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# Improving e-learning in maritime education and training: action research in the Vietnam maritime context

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# IMPROVE E-LEARNING IN MARITIME EDUCATION AND TRAINING

## ACTION RESEARCH IN THE VIETNAM MARITIME CONTEXT

By

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# DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

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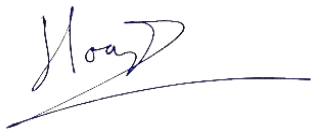

_____

(Date): **September 21, 2020**

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World Maritime University

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# ABSTRACT


Title of Dissertation: **Improve e-learning in Maritime Education and Training – action research in the Vietnam maritime context**

Degree: **Master of Science**

*Background:* In the contemporary era, along with the rapid development of technology, e-learning has emerged as a formal form of education with many potentials. In Maritime education and training (MET), the trend of using e-learning is increasing. COVID-19, as a disruptive factor, has accelerated this tendency.

*Purpose*: The research aims to explore innovative online teaching approaches that are applicable in the MET context, contributing to the process of adapting to e-learning of MET institutions.

*Methods:* The study takes the form of action research. Forty-seven students and two lecturers were recruited using a convenient sampling strategy. The researcher collaborated with participants (i.e., lecturers and students) conducting three-phase action research cycle in the Ho Chi Minh University of Transport: (1) Observe and conduct interviews to gain understanding about the current e-learning state, (2) Deliberate changes and implement new teaching methods, (3) Interviews to evaluate the results. The qualitative data solicited from the interviews were transcribed, translated, and analyzed using thematic analysis. The observation data and recordings of current e-learning classes, research classes were critically examined to enrich the thematic analysis results. The thick description technique was also employed to highlight the characteristics of each theme and the complex relationships between them.

*Findings:* The thematic analysis of phase one yielded three overarching themes: Opportunities, Challenges, and Needs, reflecting the current state from the perspective of lecturers and students. E-learning was well-accepted by participants. However, numerous challenges (i.e., interaction, IT skills, internet connection, university

support, distraction, equipment) and needs (i.e., knowledge and skills, teaching approaches) are highlighted. The thematic analysis of phase three yielded five main themes. The results highlighted the importance of interaction in e-learning class, student-centered approaches, selection of content, alignment of Intended Learning Outcomes (ILO), teaching approaches, assessments, and the concern of students' background.

*Value:* The research complements the current literature of e-learning in MET, adding further details on the challenges and benefits of e-learning in the maritime context. Further, the study proved the applicability of the constructivist approaches in MET with consideration of ILO and assessments.

**KEYWORDS**: E-learning, maritime education and training (MET), teaching approaches, learning theories, bottom-up approach

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# LIST OF ABBREVIATION

| | |
|---|---|
| HCM-UT | Ho Chi Minh University of Transport |
| IAMU | International Association of Maritime University |
| IMO | International Maritime Organization |
| IT | Information Technology |
| MarTID | Maritime Training Insights Database |
| MET | Maritime Education and Training |
| METI | Maritime Education and Training Institution |
| PLATO | Programmed Logic for Automation Teaching Operations |
| RAM | Random-Access Memory |
| ROM | Read-Only Memory |
| STCW | International Convention on the Standards of Training, Certification, and Watchkeeping |
| US | United States |

# Chapter 1: Introduction

## 1.1 Background and context

### 1.1.1 Education and technology

Education is probably one of the most important factors in a human being's life. As early as the time of Plato, one of the greatest philosophers in Ancient Greece, he described education as a means to achieve "individual justice" and "social justice". Education enables each individual to develop his/her competence to the fullest. And equal educational opportunities for everyone is the foundation to achieve "social justice" (Lee, 1994). Furthermore, Hanushek & Wößmann (2007) also discovered that education quality, with a particular emphasis on cognitive skills, is strongly related to individual income and country's economic growth. While there are many debatable perspectives regarding education such as its relationship with economy and businesses (Lee, 1994; Hanushek & Wößmann, 2007), individual's decision-making (Liñán et al., 2015), or gender facet (Bobbitt-Zeher, 2007), it is undeniable that education plays a critical role in the development of the human resources, which is a decisive factor to the success of many, if not, all industries (Manuel, 2005). Likewise, maritime education and training (MET) are also vital to the maritime industry. It helps improve manpower's competence and capability to the accepted industry standards. And the industry could only flourish if there are personnel with proper knowledge, skills, and attitudes. IMO former Secretary-General Koji Sekimizu once said: "Without a quality labour force, motivated, trained and skilled to the appropriate international standards, shipping cannot thrive"[1].

Though the attention for human element in the maritime industry has been growing fast in recent years (Cunningham, 2015), MET has been through a long and interesting development journey. From the dawn of humankind, early mariners learned

[1] Mr. Sekimizu said in his annual World Maritime Day speech in 2015.

seafaring knowledge and skills (e.g., celestial navigation, wind and water patterns reading) mainly through on-the-job training from their predecessors and experience-sharing between the early form of maritime communities (Paine, 2014; Buchet and Balard, 2017). Later on, during the medieval period, the blossoming of nautical instruments such as compass, portolan charts, the astrolabe is one of the reasons that boosted the development of MET. This time witnessed the establishment of many maritime institutions (Manuel & Baumler, 2020). During this period, numerous practices regarding examination, assessment, and quality assurance are still valid today. After the Middle Ages, the transition from sailing ships to steam-engine ships and then to motor-power vessels triggered the change in the approaches and curriculum of seafarers' education and training (Benn, 2020). In the contemporary world, the emergence of the autonomous ship, once again, might transform the materials, skills, and attitudes that are imparted to the maritime labor force. Throughout history, although there have been many forces and factors that enhanced the growth of MET (e.g., political forces, economic factors), "technology"[2] appears to be the drive for the change and development of education and training in this area. Furthermore, with the rapid advancement of the technology nowadays, it is not only considered as a drive for the transformation of MET but also the useful tools to facilitate its development. The relevant question now revolves around the effectiveness of technology in MET: what are the potential advantages and disadvantages of using the modern tools in the education and training of the maritime labor force?

Regarding the use of technology in MET, while there are numerous concerns about the effectiveness of these modern tools and how to strategically integrate and implement these technologies (Muirhead, 2002; Mallam et al., 2019), it is indisputable

[2] The term "technology" was not popular in English before the 20th century. It was once used to describe the study of useful arts (Crabb & George, 1823). Generally, nowadays, technology could be interpreted as "the practical application of knowledge in a particular area" (Merriam-Webster Dictionary, 2021). In this context, technology refers to modern tools, which could improve the effectiveness and efficiency of particular human work. These tools or instruments can be argued to be the results of applying human scientific knowledge.

that the advantages and values of applying the modern instruments in this area are increasingly recognized by the IMO and many maritime universities, academies and training centres. For a decade, through the International Convention on the Standards of Training, Certification, and Watchkeeping, 1978, as amended (STCW), one of the most important conventions regarding MET, the IMO has provided guidance for MET institutions (METIs) on the use of simulations, distance-learning or e-learning (IMO, 2011). Furthermore, many METIs have been implementing and examining many new applications of technologies in their curriculum, which could go beyond STCW's guidance, including virtual classrooms, augmented, virtual, mixed reality (Mallam et al., 2019; Kitada et al., 2017). Nowadays, one of the most noteworthy educational technologies, especially during the COVID-19 pandemic, is e-learning applications.

### 1.1.2 The development of e-learning

Though e-learning has recently gained popularity over the last few decades, its development can be traced back to the early 1900s. In 1924, the very first electronic learning machine, namely Automatic Teacher, was introduced by Sidney Pressey, a professor at Ohio State University (e-student org, 2019). This event marks the initial start of the journey of e-learning. As time went by, many inventions paved the way for the advancement of e-learning, although not all of them gained commercial success. One of the most notable innovations during the mid-1900s was the Programmed Logic for Automation Teaching Operations or PLATO (Figure 1.1). It was the first platform to deliver computer-based education and is often referred to as the "direct ancestor" of the popular Blackboard or WebCT nowadays (e-student org, 2019). In 1999, Elliot Masie coined the term "e-learning" for the first time in a professional context. During this time, e-learning programs began to be integrated into the curricula of numerous universities and colleges (Weller, 2018). Later in the fourth industrial revolution, the rapid advancement of technology[3] enables the expansion of e-learning. Nowadays, e-

[3] During the early 2000s till now, there are many disruptive educational technologies that enhance e-learning experience such as Blogs, Web 2.0, Virtual Worlds, Social Medias, Massive Open Online Courses (MOOCs), Learning Analytics, Artificial Intelligence (Weller, 2008).

learning has become a widely-accepted mode of learning around the world (Dong et al., 2009; Elbasuony et al., 2019), with a global market estimated to approach 331 billion dollars by 2025 (Galić et al., 2020), yet the extent to which it is used varies by countries (Kahiigi Kigozi et al. 2009).

