Maritime University, 2023 [Accessed: 01 March 2024]. Available at: http://dx.doi.org./10.21677/230613.

UNESCO. *Global citizenship education: Preparing learners for the challenges of the 21st century.* [online]. United Nations Educational, Scientific and Cultural Organization, 2014. [Accessed: 12 April 2024]. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000227729.

UNESCO. *Outcome of the document of the Technical Consultation on Global Citizenship Education- Global Citizenship Education: An emerging perpective* [online]. UNESCO, n.d. [Accessed: 04 March 2024]. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000224115.

Wintersteiner, W; Grobbauer, H. *Global citizenship education: Concepts, efforts, perspectives - an Austrian experience*. 2019. ISBN 9783950440850.

Yemini, M; Tibbitts, F; Goren, H. Trends and caveats: Review of literature on global citizenship education in teacher training. *Teaching and Teacher Education* [online], 2019, no. 77, p. 77-89 [Accessed: 08 March 2024]. Available at: https://doi.org/10.1016/j.tate.2018.09.014.