

IMO Session in Classroom: A Case in Experiential Learning

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Abstract: Modern maritime training formats have become student-centric and curriculum designs have evolved based on domain taxonomies and action verbs defining the learning objectives. Such instructional design formats must have scope for the pursuant to learn about the industry's regulators and stakeholders. An extracurricular activity was undertaken by the University to gain insight into the knowledge about International Maritime Organization. An experiential learning process was envisaged. In this exercise, the functioning of the IMO's Committees was recognized as the related knowledge and a model was framed to impart this knowledge. The model involved role plays and mock action-theatre ambience. The processes for tabling, discussing and adopting resolutions were taken as the learning objectives for the act. Student groups drawn from the University's campuses were arrayed to play the roles of stakeholders. External experts having experience in attending the actual IMO sessions acted as the mentors.

Student Groups went through the 'mock sessions' under a competitive format. The most impressive student groups were brought up to a final confluence, while maintaining the 'twinned' nature of the functioning of the IMO's Committees. The entire implementation was done through online modes but for the Campus groups being present in their stations physically. These groups followed the social distancing norms etc. Peers with previous experience who had been attendees at the IMO sittings and similar fora were invited to witness and judge the presentations. The winning teams were awarded prizes and certificates.

This paper presents the organic development of this experiential learning model. It is also proposed that this exercise could be extended to global/regional levels involving participation of Maritime Education and Training Institutes of other Member States. The winners can be rewarded with visits to the actual IMO sessions etc.

Keywords: maritime knowledge; IMO; peer experience; lifelong learning

1.0 Introduction

In the industry parlance, Maritime Education and Training (MET) is largely seen from the perspective of seagoing careers. The knowledge-evolution of the sea career was hence built with patterns of a vocational or trade fabric. The organic development stages were marked by technological developments such as the materials of construction (wood to steel), propulsion (sails to propellers) and powering (wind, steam, diesel engines) etc. With this evolution on ship safety, constructional standards etc., a necessity for structured training was also seen. The Industrial Revolution (IR 1.0) and the World War II could be the historical points of reference for the growth of maritime knowledge. The IR 1.0 brought the winds of change for swifter and enhanced maritime trade and the need for safety (*propter hoc* sinking of the Titanic, particularly) and standardization.

Post WW II, shipbuilding and trade flourished and the International Maritime Organization (IMO) was established. Safety, regularization and quality were the keywords and a plethora of Conventions followed. Never before was the necessity for structured learning felt as much in this phase of the 20th Century. A curriculum became imperative for the growing number of seafaring aspirants across the globe. Also, there were innovations of other forms of cargo carriage such as LASH (Lighter Aboard Ships), box ships etc. The container carriage stayed as a popular option and brought in the dimension of multi-modal transportation. With these, the shipping business and logistics underwent a sea change, and there was a need for structured learning in maritime management also.

1.1 Approaches to MET

Curriculum means ‘a path to run’, whereas the terminus could be the completion of a set of learning objectives. The means and materials for obtaining the objectives must be contained therein. The earlier training formats prevailed on curricula where preparing the aspirant for the sea was antecedent to the knowledge. The knowledge-skill set acquisition was supposed to attain substance on board. The continuum of the Standards of Training, Certification and Watchkeeping (STCW) reflects this treatment (of seafaring as a vocation). The [STCW \(1978\)](#) Convention, the concerted attempt to standardize MET in its current form, differentiates the training needs based on the on-board operational manpower resources, layered by responsibilities. It stands as a paradigm for indicating professional competencies based on support, operational and management levels. The competencies are compartmentalized under broad functional areas.

The IMO Model Courses reflect the Convention’s framework. The Model Courses carry the universal application of not only identifying the competency for the professional level but also help in identifying the assessment modes. The Model Courses cater to a range of short to long term, as also mainstream training programs. Though the Courses are developed by industry professionals and incorporate the objectives, the action verbs for many learning objectives had always been found wanting for better alignment from the aspect of the learning domains and in the process, Bloom’s Taxonomy has found favour.

Benjamin Bloom’s ([Bloom et al., 1956](#)) learning pyramid model was based on three domains, namely Cognitive, Psychomotor and Affective. After decades of experience, the taxonomical pyramid underwent a rearrangement of the levels to define the knowledge to be learned and the learning process ([Anderson and Krathwohl, 2001](#)). With the taxonomy, the learning objectives and the action verbs could be tabulated in the Instructional Design (ID) development. Furthermore, the assessment techniques also could be clearly recognized with the learning objectives.

