Mentimeter's Effect on Cadet Participation and Learning Outcomes in Maritime English

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Abstract

The paper investigates the effectiveness of Mentimeter, an interactive presentation tool, in enhancing the communicative competence formation of future ship engineers. The research involves a group of cadets from the ship engineering department who participated in a communication skills course, which incorporated Mentimeter as a teaching aid. The research data was collected through surveys and interviews to evaluate the impact of the tool on the cadets' communicative competence development. The findings suggest that Mentimeter positively influenced the cadets' engagement, motivation, and communication skills development. The results of this study could provide valuable insights for educators and trainers in various fields seeking to enhance cadets' communicative competence through innovative teaching approaches.

Keywords: maritime education and training, e-learning, MOODLE, digitalization

Introduction

The nature of the modern maritime industry has changed significantly due to technological advancements in the industry. The introduction of automation, digitalization, and other new technologies has improved the efficiency of operations and made it easier to manage vessels and cargo. These technologies have also increased safety and reduced the risk of accidents (Barzii et al., 2020).

Nevertheless, communicative competence remains crucial for seafarers in today's world. Effective communication is essential for seafarers to perform their roles efficiently and safely (Bateson, 2008). They must communicate with various stakeholders, including crew members, port officials, customers, and suppliers, who may speak different languages or come from different cultural backgrounds.

Ship engineers must be able to convey technical information accurately and efficiently, both orally and in writing. They must also be able to listen actively, understand instructions, and give feedback appropriately. Effective communication helps ship engineers avoid misunderstandings, resolve conflicts, and build trust, which can have a significant impact on the success of a shipping operation.

Furthermore, the maritime industry is becoming increasingly digitalized, and ship engineers must be proficient in using digital tools and communicating electronically. Communicative competence can help them effectively collaborate and exchange information with colleagues and stakeholders, regardless of their location. Therefore, communicative competence is critical for ship engineers to operate effectively in a globalized, digitalized, and diverse maritime industry. The research goal is to investigate whether using Mentimeter, an interactive presentation tool, can improve communicative competence among maritime cadets studying English.

Analysis of the latest research and publications

Digitalization has had a significant impact on maritime education and training, both in terms of the content of the training and the methods used to deliver it. Digitalization has made it easier to deliver maritime education and training (MET) online, through e-learning platforms. This has enabled more flexible and accessible training, as students can access the materials and complete the training at their own pace, from anywhere in the world. National scholars have made a significant contribution to the study of this problem. The problem of using digital tools in MET are covered in the works of the following researchers: Nalupa (2022) states that MET has traditionally been the focus of traditional seafarer training in the acquisition and application of practical skills. While this method targets some cognitive capabilities, it is primarily concerned with the training of hands-on practical skills for the completion of specific tasks. Academic education, on the other hand, focuses more on the development of in-depth analytical and critical thinking skills. Ceylan et al. (2022) emphasize the need of transforming the educational and training processes in MET institutions. Emad and Kataria (2022) highlight that education leaders understand the challenges and opportunities for MET
perspective; the MET may fall short in producing a maritime workforce with an effective core set of professional skills. Sharma (2022) accentuates that Maritime domain has witnessed steady changes in the way education and training are delivered for preparing its future workforce. Yong and Jeng Yi (2022) expect that the current competencies of seafarers will need new competencies in accordance with the digital age. Erstad, Hopcraft, Vineetha Harish, Tam

et al. (2023) underline that cognitive skills such as reasoning and decision making, problem and conflict solving, and critical thinking are expected to be the most important competencies of seafarers in digital era. They are followed by operational skills, individual skills, and social skills. In our opinion, MET research does not fully cover the communicative competence formation of ship engineers. The results of cadets studying Maritime English to form communicative competence while e-learning are presented in a small number of scientific publications.

Problem statement

Students have a natural curiosity about playing different games. they have an opportunity to be interested due to finding new character-friends, choosing new tools, expanding the territory they own, or receiving awards. All these make teenagers follow their goals while playing.

