

Enhancing e-learning in Maritime Education and Training: Action research in Vietnam context

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Abstract: In the recent decade, e-learning has gained momentum as a potential educational modality in the maritime field, especially after the effect of the COVID-19 pandemic. Yet, the dominant classroom teaching approaches in some maritime educational institutions seem to constrain the effectiveness of e-learning. Therefore, the paper aims to investigate the current status of e-learning implementation in one Vietnam maritime educational institution and deliberate the change regarding the teaching methods, inspired by constructivist approach. To reach the aim, the authors employed a three-phase action research cycle: 1. Understand the context, 2. Deliberate change, 3. Evaluate the results. The study generated the picture of challenges, benefits, and opportunities of e-learning in the context of the Vietnam institution and yield implications of constructivist approach in the online learning environment.

Keywords: e-learning; teaching and learning methods; constructivist approach, action research, maritime education and training

1. Introduction

Maritime industry has witnessed dramatic development of technologies, disrupting numerous areas within the domain. For instance, the emergence of autonomous ships accelerates the change in international regulations to govern them (International Maritime Organization, 2021). Further, the blooming of artificial intelligence and big data has aided the decision-making processes on ships (Ziaul et al., 2020). Besides, many shipping companies have experimented the new environmentally friendly fuel, such as biodiesel, to cope with the stringent emission regulations (Noor et al., 2018).

The advancement of technology has also impacted the educational aspect of the maritime industry. Some maritime education and training institutions (METIs) are using simulation, augmented reality, and virtual reality to complement their classes (Mallam et al., 2019). Besides these tools, e-learning appears as a notable education modality which is widely applied by METIs. Although some scholars still question the appropriateness and the applicability of e-learning in maritime field (Galić et al., 2020), its benefits and popularity are undeniable, especially during the COVID-19 pandemic. In 2020, over 40% of METIs reported using e-learning to a medium or high extent (Maritime Training Insight Database – MarTID, 2020). Further, in the same survey, more than 80% of METIs expressed their belief that e-learning will be more prevalent in the training of seafarers.

However, the dominant education modality in METIs is classroom-based learning (MarTID, 2020). Therefore, when lecturers or instructors deliver their lessons in an online environment, they tend to use the same teaching methods, which may limit the potential of the e-learning platform (Bhandari, 2017). Thus, the paper seeks to explore the current status of e-learning implementation in METIs and deliberate innovative teaching approaches to enhance e-learning lessons. To achieve this purpose, the authors chose action research methodology.

2. Methodology

Action research (AR) is a branch of qualitative research methodology (MacDonald, 2012). AR encompasses a series of research activities and methods such as observations, interviews, experiments to investigate the phenomenon of a specific community. The noteworthy thing in this approach is the collaboration

between researchers and practitioners directly affected or involved in the phenomenon. This collaboration will then generate actionable knowledge, aiming to improve the situation of the community. Kurt Lewin (1946), who is said to be the father of this approach, once said, “You cannot understand the system until you try to change it”.

In this study, the authors will work together with the METI’s lecturers and students to understand the current status of e-learning, discuss possible changes in teaching methods, apply and evaluate them. To conduct these research activities rigorously, the academics established a three-phase action research cycle based on a systematic framework proposed by Dittrich et al. (2008) (see Figure 1).

In the first phase, the researchers joined current e-learning classes and observed. After that, we conducted a semi-structure with students and lecturers. These data give us a more comprehensive understanding of the e-learning implementation in the institution. Then, we moved to the next phase, where we worked with lecturers based on the students’ needs to generate innovative teaching approaches. We played the role as lecturers to deliver a subject-related matter with the new methods. Finally, in the last phase, interviews are conducted with lecturers and students to evaluate the effectiveness of the teaching approaches.

Action research takes form of a cycle due to the nature of change. As mentioned, the approach will strive to deliberate positive change. However, opposition to change is typically challenging, especially with long-lasting practices. Therefore, the idea is to make a small incremental positive impact with each cycle and repeat the process. This reduces the change resistance and increases the beneficial impact of the study on the chosen community.