ID formats based on the taxonomies and outcome based learning (OBL) with a student-centric approach rather than the traditional teacher-centric approach have emerged in MET also. The Global Maritime Professional Book of Knowledge (BoK) ([IAMU, 2019](#)) is one work in contention. The work comprehensively addresses the ID development from UG to PG levels based on the domains and appears suited to be applied for various disciplines under maritime learning. While employing the Bloom’s taxonomies for all the domains, the BoK uses the Simpson’s taxonomy ([Simpson, 1972](#)) for the psychomotor domain. It is justified that while Bloom’s levels range from ‘imitation/mimicking to automatization/naturalization’ of psychomotor domains, the Simpson’s taxonomy includes ‘perception, set, guided response mechanism, complex overt response, adaptation and origination’. Though the detailed teaching syllabi (DTS) would use the action verbs based on the domain-compartments, it can be seen that the domains will overlap. Table 1 includes the brief description of the domains.

Table 1. Domains in OBL Taxonomies. ([IAMU, 2019](#))

Cognitive	Knowledge development. Individual’s mental skills; understand, recollect ideas and concepts	Head
Psychomotor	Motor/physical skills development. Individual’s abilities to handle materials/objects with neuromuscular coordination Competency based MET curricula lay greater emphasize on these skills.	Hand
Affective	Emotional traits development. Individual’s learning outcomes covering issues related to feelings; actions guided by quality of character, conscience	Heart

1.2 Constructivism and OBL

In all these shifts, the philosophical change has been towards pragmatism, with employability as the driving purpose. The mushrooming of a number of specialization courses and the IDs focusing on upskilling and upgrading stand in evidence. With reference to context, it is apparent that the ID architecture under OBL

shifts the perspective from teacher to the learner.

In traditional objectivist approaches, the teacher developing the ID prioritizes and sequences the learning content to facilitate the learner (Jonassen, 1991; Ertmer and Newby, 1993). The learner's role is to assimilate the taught knowledge and be assessed on the extent of reflection. In the Constructivist approaches, the learner is required to construct his/her own knowledge rather than remaining outside of it (Ertmer and Newby, 1993; Vrasidas, 2000; Driscoll 2007). Obviously this approach will require real life problems, case based studies and reflections (Jonassen, 1991).

All these approaches can be experimented with in the Competency Based Education structure of MET. Significantly, the schema would reflect experiential learning on many facets. Amongst many, MET accommodates experienced professionals as teachers (with sea experience, shore industry experience etc.). The shore based regimen and practical training adumbrates the training on board (which is to follow). For a shore based career training, a similar parallel can be drawn, wherein an internship may be equated to the ship board training.

The merits of this student-centred learning would be Learner control (Wilson and Cole, 1991), Self-awareness in Knowledge construction (Honebein, 1996), Student autonomy and initiative (Brooks and Brooks, 1993) etc. John Dewey (Dewey, 1938), an early exponent of Constructivism, opined that practical, hands-on activity must be the centre of education and curriculum must be continually constructed through shared experience. The OBL curricula can be supported by bringing in experience from an extra-curricular dimension also.

For a University, refinement of learning processes must be a perennial endeavour. The survival of universities depends upon how good their services are and this would also set them apart from the rest in terms of quality (Aly and Akpovi, 2001; Kanji et al., 1999). The quality of a higher education institution (HEI) can be judged as perfect/exceptional or can be defined by fitness for purpose, value for money etc., (Harvey and Green, 1993). HEIs' quality might even depend on the perceptions of a stakeholder (Middlehurst, 1992) or measured by the degree of achievement of the set objectives (Vroeijenstijn, 1992). All these would depend on its continuous efforts in bringing the real life experience into the learning ambience. The activity of playing out the IMO Sessions can be termed as one such effort. The learning space was to be a HEI, the Indian Maritime University (hereafter the University; IMU) and its Campuses.