Lesson digitalization from day to day needs new approaches, in other words, a transition to a new level, like in games. Due to identic boring activities in the lessons, the students stop working actively while carrying out tasks proposed by the teacher. The motivation and interest disappear.

So, we aimed to vary the lessons with new activities, tools, and approaches. Mentimeter as an interactive tool to create presentations, quizzes, word searches, etc. was found.

Another challenge Mentimeter helped with was receiving feedback from students while e-learning. The lack of face-to-face interaction made it difficult to gauge how well the students are understanding the material. We find that feedback is critical in e-learning environments as it helps students to improve, motivates them, supports learning, encourages self-reflection, and builds strong teacher-student relationships.

What is Mentimeter?

Mentimeter is an interactive presentation software that enables presenters to engage with their audience in real time. It allows presenters to create interactive presentations, surveys, quizzes, and polls that can be shared with their audience via a unique code or a link.

Using Mentimeter, presenters can ask questions, and the audience can respond using their smartphones or other devices. The responses are then displayed in real time, allowing the presenter to gauge the audience's opinions and knowledge on a particular topic.

Mentimeter also provides presenters with a wide range of customization options, allowing them to personalize their presentations and tailor them to their audience's needs.

Additionally, the platform offers a variety of presentation templates and pre-made slides, making it easy for presenters to create engaging and interactive presentations quickly.

Mentimeter is widely used not only by educators, but also by business professionals and presenters of all kinds who want to create engaging, interactive, and impactful presentations.

Methodology

This study utilized a quasi-experimental design to examine the effect of Mentimeter on the communicative competence formation of future ship engineers. The sample comprised 45 participants (male, 17-18 y. o.), all of whom study at Maritime Applied College of Kherson State Maritime Academy in Ukraine (ship engineering department). The participants were randomly assigned to either the experimental group, which received e-learning with the use of Mentimeter-based interactive activities (23 cadets), or the control group, which received e-learning (22 cadets).

The communicative competence formation of the participants was evaluated using a pre-test/post-test on LMS Moodle "Maritime English" e-course (30 questions of three difficulty levels). The pre-test was administered to both groups before the training began, while the post-test was administered to both groups after the training was completed. Knuth (1984) mentioned that the communicative competence formation was assessed using a self-assessment questionnaire on LMS Moodle.

The experimental group received e-learning with Multimeter use, which was delivered in the form of interactive lectures, discussions, and group work on LMS Moodle and Zoom. The control group received traditional e-learning on LMS Moodle only.

Data analysis was conducted using both descriptive and inferential statistics. The means and standard deviations of the pre-test and post-test scores were calculated for both groups. The independent-sample test was used to compare the mean scores of the experimental and control groups.

Ethical considerations were taken into account throughout the study. Participants were informed about the purpose of the study, and their participation was voluntary. Informed consent was obtained from all participants, and confidentiality was ensured by using anonymous questionnaires.

Overall, this study aimed to investigate the effect of Mentimeter on future ship engineers' communicative competence formation using a quasi-experimental design. The study design, sample, data collection, and analysis were all carefully planned and executed to ensure the validity and reliability of the findings.