**Figure 1.1**

*The first success of e-learning systems (e-student org, 2019)*


## 1.2 Problem statement - COVID-19 and beyond

At present, the COVID-19 has greatly influenced the education paradigm. The contagious pandemic has compelled a majority of countries to alter their educational paradigms. Rather than attending school/university physically, students must complete their program through online classes. Similarly, METIs are adapting to the situation. According to the International Association of Maritime University (IAMU) (2020), 96% of member maritime universities have incorporated e-learning to maintain their teaching and learning activities in response to COVID-19. Particularly, 83% of the universities have transitioned entirely to online or distance education. Meanwhile, prior to COVID-19, face-to-face classroom appears to be a predominant method of

teaching. In 2020, 98% of METIs indicated that they use the classroom approach to a medium or high degree in the survey of MarTID[4]. Thus, the pertinent question here is whether e-learning is merely a band-aid solution to the pandemic or a long-term strategic education form that METIs should consider incorporating.

The human race is currently undergoing the fourth industrial revolution, during which new technologies and innovations are transforming many, if not all, areas (Philbeck & Davis, 2018). MET is no exception. Thus, using e-learning as a temporary remedy to the spreading of Coronavirus may be short-sighted. As mentioned, e-learning has a long history and has grown in popularity due to the exponential growth of technology in the contemporary world. Furthermore, e-learning has proved its effectiveness and value in education (US Department of Education, 2010). If METIs do not strengthen their adaptability to disruptive technology and innovations, they risk being left behind in the market (Simmons & McLean, 2020). As such, it is more appropriate to regard this mode of learning as a novel approach that educational institutions should adopt in order to provide students with the greatest possible learning experience and to raise educational standards. COVID-19 is one among many factors that accelerate this process.

One of the most decisive factors to the e-learning incorporation process in MET is the teaching approach (Barari et al., 2020). Educators can impart knowledge and skills in the physical classroom using many resources that might not be available with the e-learning platform. Besides, the interactions could be far more limited. Therefore, further research is needed to explore the appropriate teaching approaches in the online classes in the MET context.

### 1.3 Aim of the study

The paper aims to research and explore innovative online teaching approaches that are in line with METIs' context, contributing to the process of building their adaptability to e-learning in those METIs. The chosen METI in the study is Ho Chi Minh University of Transport, located in Vietnam. The study focused on METI in Vietnam

[4] The statistics are collected before the COVID-19 disruption (MarTID, 2020)

because it is more challenging to integrate e-learning in a developing country, considering the lack of technology infrastructure, human resources (Kahiigi Kigozi et al. 2009). As such, the dissertation wants to contribute to the path of building resilience to e-learning in such METI.

### 1.4 Objective of the study

The objectives of the study include:

- To gain a deeper understanding of the current e-learning implementation state in Ho Chi Minh University from a bottom-up perspective
- To conduct a new delivering e-learning approaches in the university, generating ideas for improvement of the e-learning process
- To investigate the outcome of the new teaching methods
- To make recommendations for Vietnam maritime universities and METIs in general to better adapt to e-learning form of education

### 1.5 Research questions

To reach the aim, the questions needed to be addressed are:

**Question 1:**

What is the current situation (opportunities, challenges, and needs) of e-learning implementation in a Vietnam METI from the perspectives of lecturers and students?

**Question 2:**

What new e-learning teaching methods could be applied considering the current state of online learning in the Ho Chi Minh University of Transport?

**Question 3:**

What are the recommendations for the relevant stakeholders in the research to better adapt to the deployment of e-learning?

## 1.6 Methodology

The nature of research is one of the most vital factors when considering which research methods to employ (Kitada, 2010). This study seeks to find innovative solutions to create initial positive change for the e-learning incorporation process in the maritime context, particularly Vietnam METIs. The researcher aims to immerse in the reality to identify existing problems in the e-learning status quo and to deliberate changes to improve these problems. To fulfill this aim, the academic considered action research an appropriate approach.

As its name suggests, action research is a design that combines research and practical changes (Bolmsten et al., 2021). A part of action research concerns deliberated change, which is "a process, not an event" (Fullan, 1982, as cited in Robson, 2002). As such, action research usually takes the form of a cyclical process (Robson, 2002). The action research cycle in this study includes three phases: (1) Recognizing the perceived opportunities, challenges, and needs of maritime students and lecturers, (2) Deliberating changes and implementing new approaches and, (3) Evaluating the improvements. These phases are in line with the research questions and the aim of the dissertation. A detailed description of each stage and the rigorous justification for chosen methodology and methods will be presented in Chapter 3.

## 1.7 Structure of dissertation

There are *seven chapters* in this research:

**Chapter 1** presents the background where the research topic is situated. The chapter also clarifies the research problems, aim, and objectives of the study and briefly describes the research methodology.

**Chapter 2** includes the definition of e-learning, investigation on the pertinent educational theories, relevance of e-learning to MET, and the online learning legal framework in the maritime context.

**Chapter 3** goes deeper into the methodology, providing a specific description of each stage of the action research cycle. The chapter also indicates the justification for selecting action research methodology and ethics consideration.

**Chapter 4** shows the analysis of the first phase's data in the action research cycle. This chapter provides a comprehensive view of the e-learning status quo in the Ho Chi Minh University of Transport by critically analyzing the qualitative data from the interview in the first stage and observation when joining the current online class.

**Chapter 5** describes the process of establishing the online teaching methods in phase two of the action research cycle. This chapter also depicts the process of delivering the lessons using the new methods. The analysis of the qualitative data gathered in phase three is presented in this chapter, highlighting the effectiveness of the new teaching methods from the perspective of students and lecturers

**Chapter 6** delivers the discussion of chapter 4 and 5 findings, examining the results in light of relevant literature and educational theories.

**Chapter 7** summarizes the study's main points by briefly answering the three research questions. The chapter concludes by calling for future research replicating the action research cycle or combining it with other approaches in the maritime context to form initial steps for METIs to build their resilience to the pandemic and technology disruptions, particularly e-learning.

# Chapter 2: Related Work

## 2.1 Introduction

The previous chapter has situated the problems revolving around e-learning and the teaching approaches, particularly in MET. This chapter will further elaborate on e-learning regarding its definition. Further, the relevant learning theories will be discussed to explore the applicability of those educational theories in an online learning environment. Besides, the chapter also highlighted the relevance of e-learning in MET and the legal framework for this form of learning in the maritime context.

## 2.2 Definition of e-learning

The prefix "e" in e-learning stands for electronic, which means "implemented on or by means of a computer**:** involving a computer" (Meriam Webster, n.d.). As such, literally, e-learning could be interpreted as the learning activities that use the computer as a medium to enhance or facilitate the process. However, the definition of e-learning is often confused with online learning or distance learning. Furthermore, the meaning of this mode of learning is different in a variety of circumstances. Moore et al. (2011) argued that there is a vague distinction between e-learning, online learning, and distance learning. And these terms have varying interpretations depending on the specific context. Likewise, Sangra et al. (2012) indicated that people could define e-learning differently depending on the area they are focusing on, such as technology, delivery approach, or communication tools. For example, a technology-focused definition is:

> "E-learning is the use of electronic media for a variety of learning purposes that range from add-on functions in conventional classrooms to full substitution for the face-to-face meetings by online encounters" (Guri-Rosenblit, 2005).

Another example for delivery approach-driven definition:

> "E-learning is the delivery of education (all activities relevant to instructing, teaching, and learning) through various electronic media" (Koohang & Harman, 2005).

Some others concentrate on the communication aspects:

> "E-learning is education that uses computerised communication systems as an environment for communication, the exchange of information and interaction between students and instructors" (Bermejo, 2005).

Also, in Sangra et al.'s (2012) study, the researchers, after examining various perspectives from literature and experts, has drawn a quite comprehensive e-learning concept:

> "E-learning is an approach to teaching and learning, representing all or part of the educational model applied, that is based on the use of electronic media and devices as tools for improving access to training, communication and interaction and that facilitates the adoption of new ways of understanding and developing learning."

Although there are numerous perceptions relating to e-learning definitions, they share two noteworthy similarities: 1. the education process (e.g., learning and teaching activities) and 2. the technology elements (e.g., electronic media, tools, devices). In the context of this study, e-learning is the education process that utilizes the technology as a medium, particularly the e-learning platform such as Zoom, Google Meet, or Microsoft Team. In this research, the term "online learning" is also used interchangeably with e-learning since there is no substantial difference between these two terms as mentioned, and they are often used synonymously in many papers (Bartusevičienė et al., 2021; Lister, 2014; McGreal & Elliott, 2008)