2.0 IMO Classroom Mimic Session: Matching the Learning Objectives

The BoK (IAMU, 2019) comprehensively identifies four skillsets for the Maritime Professional. 'Maritime Law, Policy and Governance' is one of the elements under Professional-Technical Skills. The crucial role of the IMO, though included in the syllabi, was seen as a candidate-topic for experiential learning exercise. Elements of these incorporated in the DTS of the Bachelor of Technology (Marine Engineering) Program were taken up to build the extracurricular learning method. The section covering the learning objectives about IMO, extracted from the DTS is shown in Figure 1.

The learning objectives of the main syllabi are disseminated through lecture mode. In an attempt to bring completeness to the learning on the functioning of the IMO, mock sessions of the sittings of the Organization were planned. The dissemination was creatively structured based on the actual conduct of such sessions, mentored, supported and judged by the industry personnel who had actually participated in them.

In this extended ambience, the learning objectives were also enhanced. In the format, the students had to act out the part of the participants (Member States: developed/man power supplying/oil exporting country; Flag of Convenience etc.), relying on the experience passed on by the experienced elders. The students were thus motivated into constructing their idea of the IMO. Furthermore, since the students were to structure the talking points and debate on the chosen topics, learning objectives under the Affective domain were also considered. This is depicted in Table 2.

It can be seen from Figure 1 and Table 2, the outcomes from the learning objective of understanding the functions of the IMO are defined with the action verbs. In the extended design, the IMO 'mock' sessions in the classroom were assumed to be the happenings or the phenomena that the students experience. Herein, the outcome was elevated to a level where the students were required to discuss and debate on issues affecting the maritime sector. The students had to necessarily internalize several aspects (though guided by the experienced mentors), reflect on conceptualizing ideas and present them in a coherent manner.