The pre-test was administered to both groups before the training began and the result can be seen in the Figure 1. CG results are the following 2.5 -3.00- 12 cadets; 3-3.25 - 5 cadets; 3.25-3.5 - 4 cadets; 3.5-4.00 - 1 cadet. EG results are 2.5 -3.00- 8 cadets; 3-3.25 - 7 cadets; 3.25-3.5 - 4 cadets; 3.5-4.00 - 2 cadets. and 4.00-4.25 - 2 cadets. As can be seen, EG and CG have no significant difference in the test.
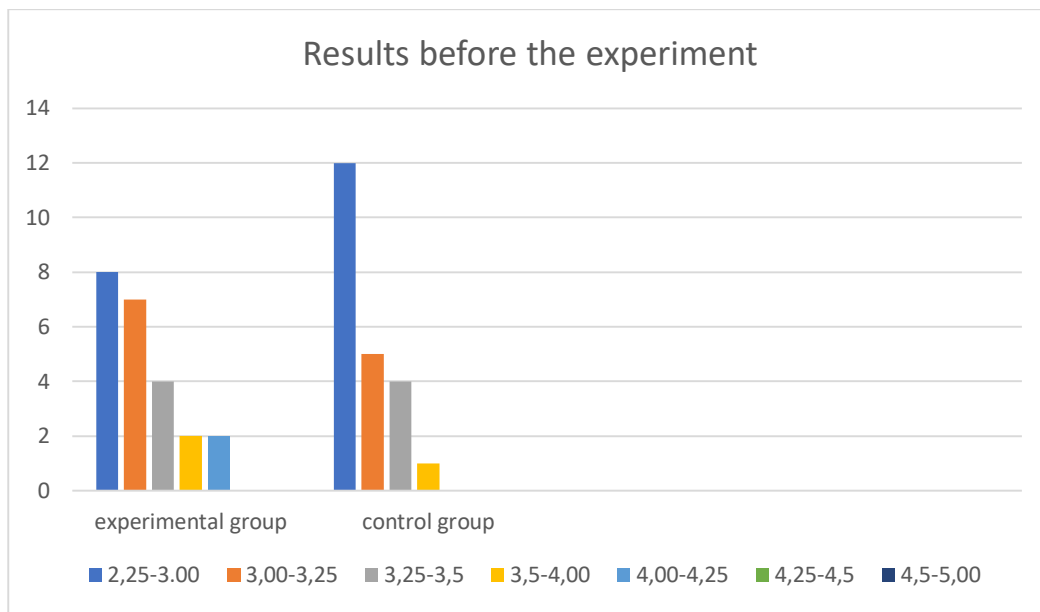

Figure 1. LMS Moodle pre-test on Maritime English results for both EG and CG

Results

While visiting different workshops participants expect to find new ideas to be used in the future but sometimes instead of interest and curiosity, the meetings can be not interesting, boring, and even ineffective [10]. It can happen because the tutor of a workshop does not interact with participants while speaking or explaining something. The same problem is faced when the teacher is only a lecturer and the students become passive listeners. We find it important to change the situation. Everyone in his/her life reads something, watches TV programmes, studies different subjects so when students are asked to answer the questions, they usually can express their ideas or justify their choice. That is why when we started using Mentimeter as an interactive tool boring lessons became fun, and lectures became a communication at a round table (Maritime English: MODEL course 3.17, 2000).

The tutor in the case of Mentimeter use plays a passive role and helps only to find the correct decision when students are involved in discussions. When the students get to know the voting results some of them become excited, others upset but nobody remains indifferent. The

students become motivated to study and visit online lessons. Also, students can work individually, in pairs or teams.

The Mentimeter website has clear instructions on how to create polls, quizzes, word clouds, surveys, and other interactive activities that can be shared with an audience in real-time (Korach et al., 1984). There are 19 slide types Mentimeter for tutors to create. All types are divided into 4 groups: popular question types; quiz competitions; content slides; and advanced questions. Popular question types are the following: Multiple Choice (Figure 2); Word Cloud; Open Ended; Scales; Ranking; Q and A (Nosov et al., 2020)

To create interactive activity, it is necessary to enter the Mentimeter website, login to your personal Mentimeter account, choose the necessary ready-to-go template (e.g. Student Check-in; Assessment; Reflection; Staff Meeting; Staff Training), and edit it (Korach, Rotem, & Santoro,1984).

The student Check-in section has some examples of how to use different Mentimeter-based activities during your online lesson (e.g. fun check-in, icebreaker, pre-lecture/midway check-in, course expectation survey etc). There is an example of a pre-lecture activity created with the help of a Mentimeter (Figure 3). Before watching the video on marine engine operations students try to recall the information from the previous lesson on the main engine starting procedure (Ceylan, 2022).

Another Mentimeter's activity is Word Cloud. The tutor can ask his/her students different questions in the easy-to-use editor, gather input from the class, and watch it appear in real-time. It is fully anonymous. Everyone can express his/her ideas and thoughts (Figure 4).