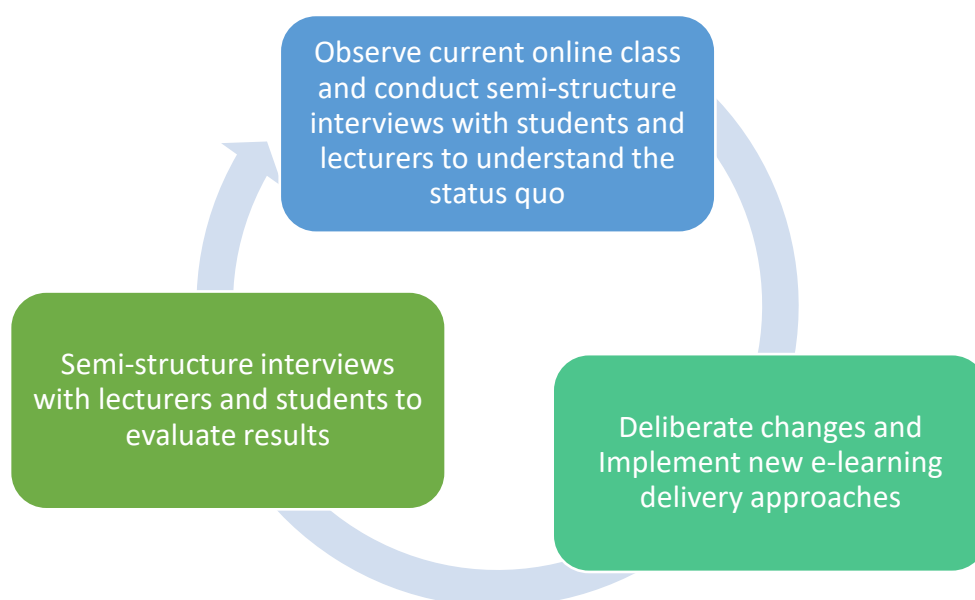


Figure 1. Action research cycle

3. AR phases and Findings

The authors employed a thematic analysis approach to process the data of the observations and interview activities. This technique focuses on identifying common patterns in the data and codifying them into basic themes. Then, we connect these basic themes to form overarching themes for a clear picture of the results. Nvivo software was used to aid this process.

3.1 Phase 1: Understand the status quo of e-learning implementation in the METI

In phase 1, we identified three overarching themes: Opportunities, Challenges, and Needs. For Opportunities, there are two basic themes: perceived advantages and acceptability. The authors discovered that both lecturers and students appreciate the benefits of e-learning, such as flexibility, time and cost saving. Further, they also believe that e-learning could be a part of a blended learning system in the future.

The theme Challenges covers numerous difficulties confronting lecturers and students in online classes, including interaction, distraction, information technology skills, health issues, equipment, university support and internet connection. Many students and lecturers reported a lack of interaction in e-learning classes. This is understandable due to the nature of e-learning where we can only see the voice and the “talking head” of the participants with the current technology. In the actual class in the study, it is even worse because both lecturers and students did not open their cameras, leaving only voice as a means of communication.

Students are usually distracted in an online class as they join it at home, where they can be bothered by family members. Another challenge is the lack of information technology skills; some students are not familiar with the e-learning platform, thus, cannot use its function. This negatively impacted the quality of the lesson. Health issues are also mentioned when participants stare at the screen for a long time, leading to many eye problems. Besides, lecturers stated that they lack the necessary equipment like smart interactive boards and pens to improve the quality of their lessons while the university support is limited. Some students must borrow their friends or family’s electronic equipment to participate in the online class. Last but not least, internet connection is a notable challenge. Both lecturers and students sometimes encountered poor internet connection, making it challenging to follow the class.

Another important theme is Needs, which is formed by two basic themes: knowledge and skills, teaching methods. Lecturers believed they needed to be equipped with more knowledge and skills regarding student psychology, voice training, and body language to improve online classes. For students, they emphasized the importance of information technology skills, which help them to engage to the class. Both lecturers and students highlighted the need for new teaching methods to make e-learning more engaging and effective.

These opportunities, challenges and needs are interrelated with each other. One basic theme can affect another and vice versa. For example, a poor internet connection may affect the interaction between lecturers and students and distract participants. The result of phase 1 is summarized by figure 2.