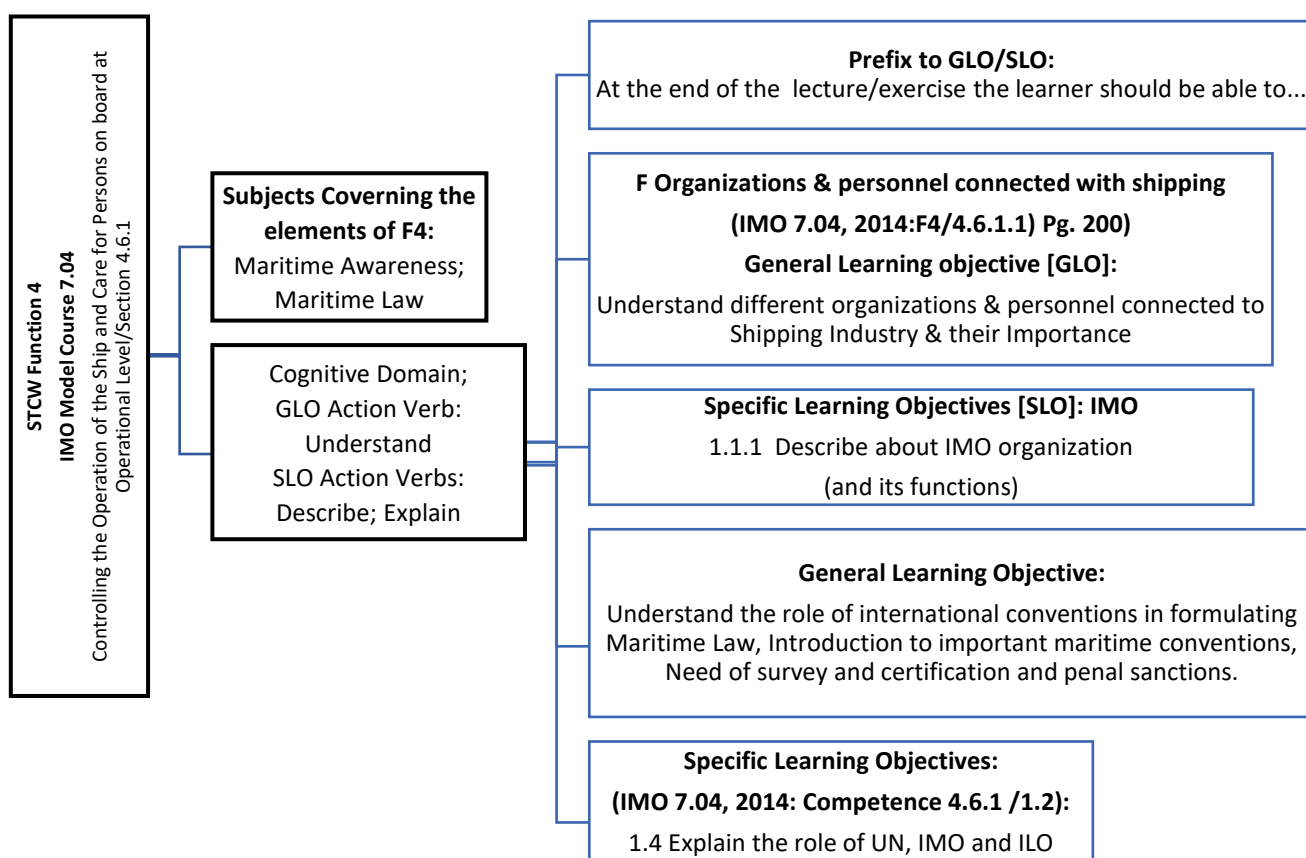


Figure 1. DTS Extract relevant to learning objectives on IMO.

Table 2. Obtainment of Learning Objectives on IMO.

Action Verb	Domain Level	Descriptor	Learning Objectives: Means/Processes
Describe	Cognitive		Lectures; Presentations
	Remember	Recall and test factual information	
	Understand	Paraphrase information or construct meaning from content	
	Evaluate	Examine/Judge the values of ideas	Guidance from Faculty; Industry Experts
	Affective		
Discuss	Receiving phenomena	Awareness, willing to hear, selected attention	Guidance from Faculty; Industry Experts
	Cognitive		
	Understand	Paraphrase information or construct meaning from content	IMO classroom sessions
	Affective		
	Receiving phenomena	Active participation of the learners; Participates in class discussions; gives presentations; questions new ideas, concepts etc.	
Note: Psychomotor domain descriptors for the Action Verbs not included, being non-relevant to the context.			

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With the pedagogic approach and learning objectives aligned, the exercise for the ‘mock’ or the mimicking of the IMO sessions was scheduled. Two topics were chosen for the exercise:

1. Human Element, Training and Watchkeeping (HTW): Development of Measures to ensure quality of On-board Training as a part of the mandatory seagoing service (required under the STCW Convention).
2. MARPOL: Amending the Annex V of MARPOL 73/78 so as to protect the Marine Ecosystems from vessel based (Marine) plastic litter.

2.1 IMO Classroom Sessions

The entire exercise from conceptualization to complete execution was done in a period of about 5 months. The University’s website and a portal were used for registration, announcements etc., during the progress. While experienced industry personnel volunteered for being the Guides for the teams, their field experience and expertise were taken into cognizance and lots were drawn to allocate them as Guides for various teams. The Teams were formed in the Campuses and their assigned roles were defined by certain attributes as shown in Table 3.

A Team comprised of 4 students. A total of 95 (MARPOL) and 53 (HTW) Teams registered for the exercise. Each team, being guided by the experienced industry personnel, then prepared the base papers in the formats available in the IMO website. At the stage of base paper submissions, the Campus teams had the option to see the works of other role players with similar topics but not the works of their own role play category [i.e., Team playing a ‘Developing Nation (A)’ can see the works of other role players B, C, D, E and F but not of any team under (A)]. This, while maintaining the competitive format, provided an insight into other viewpoints on the same topic. Another deliberated decision was to maintain the team names based on category role plays (Team A, Team B etc.) and not assign the name of any Member State/Country.

Table 3. Team Characteristics for Role plays.

Factors	Developing Nation (A)	Developing Nation (B)	Developed Nation (C)	Developed Nation (D)	FoC (E)	NGO (F)
Manpower	International Supplier	National Supplier	Limited Seafarers	Limited Seafarers	Large number of Seafarers; Little Training	Welfare Focus only
Tonnage	Limited	Large	Limited	Large	Large	NA
R & D	Limited	Large	Medium	Large	Limited	Strong
Trade	Medium	Large	Large	Large	Limited	NA
Legislation Implementation	Moderate	Limited	Very Strong	Strong	Moderate	NA

FoC: Flag of Convenience; NGO: Non-Governmental Organisation; R&D: Research & Development

The Judges evaluated the base papers and prepared the responses. A Secretariat, ably guided by an industry veteran who had attended the IMO Sessions on numerous occasions, helped with the evaluation, feedback for improvements and final publication of the papers. At these stages, several documents were referred to and in particular, the students were urged to peruse the MSC-MEPC.1/Circ.5/Rev.2 ([MSC-MEPC, 2020](#)) issued by the IMO. A total of 109 Base papers only were received, out of which 32 for HTW and 43 for MARPOL qualified.