The Mentimeter is very useful for receiving feedback. Feedback is crucial in Maritime English lessons because it helps learners to improve their language skills and achieve their learning objectives. It also allows learners to identify their strengths and weaknesses in their Maritime English skills. Knowing their areas of improvement can help learners focus their efforts on areas that require more attention. Feedback provides learners with an opportunity to correct their mistakes and avoid repeating them in the future. This can help learners to improve their accuracy and fluency in Maritime English.

The tutor can ask the students to answer the questions online. Instead of boring activities students can vote and have fun. Creating different tasks is not difficult due to the range of ready-to-go templates. Their editing goes easily and quickly. Students are able to use apps on their phones (laptops, tablets, PCs etc.) and take part in voting (either via a code, voting link, or by scanning a QR code) (Nalupa, 2022). It is easier for a tutor to asses students' knowledge while they are entertained. Mentimeter can also be used in the post-reading/watching/listening stage.

Such activities help students to consolidate their understanding of the language and improve their communication skills. An example of a Mentmeter-based post-reading activity during the Practice stage of the Maritime English lesson can be seen in Figure 5.
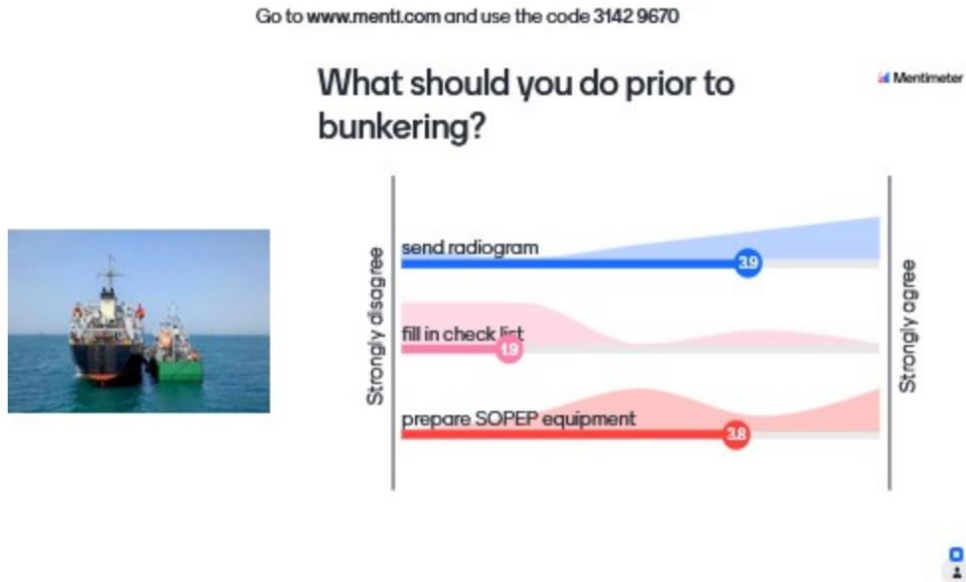

Figure 2. The example of the Multiple Choice tool from the topic "Main Engine Operations" was used as a starter during online class
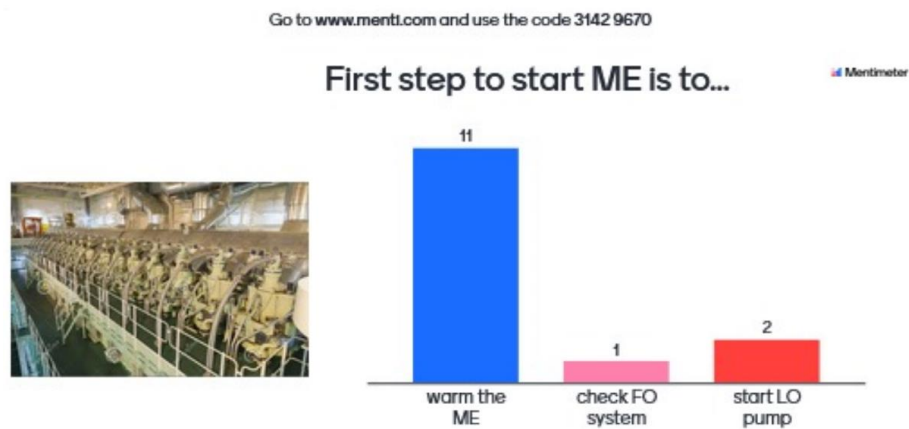

