

The role of simulator and co-teaching for developing student's thinking and speaking interactive skills

Kristine Zarbazoia^{*}, Zurab Bezhanovi[†], Medea Abashidze[†], Tamila Mikeladze[†],
Svetlana Rodinadze[†]

Batumi State Maritime Academy
53, Str. Rustaveli, 6010 Georgia, Batumi
E-mail : * k.zarbazoia@bsma.edu.ge, Tel.: +995-577-508736.

Abstract: Maritime English is a key tool for a future seafarer to ensure safety while performing delegated duties not only at sea but in the shore-based maritime industry. It is one of the core requirements of IMO presented in STCW Convention. To work out such skills in Maritime English at the operational level requires a lot of hard and systematic work, especially for non-native English-speaking seafarers.

So, the aim of the research given in the presented paper is to find the proper ways for our students to increase the knowledge of their professional, Maritime English language and communicative skills. The paper presents one of the ways how to reach the goal. On the bases of our teaching experience of Professional Maritime English, co-teaching and a simulated environment created by the simulator during the classes assist us in developing not only student professional Maritime English language thinking and speaking interactive skills but also developing critical thinking skills and mustering professional competencies.

Keywords: co-teaching, simulation, skills, competence.

1. Introduction

Maritime English proficiency is a mandatory tool for a future seafarer to ensure safety not only at sea but in the shore-based maritime industry. The maritime English skills at the operational level are one of the core requirements of IMO (International Maritime Organization) and STCW (Standards of Training, Certification, and Watchkeeping for Seafarers).

After completing graduation, the students have to write and respond to both formal and informal emails, prepare reports, and interact with colleagues, as officers, they need to acquire knowledge and skills to operate international ships and communicate to the port authority in English. Therefore, the students need to improve their proficiency in English at universities.

The students must be provided with sufficient proficiency in Maritime English and the Maritime English terminology for implementing different kinds of jobs and communication onboard the vessel around the world. Maritime English language is the key tool for safety at sea, therefore, it is vitally important for cadets to practice speaking English daily and master it.

English language teachers' big challenge is to improve cadets' maritime English skills so that they can communicate effectively onboard the vessel. The BSMA (Batumi State Maritime Academy) students have a lack of confidence in using English due to a lack of practice in English. They generally learn English in class and do not practice English outside the class, which makes them difficult to use English in interaction.

So, speaking fluently and accurately is the student's main concern and the English language teacher's aim is to create an interactive classroom atmosphere to enable learners to practice the language.

The interaction in the classroom improves students' oral production and their ability to communicate spontaneously using the English language in different interactive situations. Classroom interaction and fluent speech have been a matter of great interest for many researchers of second and foreign languages. There are a lot

of studies in the field of language teaching, which deal with the importance of classroom interaction. The interaction is identified with the process of language learning.

Language teaching depends both on the teacher's teaching strategy and methodology, and also on students' ability to speak confidently in their native and foreign languages. According to Bygate's ideology, foreign language Teachers' aim is to prepare learners to be able to use the language, therefore, teachers need to be creative in designing the classroom's activities. The teacher must choose a strategy in the teaching process, which brings success or failure in language learning. [2]

Knowledge of grammar, and vocabulary is not enough, it must be used in action. Using language in action, speaking, writing, and listening, is a skill, which teachers must enhance apart from the knowledge of the student. Knowledge without skill is less effective, and non-fulfilled.

Language teachers for developing speaking skills must use both: motor-perceptive skills, and interaction skills. In maritime English, Motor-perspective skill is identified as learning of English language through dialogues, IMO SMCP (Standard Maritime Communication Phrases), case studies, grammar forms, learning a language in the frame, and whether the interaction skill gives the student a choice, this is a skill of using knowledge and basic motor- perceptive skill to achieve communication. Interaction skill involves making decisions such as: what to say, how to say, what is right, and what is wrong.

Communication – is sharing and exchange of information. It is the ability to transmit and receive messages. In maritime English classes communication is done through words, actions, signs, objects or a combination of all these, where the classroom is a communication environment and the English language is a tool that is used for communication. Very important is also to train students speaking and listening skills with the help of GMDSS (Global Maritime Distress and Safety System) and portable VHF (Very High Frequency) Radios "Walkie Talkie" equipment, for seafarers it is a big challenge to communicate via this system because it is really very hard to communicate easily without training.

The use of simulators in maritime education and training is an essential component for developing seafarer competencies in the following courses such as NAVIGATION, CARGO HANDLING, ECDIS (Electronic Chart and Information System), ARPA (Automatic Radar Plotting Aids) RADAR, GMDSS, SHIPS HANDLING, SHIPS MANUVRING, BRIDGE RESOURCE MANAGEMENT, ENGINE CONTROL ROOM, etc. Simulator classes enable students to dive deeply into future professional challenges, understand and learn essentially difficult operations, and train themselves in right and quick decision making, they also develop students' internal and external communication skills.