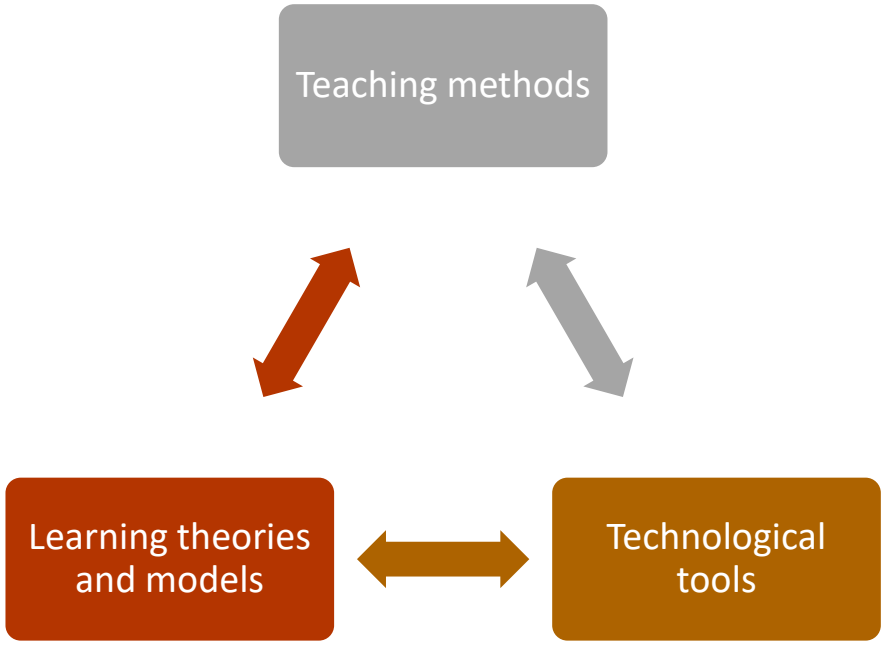
### 2.3 Relevant educational theories

Learning and teaching activities or methods are essential in any form of education, not just e-learning. These approaches might largely affect the outcome of learning. An inseparable part when creating effective learning and teaching activities is educational theories and models. These theories and models establish a firm foundation for lecturers, educators to develop or select appropriate approaches in their lessons. In e-learning, the technology element is interconnected with educational theories and teaching approaches (Barari et al., 2020) (Figure 2.1). While the theories form the base to apply teaching methods, new technology might open opportunities to improve those delivering approaches. On the other hand, innovative technology could generate a new

understanding of the teaching and learning process, which could modify or create new learning theories and models. This section will further discuss the relevant educational theories and models for e-learning.

**Figure 2.1**

*Three interconnected components in e-learning (Barari, 2020)*




### 2.3.1 Behaviorism

Behaviorism is the oldest learning theory among the philosophies discussed in this chapter (Edgar, 2012), emphasizing the change of learners' behaviors as a response to external stimuli. Ivan Pavlov and John Watson are early behaviorists well-known for their classical conditioning experiments, in which "participants" learn the appropriate behavior to respond to the repeated stimuli (McLeod, 2020). Another influential figure in behaviorism school is Skinner, who highlights the relation between behavior and its consequences. He proved that positive outcomes could reinforce a specific behavior and vice versa (Alzaghoul, 2012). Generally, this theory completely ignores the cognitive process in learners' minds, which can not be observed and immeasurable (Alzaghoul, 2012).

At first glance, behaviorism school may appear to be obsolete in the age of e-learning. The theory mainly focuses on the change of observable behaviors as a response to external forces. Knowledge is gained via encounters and interactions with the world. (Schunk, 2011). Meanwhile, in e-learning platforms, the interaction between lecturers and students is limited. However, it turns out that the learning theory has many practical implications for e-learning. For example, lecturers could divide lesson content into smaller components and organize them in a progressive difficulty sequence. As the students get familiar with the initial material, they will gain confidence in addressing more challenging problems (Janelli, 2018). Furthermore, educators could explicitly inform learners of the outcomes of learning (e.g., actionable skills) so that they can manage their expectations and determine whether they met the lesson's objectives (Alzaghoul, 2012). Besides, lecturers could apply the relation between behavior and consequence. For instance, they could connect a specific task related to the lesson with positive outcomes such as extra marks or compliments in an online environment to encourage them to do it.

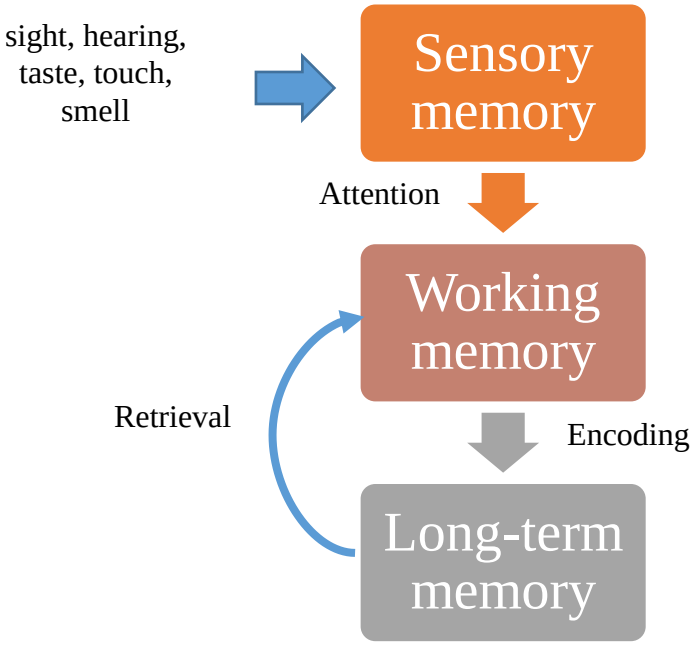
### 2.3.2 Cognitivism

Unlike behaviorism, which focuses on the observable behavior in the learning process, cognitivism theory concentrates on the inner mental actions in the human mind, which improve the mental capacity and learning skills within a learner to facilitate the knowledge acquisition process (Mcleod, 2003). These internal actions involve the use of different types of memory, thought, motivation, reflection, and metacognition (Mödritscher, 2006; Alzaghoul, 2012). Through the five senses of humans (i.e., sight, hearing, taste, touch, smell), information will initially come to sensory memory. Then it will be processed in the working memory or short-term memory, which has limited capacity. Later, the information is transferred to the virtually unlimited capacious long-term memory, which encodes information as schemas or images (Figure 2.2) (Janelli, 2018). The knowledge in long-term memory can be retrieved to short-term memory if needed (Eggen & Kauchak, 2013). This sequence is often connected with data processing functions in a computer, where the information is also received (e.g., from

the keyboard), stored (e.g., in RAM and ROM[5]), and retrieved (Alzaghoul, 2012). Besides, cognitivists acknowledge the discrepancy between each learner regarding the processing capacity, the existing knowledge in the long-term memory to different types of information (Alzaghoul, 2012). In other words, each learner will have different cognitive or learning styles.

**Figure 2.2**

*Simplified model of human memory (Eggen & Kauchak, 2013)*




Cognitivism theory is considered the theoretical foundation for e-learning applications (Janelli, 2018). Therefore, the theory has many implications for this form of education. Since learners will have different approaches and preferences to information, lecturers in e-learning classes can apply a variety of teaching strategies and prepare online learning materials suitable to different learning styles (Alzaghoul, 2012). For example, in a lesson, instructors can use the lecturing methods in combination with videos and pictures to facilitate the learning process of the visual

[5] RAM (Random-Access Memory) and ROM (Read-Only Memory) have many similarities with human working memory and long-term memory respectively

and auditory types of students. Furthermore, to focus the attention and enhance students' senses, key points of the lecture should be highlighted. Besides, educators can find the connection between the lesson's content and students' existing knowledge to boost the study process of learners. This practice is highly relevant to the next theory.

### 2.3.3 Constructivism

Constructivism is a learning theory that has risen from the realm of cognitivism. The theory could be categorized into three groups: personal/cognitive, social, and aphilosophical constructivism. Personal constructivism believes that learners can actively construct new knowledge based on their prior experience. Social constructivism, as its name suggests, emphasizes the importance of social interaction and knowledge exchange during the learning process. Meanwhile, aphilosophical constructivism proposes that the learning context is essential, and learners should immerse themselves into it to draw knowledge from their own interpretation (Edgar, 2012). Overall, the constructivism school focuses on the active knowledge-generating process of learners, either based on their prior understanding, social interaction, or learning context.

Along with cognitivism, constructivism is commonly used in e-learning classes (Janelli, 2018). In these e-learning courses, students are given more control in the learning process. They can actively engage in the discussion or problems raised in the lesson. Lecturers play a role as facilitators providing on-screen guidance, promoting collaboration to enhance the construction of students' knowledge (Alzaghoul, 2012). Although there are some concerns relating to this theory, such as the appropriateness of learning content, difficulties of inexperience learners, or the burden on teachers (Gredler, 2005), the application of constructivism will create opportunities for students to develop metacognitive skills, critical thinking, which will benefit them not only in the lesson but also for the life-long learning.

### 2.3.4 Connectivism

In contrast to behaviorism, connectivism is the youngest learning theory among the mentioned ones. It is considered "a learning theory for the digital age" (Siemens,

2005). Interestingly, in the early 19th century, there was also a connectivism theory proposed by Edward Thorndike. However, this theory represents the initial version of the model response-stimuli, which is highlighted in the theory of behaviorism (Edgar, 2012). In the "new" connectivism, learning begins when a learner connects to and feeds information into a learning community. This community is regarded as a "node" in the broader network, containing two or more nodes connected to exchange knowledge (Kop & Hill, 2008; Siemens, 2005; Downes, 2008). For example, learning communities can be wikis, online discussion forums, or social networks. Additionally, the theory puts the emphasis on two vital abilities that contribute to the learning process, which are the skills to search for knowledge and the ability to filter redundant information (Kop & Hill, 2008). Although there are controversies about whether connectivism is a learning theory or teaching approach, it plays a crucial role in developing a new form of education (Kop & Hill, 2008).