Figure 3. Pre-lecture Mentimeter activity from "Maritime English for future ship engineers" lesson

Figure 4. Word Cloud as a starter at the beginning of the "Maritime English for future ship engineers" lesson
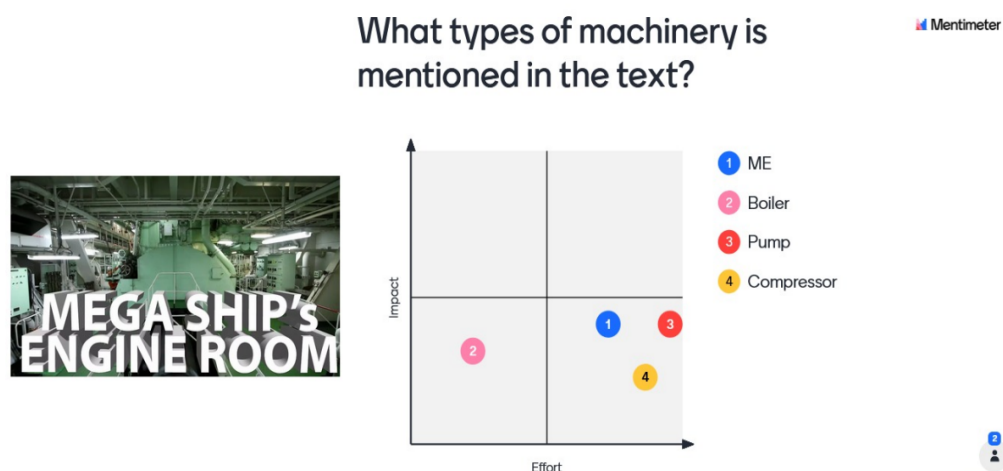

Figure 5. Post-reading activity created with Mentimeter for Maritime English lesson

Discussion

The results of this study suggest that Mentimeter, an interactive audience response tool, can have a positive effect on the communicative competence formation of future ship engineers. In this discussion, we will examine these findings in detail and consider their implications for maritime education and training (Papadakis et al., 2022).

The results of our study showed that the use of Mentimeter in the classroom was associated with significant improvements in students' communicative competence (EG). Specifically, students who used Mentimeter reported higher levels of confidence in their communication skills, better ability to express their ideas clearly and concisely, and increased

engagement in classroom discussions (R Core Team, 2019). The results of a final test on LMS Moodle can be seen in the Figure 6. CG results are the following 2.5 -3.00- 8 cadets; 3-3.25 - 5 cadets; 3.25-3.5 - 5 cadets; 3.5-4.00 - 4 cadets. EG results are 3.5-4.00 - 2 cadets; 4-4.25 - 5 cadets; 4.25-4.5 - 8 cadets; and 4.5-5.00- 7 cadets. EG has a higher proportion of cadets with higher grades (4.0 and above) compared to CG. The EG also has a wider range of grades, including more cadets with grades in the 4.25-4.75 range. The CG has a higher proportion of cadets with lower grades (below 3.0) compared to the EG. These findings suggest that Mentimeter can be an effective tool for improving the communicative competence of future ship engineers.

One potential explanation for the effectiveness of Mentimeter is that it encourages active participation and engagement from students. By allowing students to respond to questions and provide feedback in real time, Mentimeter creates a more interactive and dynamic classroom environment. This may lead to increased motivation and engagement, which in turn can improve students' communicative competence.

Another potential explanation for the effectiveness of Mentimeter is that it provides immediate feedback to students. By displaying student responses on the screen in real time, Mentimeter allows students to see how their responses compare to those of their peers. This can help students identify areas where they may need to improve and provide an opportunity for the teacher to provide targeted feedback and guidance.

A survey was administered to both EG and CGs through the LMS Moodle platform after the completion of the experiment (Knuth, 1984). The purpose of the survey was to gather feedback from the cadets about their experiences with the course and to assess their perceptions of the effectiveness of the experimental intervention.