Research shows, as we mentioned above, that language teaching greatly depends on: teaching strategy, interactive class atmosphere, motor-perceptive skills, and interaction skills. The student's motor-perceptive skill is developed in his/her first two years of education when he/she grabs general knowledge regarding maritime navigation and marine engineering and learns general vocabulary, terms, and IMO SMCP both regarding deck department and engine department. From the third year of education at university learners learn conventions, principles of operations, and emergency performed on board the vessel or at sea, by the way, they are introduced to simulator classes, where their motor perceptive skill is transformed into interactive skill, that means, that backed on their knowledge, students can use their theoretical knowledge in action.

2. Co-teaching and simulated lesson plan strategy

The language teaching strategy is the teacher's choice, which greatly depends on the teacher's knowledge, experience, and creativity with the help of which he/she organizes the interactive class atmosphere, which later develops students' fluent speaking skills.

As a simulator is an essential component for developing seafarer's competency in different marine affairs, we offer to use simulator classes for developing student's navigator skills and English-speaking interactive skills, where students more realistically would be involved in making decisions using professional knowledge and a maritime English in more realistic ship atmosphere. The simulator classes create the best classroom atmosphere where students' motor-perceptive skills (lower thinking skills) are effectively transformed into interactive (higher thinking) skills. A wide range of tasks, performed by the student on simulators, gives the possibility to break the language in the frame, where each new task on the simulator is a new challenge, where the student uses his/her motor-perceptive skill in real action, according to the topic and the situation.

For planning, managing, and implying the simulator class-based lesson, Bloom's taxonomy assists trainers to identify the intellectual level at which individual students are capable of working. It classifies thinking levels from simple to complex, therefore cognitive complexity grows at every level. Lessons build on Blooms Taxonomy are focused on developing students' performance from simple to complex (Figure 1):



Figure 1. Bloom's Taxonomy

We offer the model of the lesson which could be used on major numbers of simulators, as an example, we can show how it could be implemented in one of the course lessons such as "Bridge Resource Management" which would be planned and implemented by the Bridge Recourse Management course instructor and maritime English language co-teacher based on Blooms Taxonomy chart, which will enhance cadets competency of Bridge Resource Management, and develop English language communication skills under the stress. The simulator class scenario, lesson plan, monitoring of task execution, and assessment of students' competency are performed by the class trainer. The class brainstorming activities over the topic are provided by the English language Co-teacher, who later controls, and assesses the students' English language communication skills.

The lesson is divided into the following stages:

Stage one: Bridge Recourse Management simulator class instructor prepares the exercise for class: "Man Overboard" scenario. In the lesson plan, the instructor highlights the objective of the exercise, describes the exercise, shows the performance criteria, what should students demonstrate, and how to prove his/her knowledge of the given case. Then trainer gives the details of the assessment criteria, and finally total exercise results and comments.

Stage two: The role of the English language Co-teacher is to brainstorm with students with different activities over the topic "Man Overboard" (MOB), and then remind students of essential vocabulary, terms, and IMO SMCP which later facilitate their task performance during the presentation.

The lesson starts with the following brainstorming activities which engage student memory, thinking, and problem-solving skills in action:

Task1: The group work. Arrange the actions of man overboard according to the consequence.

The teacher divides the group into group A and group B and gives students the list of jumbled immediate actions, which they should arrange consequentially in three minutes.

1. Wheel over to the same side of MOB
2. Mark and note the position by pressing MOB on ECDIS or GPS (Global Positioning System)
3. Throw a life ring to the person MOB buoy
4. Sound three prolonged blasts on the ship's whistle Inform master
5. Note wind speed and direction
6. Post lookouts
7. Stand by engines
8. Inform other vessels in the vicinity
9. Prepare recovery equipment
10. Establish communication between bridge, deck, and rescue boat.

After three minutes students demonstrate their task and read the list. The teacher corrects mistakes if they occur.

Task2: Group work. The teacher shares the LSA (Life Saving Appliances) presentation to students where they should Match the LSA word list with pictures orally (time needed 2 minutes) (Figure 2).



Figure 2. LSA word list with pictures.

Task 3: The teacher shares three diagrams of navigational maneuvers and asks a student to guess individually the name of each of them. (Time needed 2 minutes) (Figure 3):

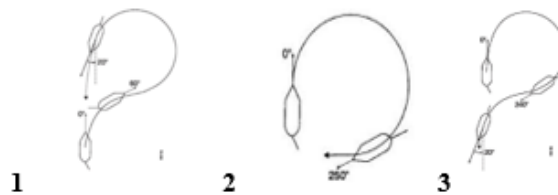


Figure 3. Diagrams of navigational maneuvers.

Task 4: The teacher tries to elicit what are the advantages of Williamson Turn? (Time needed 2 minutes).

Students demonstrate their knowledge, and they try to list Williamson’s turn Advantages such as:

Advantages of Williamson turn are: Vessel makes a good original track line; This turn is good in reduced visibility; It is a simple maneuver.

Stage 3: After the brainstorming class instructor conducts a briefing to a group and delegates the roles to cadets such as:1. Master, 2. Watch Officer, 3. Back-Up Officer,4. Helmsman,5. Supervisor.