After the initial rounds of mock sessions at intra campus level (within each of the 6 Campuses), the teams were advised to revise and update the papers prior to the inter campus level mock sessions. The winning papers were lined up for the final round. The Judges for all levels and for the final debates, included personnel with experience at IMO and from the Indian Maritime Administration. Figure 2 shows the flow of the exercise.

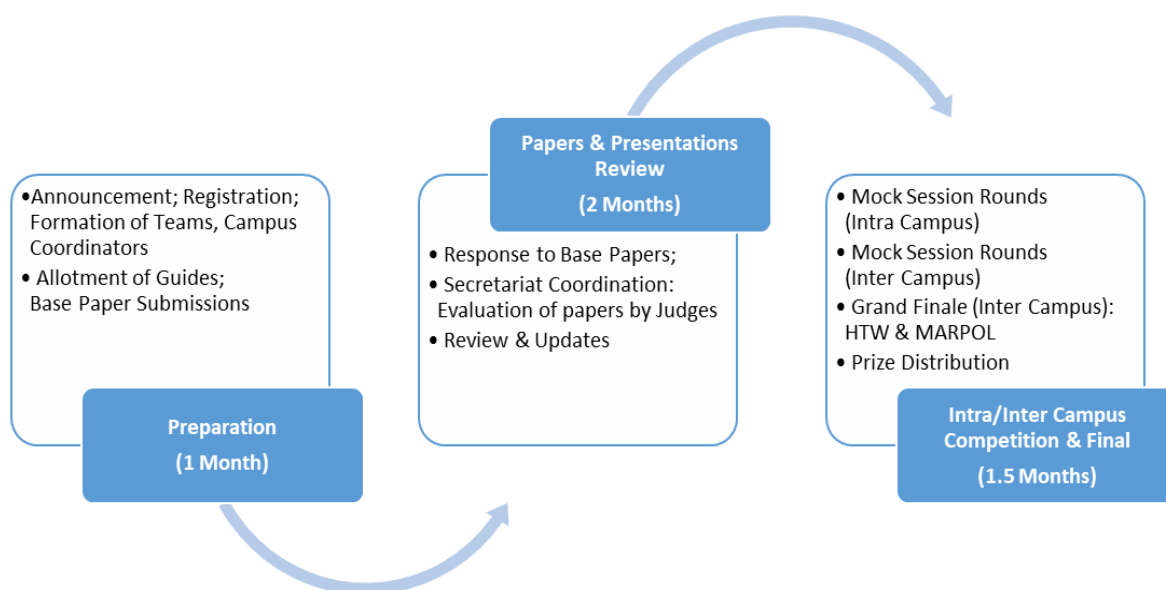


Figure 2. IMO Sessions: Process Flow.

The schematic representation of the sessions is shown in Figure 3. In the Final Inter Campus round, 8 teams from HTW and 10 from MARPOL competed. Each Category of HTW (STCW) and MARPOL had 4 Teams placed from top to 3 Runner-up positions. Each category was awarded a shield and cash prizes. The cash prizes totalled ₹60000 (about €750).