Many applications of connectivism can be used in e-learning (Banihashem & Aliabadi, 2017). For instance, instructors in e-learning classes can guide students to search and select the proper information to investigate. Then students could present their findings and contribute to the lessons. Furthermore, as social networks are ubiquitous nowadays, teachers could create a forum, group as a learning community to enhance the knowledge exchange between students. The group of different classes can be connected to facilitate the discussion as well as the knowledge acquisition process. These practices are deemed reasonable nowadays since the world's knowledge increases exponentially (Banihashem & Aliabadi, 2017), and the knowledge delivered in educational institutions can be obsolete rapidly (Chatti et al., 2007).

### 2.4 The relevance of e-learning in MET

In MET, the recognition and application of e-learning started in the early 2000s, along with the development of this learning form. In 2002, Muirhead set out the framework for METIs to gradually integrate technology, including e-learning resources, to facilitate the continuous development of the organization. Later on, Schinas & Thalassinos (2003) published the results of two initiatives involving computer-based

training and e-learning in MET. Their findings highlight the importance of distance working and the development of e-learning in the maritime industry. Meanwhile, Cui et al. (2004) introduced Web-based models to enhance maritime training.

Until now, e-learning has played an important role and greatly influenced the training and education of seafarers. According to the Maritime Training Insight Database (MarTID) survey in 2020, more than 40% of METIs reported that they had used e-learning, especially internet-based ones, to a medium or high extent.

In the future, this form of education is expected to develop and expand in MET, in tandem with the rapid advancement of technology. In the same survey of MarTID (2020), over 80% of METIs believe that e-learning, either through online sources or physical videos, will continue to thrive in seafarers' education and training for the upcoming year.

Although the implementation of e-learning poses numerous challenges to METIs and the form of education itself does have disadvantages and drawbacks compared to other ones (e.g., classroom-based education, simulation training) (Galić et al., 2020), e-learning can still be considered a part, if not an important sector of MET programs/curriculums due to its proven effectiveness, flexibility, and economic benefits in the long term (US Department of Education, 2010; Galić et al., 2020; Singh, 2018).

### 2.5 E-learning legal framework in MET

In MET, STCW Convention is regarded as one of the most important legal instruments aimed for global seafarer training standardization. In the Manila amendment of this convention (STCW 2010), the guidance for e-learning and distance learning is in section B-I/6.6-6.10. Generally, this section acknowledges the application of e-learning in MET and sets forth the legal framework for METIs to employ online learning as a training method (IMO, 2011). It provides fundamental recommendations on training tasks, learning outcomes, assessment, tutorial support for educators, instructors to design an appropriate e-learning or distance learning course.

However, considering the development of online learning in MET nowadays, more details need to be specified. One of them is the extent to which e-learning can be

used. In other words, which content or subjects could be delivered in the online mode. Along with maritime knowledge and attitude, one of the most critical components of MET is practical seafaring skills (e.g., ship handling, the ability to use life-saving equipment, fire-fighting equipment). It is challenging to effectively train these skills through online platforms or e-learning modalities. Therefore, it is necessary to determine how to combine e-learning with other training approaches in an effective and efficient manner to facilitate the whole process of seafarer education (Galić et al., 2020). Recently, there have been discussions within the IMO subcommittee about adapting some of the IMO model courses[6] to an e-learning format (Galić et al., 2020). Although this conversion requires thorough consideration, it is a promising start for the online learning mode to further develop in MET from a legal standpoint.

### 2.6. Summary

This chapter clarified the concept of e-learning in the context of this study. Further, the examination of pertinent educational theories will establish a firm foundation to develop potential teaching approaches in the research process. In addition, the evidence that proved the relevance of e-learning in MET and maritime legal framework will form the confidence for the research to continue developing and implementing innovative e-learning teaching methods in a METI.

[6] IMO model courses are the foundation and guidance for METIs to develop their own courses to meet STCW standards and requirements.

# Chapter 3: Methodology

## 3.1 Introduction

This chapter will provide a thorough description of the research methodology and a rigorous explanation of the alignment between research methodology and the dissertation's aims. First, the nature of action research and its adoption in the maritime context will be discussed. Second, the action research cycle in the study and the data collection methods in each phase of the cycle will be described in detail. Third, the researcher will briefly elaborate on the initial preparedness for data processing and analysis. Finally, the chapter will discuss the ethical consideration and limitations of the research methods.

## 3.2 The nature of action research

Action research is one kind of qualitative research methodology (MacDonald, 2012). Qualitative research places emphasis on the human phenomena, employing methods and techniques (e.g., observe, document, analyze) to explain and understand it (Gillis & Jackson, 2002; Leininger, 1985). The aim of qualitative research is to find deeper insights or truths and try to make sense of or understand the human experience and perceptions (MacDonald, 2012).

However, "you cannot understand a system until you try to change it" (Lewin, 1946). That is the argument from a person who is widely known as the father of action research: Kurt Lewin. He coined the term "action research" to refer to the process of researching a social system while striving to effect change, highlighting the necessity of client-centered attempts at resolving specific social problems (Gillis & Jackson, 2002). Similarly, Robson (2002) emphasized the importance of "understanding" and "improvement" in action research: understanding of practice and improvement of that practice as well as the situation where the practice takes place. These ideas are in line with the study's purpose. The researcher aims to gain a thorough "understanding" of e-learning implementation in a Vietnam METI from lecturers' and students' perspectives and attempt to deliberate "improvement" on the e-learning teaching

approaches. Further, action research is a common approach in educational settings (Robson, 2002; Clark et al., 2020), which is also the context of this research.

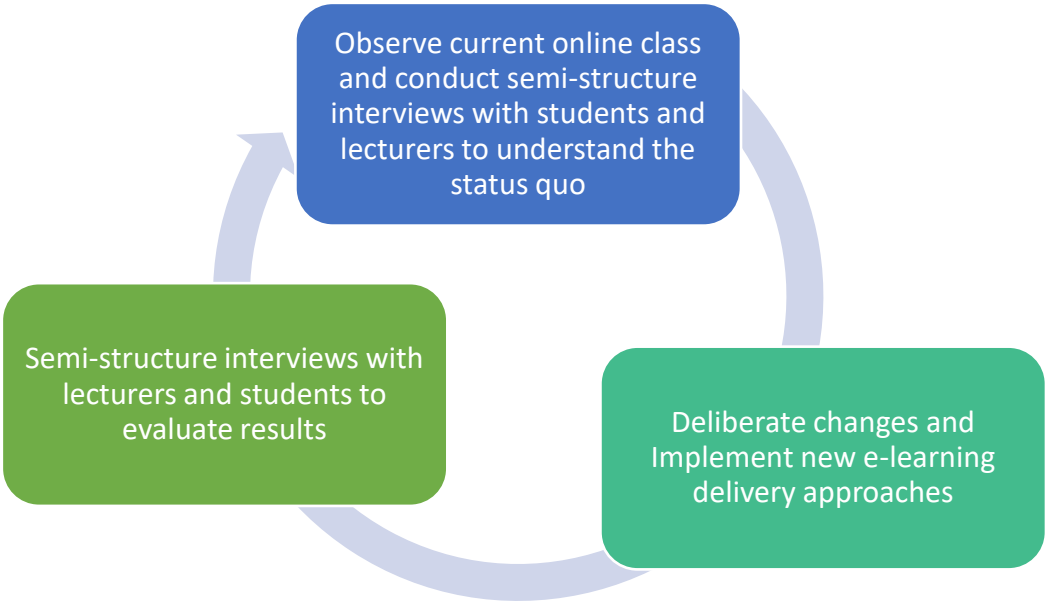
### 3.3 Establishment of the action research cycle

As mentioned, the action research of this study takes the form of a cyclical process. The study followed a systematic framework suggested by Dittrich et al. (2008) through Cooperative Method Development (CMD) approach to design an action research cycle. The CMD proposed a cycle with three phases: (1) understanding practice, (2) deliberate improvements, (3) implement and observe improvements. Further, the approach established specific guidelines emphasizing the need to understand the practice from the viewpoint of the affected people and include them in the improvement deliberating, implementing, and evaluating process. This CMD approach is consistent with the study. First, understanding current e-learning implementation emphasizes the perspective of lecturers and students who directly participate in online classes. Second, these people participated throughout all the phases of the action research cycle in this study.

One thing to consider is that the CMD approach is originally proposed in the software development context. However, the approach was adopted by Bolmsten et al. (2021) in maritime educational settings to educate Global Maritime Professionals (GMP). This proved that the method is also relevant in the maritime context of this study. Figure 3.1 depicts an overview of three phases of the action research conducted in this research, which will be further elaborated in the next part.

**Figure 3.1**

*The action research cycle*




### 3.4 Action research cycle detailed description and data collection in each stage

The author conducts an action research cycle in the context of Vietnam MET, including 3 phases:

*Phase 1: Understand and recognize the opportunities, challenges, and needs of maritime students and lecturers in a Vietnam maritime university*

The researcher contacted the Ho Chi Minh University of Transport and solicited the schedule of subjects delivered in the current academic term. A convenience sampling strategy was applied, recruiting lecturers and students in two appropriate courses in the mentioned schedule to the study, considering the difference in time zone. Then a social network group chat was established to form a connection between the researcher and lecturers, and students involved. In the group chat, the author familiarized himself with all members and informed them of the research plan, including the researcher's participation in upcoming lectures and interview questions.