The instructor himself will take the role of the following: 1. Pilot, 2. Port Control, 3. MRCC (Maritime Rescue Coordination Center)

The students should use and follow “Pre-Arrival CL”, “Pilot CL”, and “Contingency CL MOB” Checklists.

Stage 4: Trainer introduces Scenario:

1. Date 04 Jan 2022; UTC – 12:00 / 15:00LT
2. Vessel – “LCC TANKER” Product Tanker; Freeboard – 10.5Mtrs; Location – Bosphorus North Entrance.
3. Weather condition – Wind WSW 5, Sea SW 4, Swell 2, visibility 5NM.
4. Vessel proceeding to PBA, “Kavak Pilot” Confirmed Pilot boarding takes place in position 41° 15.1’ N, 029° 07.92’ E 7.0KT, With Boarding Speed 6KT, Heading 200Degree at PBA.
5. “Kavak Pilot” listens/works on VHF Channels 16, 11, and 71.
6. Vessel intends to Pick Up the Pilot at an agreed position to enter Bosphorus North Entrance

7. Passage Plan agreed with all bridge teams and approved with the master.
8. All Equipment in working condition.

Stage 5: Students are executing tasks, where they should create a plan of action and then perform it in a limited period. The role of the English language teacher is to supervise students' communication skills, the target vocabulary they use for the topic, and pronunciation, to make some notes which later would be discussed by the teacher. The role of the trainer is **more complicated, he is the role player, the case supervisor, and the assessor. The team should create a plan of action close to all requirements.**

Stage 6: At this stage of the lesson backed on the result of lesson monitoring, the trainer and English language teacher assess students' following abilities (Table 1 and Table 2):

Table 1. Assessment of a student's abilities.

Trainer's	ASSESSMENT CRITERIA:		Evaluation Scale	
Max 5 Score	Max 5 Score	Max 10 Score	Max 10 Score	Max 10 Score
Knowledge of Procedures, Familiarisation with Check Lists	Ability to Act in Emergency, Follow procedures	Ability To Coordinate And Command in Emergency	Ability to Report and communicate with external parties	Ability to Report and Establish Internal communication

Table 2. Assessment of a student's abilities.

English language teacher's	ASSESSMENT CRITERIA:		Evaluation Scale	
Max 5 Score	Max 5 Score	Max 10 Score	Max 10 Score	Max 10 Score
Knowledge of target vocabulary, good pronunciation	Ability to use IMO SMCP in an Emergency situation.	Ability To Coordinate And Command in Emergency, language fluency	Ability to Report and communicate with external parties, language fluency	Ability to Report and Establish Internal communication language fluency

Stage 7: At the final stage the trainer and language teacher conduct a debriefing, where they discuss the advantages and disadvantages of the performed job. Teachers highlight students' mistakes regarding the proper management of the emergency procedure and language used for communication and give them advice and instructions on how to improve it if it is necessary.

So, by the completion of the course, a student will be able to:

1. Act in the situation of MOB executing different roles;
2. Perform Williamson Turn procedure;
3. Coordinate internal and external communication of rescue operation;
4. Coordinate communication with Shore facilities;
5. Report procedures and time logging.

According to Blooms Taxonomy 6 level chart, our lesson plan is oriented for learners to demonstrate the following abilities (Table 3):

Table 3. Bloom's Taxonomy evaluation and analysis.

Remember	The learner can remember or recall the information about the emergency case "MOB"
Understand	The learner can explain the idea of the concept.

Apply	The learner can use the information according to the case and establish correct action and maneuverings.
Analyze	The learner can differentiate what to do, and use, how to act. Which orders and phrases to use.
Evaluate	The learner can make quick decisions in dynamically developed emergency situations
Create	The learner can create a new product, correct the scenario for safe and prompt action, and generate new ideas and thoughts.

The presented lesson model depicts learners moving from the lower level of Bloom’s taxonomy to the higher one. Each level is followed by the higher, more challenging one (Figure 4).

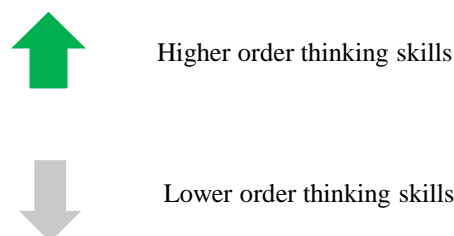


Figure 4. Thinking skills evaluation.

In conclusion, after analyzing and discussing the simulator class lesson strategy, teaching tools, methods of teaching, and assessment, we tried to highlight all advantages of the simulator class teaching atmosphere, which will positively affect students’ higher-order thinking and speaking skills. A wide range of tasks, performed by the student on simulators, break the language in the frame, and a new task on the simulator is a new challenge, where the student backed on his/her motor-perceptive skill moves to a higher level of thinking, to the top of the Blooms taxonomy “Creation”, where the learner independently formulates his/her speech, makes a quick decision, transmit and receive the information. Proper communication is the key to safety at sea. Simulator class trainer and English language co-teacher on such lessons look like the RCC-rescue coordinating Centre, which gives students emergency cases and problems, which students should treat and tackle properly and in a short period of time.

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