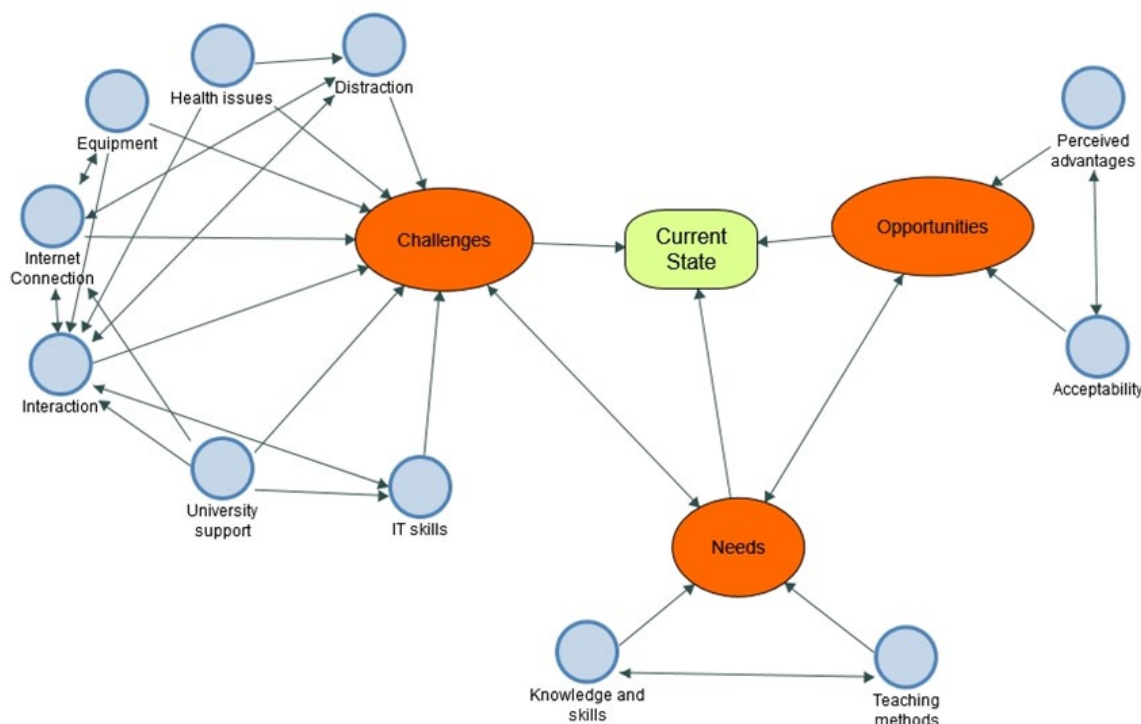


Figure 2. Phase 1’s findings

3.2 Phase 2: Generate new teaching approaches, and implement them

Based on the findings of phase 1, we discuss with lecturers and students to generate innovative teaching approaches, aiming to enhance the interaction in the online class. Inspired by constructivism, cognitivism and connectivism theories, we created a set of teaching methods (see Figure 3). Then we played a role as lecturers to deliver subject matter, employing these new methods in online classes. First, we familiarize students with warm-up and ice-breaking activities, making them more comfortable. Second, we encouraged students to open their cameras. Interestingly, two-thirds of classes let us see their faces, which would enhance the interaction

during the class. We begin the class with the diagnosis test, including some questions to test their prior knowledge about the teaching topic. After that, we conducted student-centered activities such as group discussion, problem-based learning, and role-modeling situation. With our guidance through the lesson, the engagement level of students increased significantly. Finally, we ended the class with a summarized mindmap to consolidate the fundamental knowledge for students about the topic.