The course language was Vietnamese and was delivered on Google Meet. All participants had Vietnamese as their native language. The data in this phase comprised recordings (both video and audio) of the normal lectures[7] and sessions of lecturers' and students' interviews.

*Phase 2: Deliberate changes and implement new teaching approaches*

Based on the input in phase 1, the researcher worked with lecturers in online meetings and chats to determine the proper teaching approaches that could be applied to deliver certain content in the subjects. These lectures are agreed to be taught by the researcher through Zoom, as this platform offers more functions to conduct various teaching activities. The data in this phase also consists of recordings of the research lectures.

*Phase 3: Evaluating the improvements*

To evaluate the improvements, the researcher conducted interviews to solicit feedback from lecturers and students immediately after the research lectures. In this manner, the participants could share their ideas/opinions instantly, preventing them from forgetting the experience. Furthermore, it is more convenient for all participants in terms of time arrangement. Besides, the researcher also assessed the improvement by observing the recordings of research lectures. This practice would help the investigator to seek more improvement information since the author had to play two roles (i.e., lecturer and researcher) in the research class. The data in this phase is the recordings of lecturers' and students' feedback interviews.

### 3.5 Data processing and analysis

Nvivo software was used to process the data. The researcher transcribed and translated[8] all the recordings of the interviews. One of the main challenges of the qualitative data (i.e., transcription of interviews) is that the interpretation of such data can be biased. The researcher acknowledged this limitation and attempted to

[7] The original lecture that has been conducted throughout the term without the interference of the researcher. The researcher played the role as an observer in these lectures.

[8] The language of the courses and interviews is Vietnamese

triangulate the way to interpret the data. The author asked the lecturers to double-check the transcribed data. Additionally, during the interviews, the author had noted down the ideas of students and lecturers and asked them to confirm whether the researcher understood their sayings correctly. These notes, in turn, were compared with the transcribed data to ensure consistency and correctness. These practices will minimize the personal judgements and biases during the interpretation of the qualitative data.

The thematic analysis was used to examine the data transcriptions. It is a widely-used qualitative research method to systematically structure the data by identifying, analyzing, describing, and presenting themes deriving from it (Nowell et al., 2017; Braun & Clarke, 2006). This method is suitable for inexperienced researchers as it offers an accessible analysis without requiring detailed theoretical and technological knowledge (Braun & Clark, 2006). As a novice researcher, the author deemed thematic analysis a proper and convenient tool to analyze the data. The researcher followed the step-by-step guidance in Braun & Clarke's paper in 2006, which is one of the most cited studies regarding the thematic analysis. Generally, there are three major stages in conducting this research method:

*Stage 1: Getting familiar with the data*

During this step, Braun & Clarke (2006) recommend that academics should "immerse" themselves in the data, involving transcribing, reading, and re-reading practices to be familiar with all the facets of it. For this study, the researcher is the one who gathered the data and participated in all the stages of the data collecting process as an observer, lecturer, and interviewer. Therefore, the author has some prior knowledge about the collected information. However, the academic still takes great care of the data, transcribing and interpreting it to understand the underlying meaning of the information and form initial ideas. (Braun & Clarke, 2006; Nowell et al., 2017).

*Stage 2: Generating initial codes and formulizing overarching themes*

After having initial ideas about the data, the researcher digs deeper to discover and determine meaningful patterns, which formulate the preliminary codes. For example, one code created is *Internet connection negatively affects the lesson*, based on the raw data such as:

*Lecturer***:** The internet connection interrupted the lesson. I had to change to a mobile phone, change the internet provider, and it's really hard to interact with students. It also costs me a lot of time, so I don't have much time to interact.

Then, the relevant codes are juxtaposed and collated to generate basic themes. The exemplary code above is a part of the basic theme: *internet connection.* Later, these themes are further examined to uncover the relationship between them. This practice will inform the formation of overarching themes. In this case, *Internet connection* belongs to the themes *Challenges*. Although the academic describes this stage stepwise, the creation of codes, basic themes, and overarching themes did not follow a linear process. The analysis is regarded as an iterative journey, in which the author moves back and forth between the data, codes, and themes. Besides, while Braun & Clarke (2006) proposed four different phases for the process regarding coding and theming, the researcher combined them into one stage as the main emphasis is on rigorous examination of data, and these phases happen simultaneously in the analysis process.

*Stage 3: Producing the report*

In the final stage, the academic presents the results of the analysis process in a systematic and structural manner. The thick description technique was employed in this stage. According to Ponterotto (2006), "thick description refers to the researcher's task of both describing and interpreting observed social action (or behavior) within its particular context". The approach does not just describe the surface of a situation but gives details about background context, the complex relationships between different elements in the scenario (Denzin, 1989). In the study, thick description helps readers build a more comprehensive understanding of the significance of each theme and the complex correlated relationships between them, all of which contribute to the formation of an interesting picture of the e-learning situation in the context of this study.

### 3.6 Ethical consideration and limitation

Prior to collecting the data, the researcher observed WMU Research Ethics Committee Protocols filling all the necessary forms, which ensured that the data would be strictly

protected and deleted upon the completion of the study. The researcher always informed the participants in advance about the research process and just proceeded when receiving the participants' approval. The pictures used in the research were processed, eliminating or blurring participants' identities to ensure privacy.

One most significant limitation in the research is that the internet connection occasionally disrupted the communication between the researcher and participants. To overcome this challenge, the researcher maintained the communication with participants by the group chats inside (i.e., chat box function of the e-learning platform) and outside of the online classes (i.e., social media's group chat). Whenever there are internet connection problems, the participants or researcher can connect with each other through chat.

# Chapter 4: Understand the current state (Phase one)

This chapter will systematically present the findings from the qualitative data soliciting from students' and lecturers' interviews and the observation when the researcher participates in the online class in the first phase of action research. Firstly, the background information of the participants (lecturers and students) and the institutions where the research takes place will be provided to give readers the context within which the data are solicited. Secondly, the coding strategies will be described in detail, and the themes deriving from the code will be presented. Thirdly, each theme will be explained in detail with specific examples from the data, and the relationship between themes is also discussed. Finally, the research will show how the findings in this chapter address research question 1; a summarized map and finding brief table are also provided at the end.

## 4.1 Background information

### 4.1.1 Institutions

The action research takes place at the Ho Chi Minh University of Transport, which is the largest educational institution dedicated to the transportation sector in the South of Vietnam. There are approximately 600 lecturers and over 15,000 students and trainees at the university (HCM-UT, 2014). The institution provides education in a variety of areas of transportation, including MET.

### 4.1.2 Participants

The participants of this study include two lecturers and 47 students[9]. One of the lecturers has over ten years of teaching experience, while the other has approximately five years. The majority of students are sophomores. There are some third-year students[10].

[9] There is one male and one female lecturer. There are 29 male students and 18 female students.

[10] The university operates on a credit-based education system. Students may select the subjects that correspond to their credits. Thus, a class may contain sophomores and third-year students who have selected the same subject from the curriculum.

### 4.1.3 Chosen subject

The chosen subject in the research is Marketing in Maritime services. It was selected because of the convenience, considering time zone difference, the duration of the research, and class schedules. One more important reason is that the lecturers in charge of this subject desire to change the teaching approaches. This is favorable for the action research as the deliberated change can be more effective if the participants are actively engaged (Robson, 2002).

## 4.2 Findings

The thematic analysis determined three overarching themes: *Opportunities, Challenges, and Needs.* These themes were elicited from lecturers' and students' perspectives, providing abundant data to gain a deeper understanding of the current situation of e-learning implementation in the Vietnam METI. The bottom-up approach, which takes ideas from people who directly participate in the e-learning class, could indicate phenomena that are closer to reality.

### 4.2.1 Opportunities

*4.2.1.1 Perceived advantages*

Perceived advantages are the e-learning benefits that the lecturers and students recognized during their participation in online classes or from their prior knowledge. The study discovered that both lecturers and students highly appreciated online forms of learning regarding their flexibility, leading to time and cost-saving. Interestingly, they also acknowledged the positive impact on the environment when conducting online classes. The following quotes capture their sentiment:

> *Lecturer:* I think it (online learning) is pretty effective. I have attended online classes before. It's a good form of learning. Firstly, it saves a lot of costs for both the organizers and learners. For example, transportation fees, time, health - when we have to fight traffic jams to get to the university. It even helps to protect the environment in my opinion because we can reduce emissions, energy when participating in the traffic, for instance.

*Student:* This mode of learning (online learning) prevents us from contagious diseases like COVID-19… We can also save transportation costs and time.

Regarding the educational facet, the instructors believed that attending e-learning classes would nurture the life-long learning skills of students and better prepare them for the future. Similarly, students acknowledged that they could enhance their self-study skills when taking online classes. The following quotes illustrate the point:

*Lecturer:* Online learning is one of the methods to help students train the adaptation, self-study…When students learn online, they might get used to distance working. And with the globalization and international working environment nowadays, these skills benefit students in their later life.

*Student:* It (online learning) creates the motivation for us to conduct research ourselves, enhancing the research ability.