The survey consisted of multiple-choice and open-ended questions and was designed to assess various aspects of the cadets' learning experience, including their engagement, motivation, and perceived learning outcomes of the Maritime English course. The survey also asked the cadets to rate their satisfaction with the course overall and with specific aspects of the course, such as the instructional materials, assessments, and instructor support (Semerikov et al., 2020).

The responses to the survey were analysed to compare the perceptions of the experimental and control groups. Overall, EG cadets reported higher levels of engagement, motivation, and perceived learning outcomes compared to CG (Sharma, 2022). The EG also reported higher levels of satisfaction with the course overall and with specific aspects of the

course, such as the instructional materials including Mentimeter-based activities and instructor support.

The open-ended responses from the cadets provided additional insights into their experiences with the course and the experimental intervention. Many cadets in EG noted that the interactive activities and personalized feedback helped them to better understand the course material and apply it to real-world situations onboard the vessel. Some cadets in CG suggested that more opportunities for feedback and interaction would have been helpful (Simakhova et al., 2022).

The survey results suggest that the experimental intervention was effective in improving the cadets' learning experiences and perceived learning outcomes (Voronina, 2017).

Overall, our findings suggest that Mentimeter can be a valuable tool for improving the communicative competence of future ship engineers. By promoting active engagement and providing immediate feedback, Mentimeter can help to develop the communication skills that are critical for success in the maritime industry (Yong, 2022).

The perspectives of our further research is needed to explore the long-term effects of using Mentimeter on the communicative competence of future ship engineers and the extent to which this tool can be applied in other areas of maritime education and training.
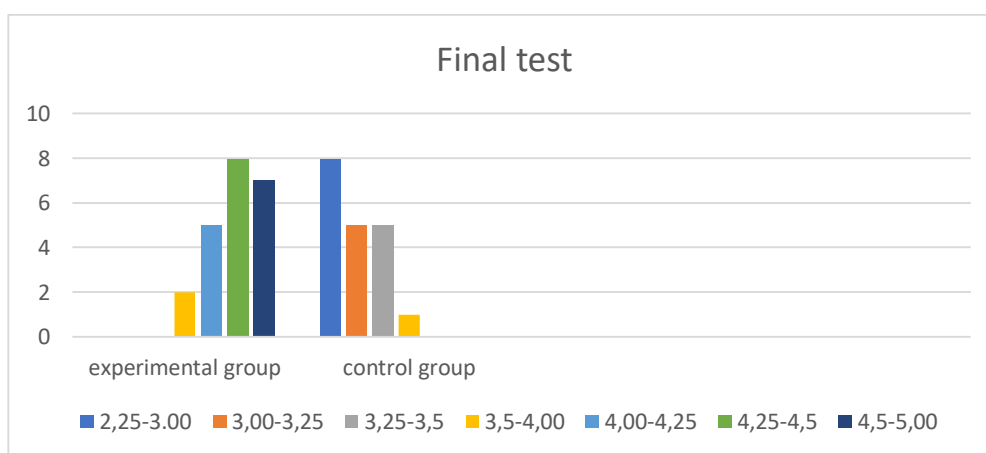

Figure 6. LMS Moodle final testing on Maritime English results for both EG and CG

Conclusions

The results of this research suggest that using Mentimeter as a tool in maritime education can positively affect the formation of future ship engineers' communicative competence. The use of Mentimeter has been shown to enhance student engagement, encourage active participation, and foster communication and collaboration among students.

The findings of this study are important because activities created with the help of Mentimeter help keep students engaged and motivated. And when students are engaged, they are more likely to retain information and be successful in their learning.

Therefore, the use of Mentimeter as a tool for developing communicative competence in future ship engineers can be highly beneficial. Further research is needed to explore the long-term effects of using Mentimeter on communicative competence and the extent to which this tool can be applied in other areas of maritime education. However, the results of this study suggest that Mentimeter has the potential to enhance the quality of maritime education and contribute to the formation of competent and effective ship engineers.

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