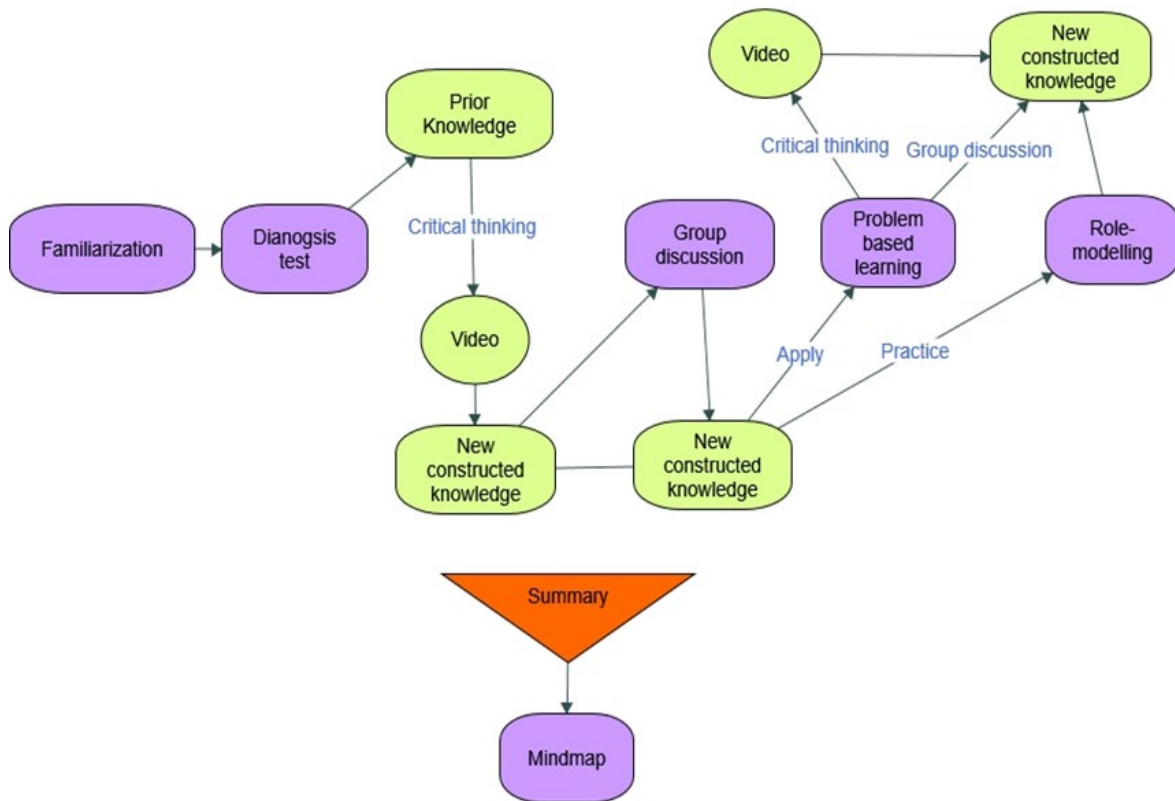


Figure 3. Set of innovative teaching approaches

3.3 Phase 3: Evaluate the results

Immediately following the experimental classes, we conducted the interview with lecturers – who served as an observer during the class – and students to capture their thoughts and reactions. After analyzing the interview data, we explore some implications of the new teaching approaches and some noteworthy things when applying these methods:

Interaction is key

The enhanced interaction during the classes improves the concentration and engagement of students, thus, increasing the quality of the online lessons. The communication between participants helps students acquire a deeper understanding of the problems.

Actively constructing knowledge enhances its retention

In student-centered activities such as group discussion, problem-based learning and role modeling, students are the ones who actively find new knowledge following the guidance of researchers (as lecturers). At the end of the classes, some students can confidently summarize the lessons' content. And they also realized that they could capture the knowledge easier during the interview.

Intended learning outcomes, and assessments are associated with teaching methods

Although participants appreciate the benefits of the new teaching approaches. The concern of choosing the right content and harmonizing with intended learning outcomes and assessments is noticeable. For a teaching method to be effective, it needs to go in harmony with the intended learning outcomes and the assessment methods.

Students' background is a concern

Students' background reflects their habits, personalities and behaviors. During the online classes, some students still remained inactive because they are used to receive the knowledge passively from lecturers. Therefore, lecturers should pay more attention to these students and have incentives (e.g bonus grades) to encourage them to participate in teaching activities. Further, diversifying the teaching methods is also a good solution.

4. Discussion and Conclusion

The study has yielded implications for all the participants of the research, including the authors. For lecturers, they will have more ideas for designing engaging and interactive online classes. They will be able to reiterate the action cycle in their own way. Students will be more active when constructing their own knowledge, thus, making their study more interesting and effective. The researchers also gain a deeper understanding of the e-learning situation in a Vietnam METI context.

One limitation of the research is its small scope (i.e, within a Vietnam METI). Hence, the generalizability is questionable. However, the paper provides the framework for other researchers, lecturers to adapt to their own context. Although the outcomes of the research are small steps to improve e-learning in MET, significant change may start from modest initiatives. The authors hope that the study will pave the way for future research endeavors to investigate this potential learning modality in the maritime context.

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