The "perceived advantages" of e-learning from lecturers and students are considered opportunities for adaptation and implementation of e-learning in the university. Firstly, students and lecturers are the people who are directly involved in e-learning classes. Thus, their recognition of the potentials and benefits of online learning will strengthen their acceptance of this education form, which will create motivation for them to optimize the e-learning process. The current acceptability of instructors and learners will be further discussed in the next theme.

*4.2.1.2 Acceptability*

**"**Acceptability" answers the question: to which degree participants consider e-learning as an important form of education as of now and in the future regardless of COVID-19. The research revealed that lecturers and students tend to consider e-learning as a part of a blended approach application. Although they acknowledged the advantages of e-learning, the suitability of online classes to subject content is the main concern. Furthermore, they also realized the benefits of other forms of education, particularly face-to-face learning. The quotes below demonstrate lecturers' and students' perspectives:

*Lecturer:* I think a blended approach is better because the flexibility of e-learning can solve many problems of students and lecturers. But the

communication in the classroom, of course, will be more effective, and students will be more confident and active.

*Student:* I want the mix of both methods (online and face-to-face learning) because each method have their advantages and every subject has its own characteristics, so it depends on the content of the subject to decide the teaching methods.

Most participants agree that e-learning could be an integrated part of the teaching approaches. This perception will help them to further investigate and acknowledge more benefits of e-learning. If they just consider online classes as an emergency method, the full potential of this form of education might not be realized. Therefore, the "acceptability" is correlated to the "perceived advantages".

### 4.2.2 Challenges

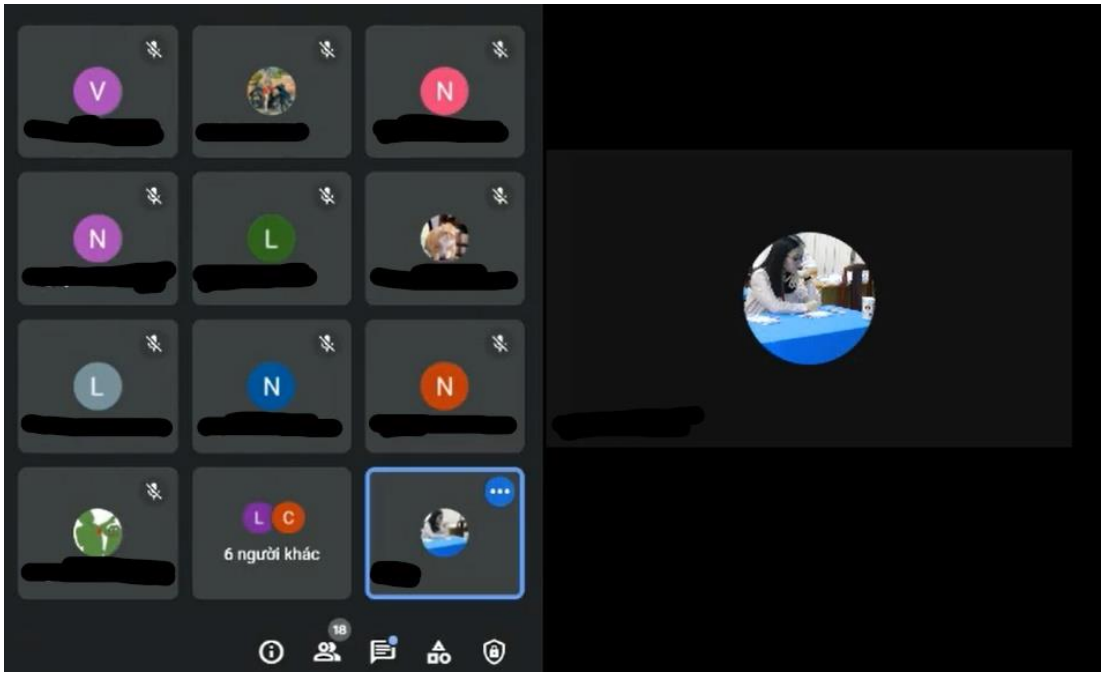
*4.2.2.1 Interaction*

One important issue is the interaction challenge. The interaction is regarded as the communication between lecturers and students, as well as conversations among students in the e-learning context. This aspect is supposedly limited in online learning compared to face-to-face class as learners and instructors can only see the "talking head", which might reduce the effectiveness of communication due to the lack of physical body language. In this research, the interaction is even less since all the participants did not turn on their cameras[11] (Figure 4.1). The means for communication is only through voice and chat box.

[11] This refers to the cameras of the end devices such as laptops or smartphones. When participants open them, it might capture their figures and the background behind them

**Figure 4.1**

*Current online class with all cameras off*




The study deduced numerous possible explanations for this occurrence. Firstly, it is related to the personality of lecturers and students. Many students felt unconfident and shy when opening cameras, revealing the background that they did not want others to see. Lecturers also reported the same reason. Besides, since the students did not open the cameras, the lecturers also hesitated to trigger it. The following extract of data will illustrate the point:

> *Lecturer: ...* with online classes, students usually feel shy… There are many reasons that make both lecturers and students shy when turning on the camera. One of them is the messy background.
>
> *Lecturer:* Why we don't open the cameras? because students do not open it as well

Secondly, the Internet connection is one of the reasons. Some could argue that the background could easily be changed owing to the development of e-learning platforms (i.e., Google Meet or Zoom). However, these changes can affect the Internet connection and might interrupt the lessons. One lecturer commented:

*Lecturer*: If we change the background through the platform, many effects of our lessons will be slower, the internet connection can be slower as well.

Furthermore, the Internet connectivity issue not only prevented participants from opening their cameras but also affected the quality of communication between lecturers and students. The following quote captures students' sentiment:

*Student:* If we talk face-to-face, it will be better. If we exchange information through a screen, it will become harder. Sometimes, slow internet connections will annoy the listener and the speaker. For example, when I already answered the question, but the lecturer still didn't hear it, and the lecturer kept calling our names. My answer came 5 seconds later due to the connection delay.

Another factor that compromised the interaction is the teaching approach. Traditional lecturing with slides[12] is the commonly used method in e-learning classes. This approach usually inhibits students' interaction or engagement with the lessons. One student stated:

*Student:* When we study online, most of the lecturers just show the slides and teach. The interaction is limited

The restricted interaction could affect the concentration of students. If they are engaged with the lesson, they might find it interesting and be more focused. Therefore, this challenge is correlated with other obstacles such as *Distraction.*

*4.2.2.2 Distraction*

Distraction relates to several factors that impair the span of attention or concentration of students during e-learning classes. As mentioned, the interaction plays a key role in maintaining students' focus. In the e-learning classes, the effectiveness of communication and body language was reduced compared to face-to-face classes. Thus, students' attentiveness is also influenced. The following quote demonstrates this challenge:

[12] In contrast to active lecturing, in which lecturers actively encourage students to engage with the lessons, traditional lecturing refers to a teacher-center method, in which students passively receive knowledge imparted from instructors.

*Student:* It's difficult to concentrate on the whole lesson. When I study in class, the body language of the lecturer helps me stay focused. When joining the online class, I attended alone in the room, and the lecturer used a monotonous teaching voice. It's easy to get sleepy.

Besides, since many students take online classes at home, they are distracted by their family members. Some students said:

*Student:* When studying, my parents usually ask me to do house chores such as cooking, sweeping the floor

*Student:* My parents ask me to look after my younger siblings

The researcher noticed that to maintain the concentration of students during class, it is necessary for all stakeholders, including students' families, to acknowledge online learning as formal education, rather than an auxiliary or temporary educational form in this case.

*4.2.2.3 Information Technology (IT) Skills*

IT skills refer to the ability to use basic functions of an e-learning platform (e.g., raise hands, share screen, turn on/off the mic) and learning management system (LMS) (e.g., find the resources, lessons). During the research process, the author discovered that many students struggled with these skills. They are unfamiliar with the tools used to facilitate e-learning. One student said:

*Student:* When I share my screen for the very first time, I don't know how to do it. Sometimes, I turn on the mic and forget to turn it off.

The lecturer also recognized the lack of these skills:

*Lecturer:* Many students are confused when accessing a learning management system. They could access the system but did not know where to find the lessons, although lecturers already gave guidance.

The deficiency of IT abilities may have a detrimental effect on the teaching and learning activities in e-learning classes. For instance, students might become perplexed when doing a presentation in e-learning class, where they may have to use "share screen" or "share sound" functions. Although these functions can be triggered by a few clicks, participants who are unfamiliar with them may disrupt the class and waste

time. Furthermore, given the internet connection problems, it would be disadvantageous for students if they could not find the resources in the LMS to review the lectures.

*4.2.2.4 Health issues*

Health issues involve symptoms that students encounter when taking online classes. The eye-related problems are the issues that most students spotted. One student exemplified such problem:

> *Student*: My eyes are very tired and also dry. I got myopia, my eyes are very tired wearing the glasses, let alone looking at the screen for a long time. This makes my sight blurred out sometimes.

When students participate in e-learning classes, staring at the screen for a long time is an inevitable thing. Therefore, lecturers can give learners some short breaks when planning teaching activities and may advise students to do some small exercises (e.g., stretches, eye exercises) during these intervals to minimize the potential health issues. However, these breaks needed to be carefully managed as they could affect students' attentiveness.

*4.2.2.5 Equipment*

The equipment challenge refers to the absence of necessary instruments for conducting or enhancing e-learning activities. Laptops and mobile devices are considered the necessary equipment to participate in or organize online classes. However, not all students have access to such resources.