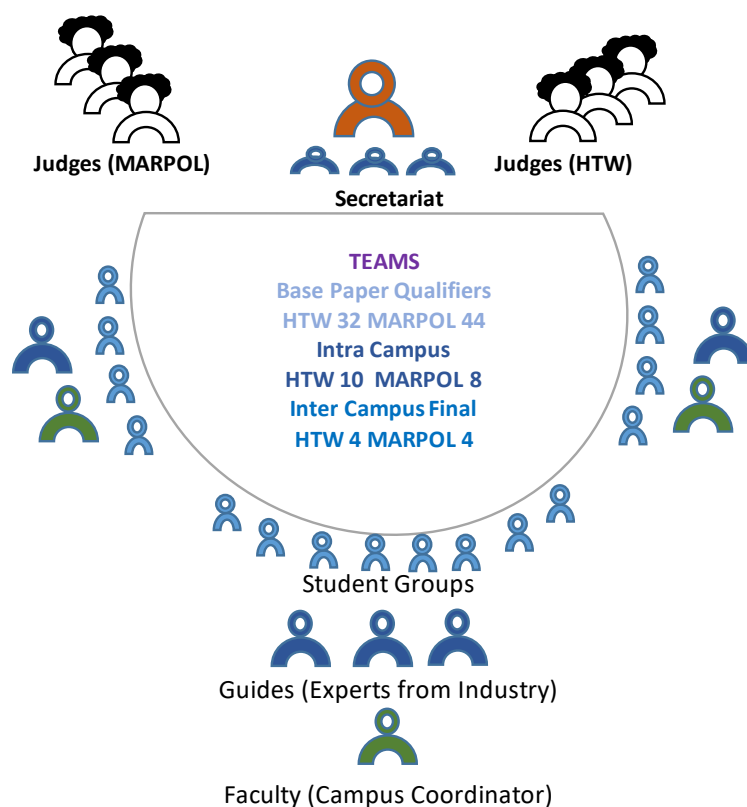


Figure 3. IMO Sessions (schematic).

A significant part of the exercise was the special Working Group discussions where the students were allowed to extend their discussions on the functioning of the IMO. This helped in fathoming the interest and curiosity of the students and also for gauging the extent of understanding while the exercises were progressing. Following the OBL format, the captured knowledge was assessed through formative assessments (quizzes,

presentations etc.). Further, after about 5 months, the faculty and students attended a webinar on IMO and its working. In the following 2 months, a quiz program on IMO was organized for the students and the faculty. This inter campus quiz program was based on the realized experience from the mock sessions and webinar. The learning experience was thus reinforced in a way.

A limitation to the whole exercise was that the treatment could not be extended to all the students in the competitive format. Also, not all the students could articulate the ideas coherently in the initial stages. However, the exposure by showcasing the events on social media (Google, YouTube) witnessed noticeable changes in presentation styles and self-confidence of the students. Understandably, the feedback from the students confirmed that the learning objectives were finding home. However, the assessment mechanisms that verified the attained learning objectives (e.g., examination questions etc.) have not been discussed in detail.

A parallel learning experience was gained by all those who had actually attended the IMO sessions during their career and those who had never. Under the OBL format, this learning experience of the industry members, counts well for the lifelong learning one would envisage.

3.0 Conclusion

Under the learner-centric approach, the attempt to bring a real world experience of IMO session is bound to have a lasting effect in the young minds. The actual value addition needs to be ensured with continuous assessments and evaluation processes. Such blending pedagogy approaches are already in vogue. The experiential project-based learning format intertwined with an engineering curriculum is worth a mention (Raina and Choudhary, 2020). The maritime profession, with its multidisciplinary nature and assured international standards offers scope for similar approaches. The future beholds a digitized shipping world. This requires reimagining MET at HEI levels in bringing the real world experience. The benefit of these educational solutions will then extend beyond commercial operations into research and real world problem solving.

For a Maritime University, the industry is the major stakeholder. The employability of the University's graduates would depend on their competencies demonstrated on problem solving, decision making and analytical thinking. The stakeholders' demands are bound to change with the developing technologies. The curricula have to consistently attune itself with new approaches to learning and at times, the policy itself might require revisions.

India's [New Education Policy \(2020\)](#) envisages several measures including multidisciplinary curricula, provision for accumulating credit banks, outcome based education etc. At macro levels, an increase in the Gross Enrolment ratio (GER), technically sound workforce with abilities to solve real life problems etc., are expected. The role of specialized HEIs such as IMU would be crucial to the industry and the developing nation in creating vibrant educational ecosystems.

Moves towards Micro Credit Courses bringing dynamism to curricula, creatively equipping students with purposeful education and recognizing the knowledge gain with Minor degrees etc., are some efforts energized and gaining traction at IMU. The IMO Mock Session is an effort which has been received well and shown tangible improvements in students' cognitive and communication skills.

The exercise is being planned for the students of all affiliated Institutes of the University. On a broader format, this can be extended to global regional levels (e.g., Asia, Oceania etc.). The winning students can be rewarded with visits to the actual meetings of IMO. It would be encouraging and enlightening for the future global citizens, who are being groomed under the maritime sphere.

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