In the following quote, a lecture and a student raised this concern:

> *Lecturer:* For the students, many of them do not have laptops or equipment to study.
>
> *Student:* When everything first started, there was a subject that I registered for, but I didn't have a laptop, so I was forced to cancel it, and I had to take that subject in another term.

Furthermore, there is a need for additional equipment to improve the quality of e-learning classes. A lecturer stated:

> *Lecturer:* Another difficulty is the lack of equipment. Although I have a laptop and phone, I still need additional resources. For example, when I teach subjects that require calculating, I need an e-board, e-pen, and even some software—all of that I have to buy without the support of the university.

The lack of equipment is a huge barrier to e-learning implementation. Without certain devices (e.g., laptop, smartphones, e-board, e-pen), students can not conduct their online studies, and lecturers may be unable to create high-quality lessons as they desire. In the later exemplary quote, in addition to the deficiency of equipment, the lecturer highlighted the insufficient support of the university, which is also the next challenge.

*4.2.2.6 University support*

University support describes the institution's financial, technical, and/or mental backing for lecturers and students during the implementation of e-learning. From the lecturers' perspective, the support from the university is not enough, leaving them facing numerous difficulties that "responsibility with the job" is the only motivation for them to overcome these obstacles. The following quote captures one lecturer's sentiment (verbatim):

> *Lecturer:* I also really want to diversify the approaches for students, but lecturers do have many challenges. For example, our salary is not enough. When we have to do online classes, our salary is even reduced while we have to buy equipment to teach online, for example, this e-board, which is more than 70$. The university does not support, even reduce our salary. With that salary, it's even hard to afford the living expenses in this city. So how can lecturers commit to buying the equipment, software, apps to facilitate e-learning? For me, I bought the e-board, software to support my e-learning lessons. It's my responsibility with the job, but it (the situation) is really hard.

Although it seems that the University did not offer adequate support, especially financial one (i.e., salary and wages) for teaching staff, it is necessary to take the institution's view to have a bigger picture about this problem. During the pandemic, the University's revenue, which is the main source for employees' salaries, might be

affected. The expenses for an emergency response to COVID-19 (e.g., buying masks, hand sanitizers), infrastructure for e-learning systems (e.g., platform, LMS) could be enormous. Therefore, all the viewpoints of stakeholders needed to be examined rigorously to gain a deeper understanding of the challenge. However, from the lecturers' standpoint, it appears that the problem at hand is very urgent, and there is a desperate need for solutions.

*4.2.2.7 Internet Connection*

One thing to take into consideration is that all participants stated that they experienced Internet connectivity issues during e-learning classes. These problems involve the interruption during the lessons in both ends (i.e., lecturers and students) to various extents. For example, in one class, the lecturer wanted to share a video with students. However, due to the slow Internet connection, the students could not see the video but only heard fragmented audio of it. In another class, the lecturer even got kicked out of the e-learning platform (i.e., Google Meet) because of a poor internet connection. On the students' side, some students could not concentrate on the lesson because it was continuously interrupted due to the same reason. The following quote of lectures and students describing the difficulties regarding internet connection:

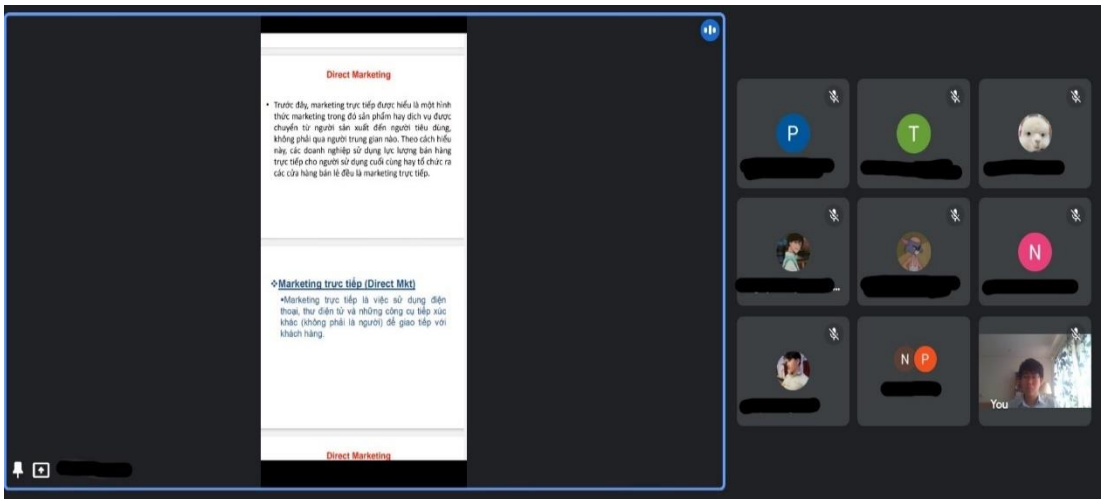
> *Lecturer:…* The sluggish internet connection interrupted the lesson, I had to change to the mobile phone, change the internet provider to continue, and it's really hard to interact with students. It also costs me a lot of time, so I don't have much time to interact.
>
> *Student:…*sometimes, the internet connection is really poor, we could not follow the lesson continuously.

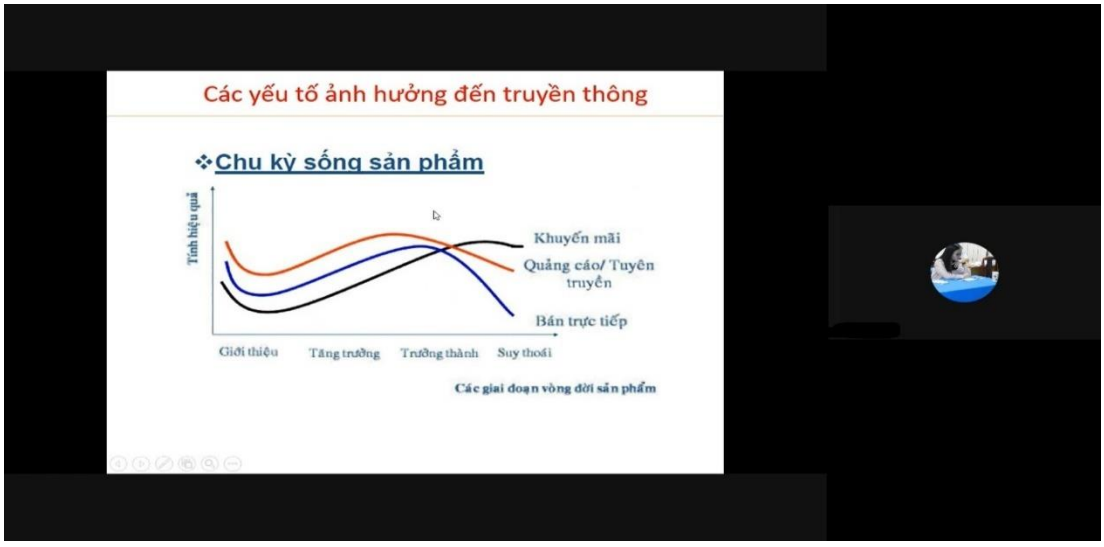
In the lecturer's exemplary quote, the poor internet connection negatively affects the lesson in many ways. Firstly, the lecturer had to teach via mobile phone. This practice degrades the slide content's quality (e.g., the size of the letters on the slide), which subsequently deteriorates the instructional activities (Figure 4.2). Secondly, Internet issues also influence lecturer's time management. Because solving these problems takes a great deal of time, there is less time for interaction with students. Therefore, the Internet connectivity problem is not a stand-alone challenge; it has an impact on

and is related to several other issues.

**Figure 4.2**

*The slide presented using the mobile phone (above) and using the laptop (below)*[13]




### 4.2.3 Needs

*4.2.3.1 Knowledge and Skills*

The need for knowledge and skills was highlighted by both lecturers and students. Given many challenges that have been mentioned, lecturers identified various areas that they need to improve, such as understanding of students' psychology, body

[13] participants' names are hidden due to privacy reason

language skills, and voice training. Interestingly, these areas particularly focus on enhancing the interaction between lecturers and students, which is restricted in the online learning form. Besides, the necessity to adapt new technologies such as applications, e-learning platforms was also emphasized by instructors. One lecturer shared the opinion:

> *Lecturer:* Lecturers should understand the psychology of students. We should encourage the students to answer the questions because some students are afraid of failing to answer. Lecturers also should know about body language, which is very important. We should train the voice as well. When we teach in the classroom, there are many supported factors. In the online class, students just interact mainly through voice and slides. So a good voice could be an advantage. Besides, it's crucial to know the trend of technology, applying it to the lessons to make them interesting and engaging.

For students, there is a dire need to improve their public speaking skills. The lack of these skills explains the shyness in students, preventing them from engaging in the lesson. As they do not actively participate in the classes, the quality of the lessons might be reduced. The research also explores the reasons behind this deficiency, which relate to the whole educational system, students' adaptability, and fear of failure. The following quotes capture students' perspective:

> *Student:* Vietnamese students lack public speaking skills. As I witnessed, many students in our class are really shy when presenting and do not have many skills.
>
> *Researcher:* Why are they shy?
>
> *Student:* Because of the education system, in high school, we already lack the chance to present in front of the class. Therefore, when we go to universities, we have to learn it ourselves. It's already a challenge. In addition, my classmates in university are not as close as in high school, so when we present, we usually feel shy. And the knowledge is brand new, so we are afraid to present it or raise ideas.

#### *4.2.3.2 Teaching methods*

The common teaching method that most lecturers use in e-learning classes is lecturing with slides. Students found this approach tedious, especially when the lecturers used a monotonous voice. On the other hand, they appreciate the importance of interaction, which makes the e-class more interesting and engaging. The following quotes are examples that demonstrate the point:

> *Student:* …the method that I think it's boring is just reading the slides with a monotonous voice. Everyone (lecturers and students) needs to interact with each other so that the lesson can be interesting and effective.
>
> *Another Student*: If just one side, for example, lecturers are enthusiastic with the lessons and the students don't interact, the lecturers might lose motivation and couldn't deliver the lesson as effectively as they can. In contrast, if students are highly engaged in the lesson, lecturers will have a better mood to teach, and therefore, the quality of the lesson will increase, and students will learn better. So, interaction is very important, especially when we have to do it on screen.

Both students valued the significance of interaction for both lecturers and learners. Furthermore, they emphasized how these mutual communications can enrich the lessons. While traditional lecturing has its own merits and diversifying teaching methods depends on many factors (e.g., learning outcomes, curriculum, university support), there is a need for innovative delivering methods that can attract students and enhance the connection between lecturers and learners.

## 4.3 Summary of phase one

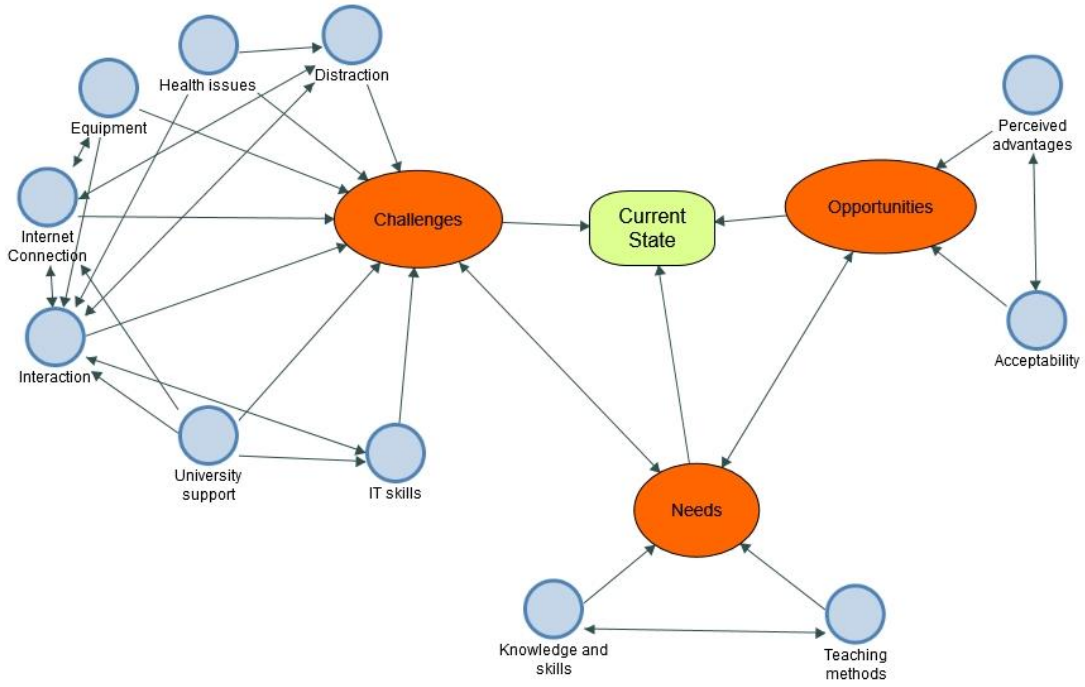
Phase one outcomes presented a more thorough view of e-learning implementation in specific classes at the Ho Chi Minh University of Transport. These findings help address research question one, which is further explored in Chapter 6. The results are summarized with a map and a table.

### 4.3.1 Summary concept map

The summarized map consolidates overarching and basic themes, presenting their relationships. The map will provide an overview of the findings.

**Figure 4.3**

*An overview of phase one's findings*




### 4.3.2 Finding summary table

While the above diagram gives an overview of phase one's outcomes, the table in this section offers a brief description of the primary themes and the evidenced quotes from data.

**Table 4.1:**

*A brief description of phase one's results*

| Overarching themes | Basic themes | Short description | Exemplary data |
|---|---|---|---|
| Opportunities | Perceived advantages | Participants recognized many benefits of e-learning, including flexibility, the chances | "Online learning is one of the methods to help students train the adaptation, self-study." |

| | | | |
|---|---|---|---|
| | | to learn new skills, and increasing adaptability. | |
| | Acceptability | Participants considered e-learning a good integrated method in blended approach application | "I want the mix of both methods (online and face-to-face learning) because each method has its advantages." |
| Challenges | Interaction | The interaction in e-class is restricted | "When we study online, most of the lecturers just show the slides and teach. The interaction is limited." |
| | Distraction | The concentration of students in e-class tend to be compromised by limited interaction and distraction from family | "When joining the online class, I attended alone in the room, and the lecturer used a monotonous teaching voice. It's easy to get sleepy." |
| | IT skills | The lack of familiarity of the e-learning platform and LMS deteriorates online teaching and learning activities | "Many students are confused when accessing the learning management system." |
| | Health Issues | Eye problems are spotted health issues as students have to stare at the screen for hours | "My eyes are very tired and also dry." |

| | | | |
|---|---|---|---|
| | Equipment | Students and lecturers lack the necessary tools to conduct or optimize e-learning activities | "For the students, many of them do not have laptops or equipment to study." |
| | University Support | The university's assistance for lecturers during e-learning implementation is insufficient | "When we have to do online classes, our salary is even reduced while we have to buy equipment to teach online, for example, this e-board, which is more than 70$." |
| | Internet connection | Interruptions due to Internet connection negatively impact the e-learning process | "Sometimes, the internet connection is really poor, we could not follow the lesson continuously." |
| Needs | Knowledge and skills | The need for interaction-enhanced and IT knowledge and skills are highlighted | "Lecturers also should know about body language, which is very important… Besides, it's crucial to know the trend of technologies…" |
| | Teaching methods | Innovative teaching approaches are required to attract students and strengthen the interaction between instructors and students; | "…the method that I think it's boring is just reading the slides with a monotonous voice. Everyone (lecturers and students) need to interact with each other so that |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | and | between | students | the | lesson | can | be |
| | | | themselves | | | interesting | | | and |
| | | | | | | effective.” | | | |

# Chapter 5: Deliberate improvements, implement and evaluate results (Phase two & three)

## 5.1 Introduction

This chapter will describe the critically reflective process of the researcher to generate the new delivery approaches in collaboration with lecturers and in consideration of phase one's outcomes. Then the chapter will describe how the research implements the developed delivery approaches. Finally, in the like manner of chapter 4, the themes gleaned from qualitative data gathered during the last phase of action research will be systematically presented. Each theme will be explained in detail. The chapter also discusses how the results tackle the second research question.

## 5.2 The current state – input from phase one

The findings of phase 1 depicted the existing situation of e-learning application at a Vietnam METI from a bottom-up perspective. The current state's picture highlights the complex relationships within and between challenges, opportunities, needs. These interactions create a colorful reality, where there is a mixture of positive and negative signs for e-learning adaptation. Due to this complexity of real life's state, it might be unwise to expect a single panacea for all the problems regarding maritime online learning in Vietnam. In the context of this study, the researcher placed emphasis on deliberating changes in the teaching methods. These changes are more feasible and suitable for lecturers and students to engage and apply immediately, rather than suggestions on policy changes, financial or technical support, which requires the inclusion of a wider range of stakeholders. However, in addition to innovative teaching approaches, the paper still proposes recommendations for the improvement of e-learning adaptation for METIs in Vietnam as a whole based on the investigation of the current state.

In phase two and three, the researcher attempted to design more interactive and engaging online teaching and learning activities based on existing learning theories and models. Then, the author would examine the effectiveness and possibility of applying these innovative approaches to e-learning classes. The results of these two

phases might deliberate potential improvements to the existing state and inform positive changes in the e-learning adaptation process in Vietnam METIs.

### 5.3. Change deliberation process – Phase two

This section details the information on innovative teaching methods and how they are applied in online classes.

#### 5.3.1 Establish new teaching approaches

After phase one, the researcher worked closely with lecturers to select suitable content within the subject "Marketing in Maritime services" to generate appropriate learning activities. Considering the need for social skills in the first phase, the topic "Communication" was chosen. The lecturers sent the related materials in advance to the author to investigate the topic content and gain a deeper understanding of communication in general and in the maritime context. The intended learning outcomes were for students to recognize the importance of communication, particularly in maritime services, and discuss the solutions for conflicts in communication in such contexts. The academic would play a role as an instructor delivering three-hour lessons to two separate classes. The students of these classes are the ones who participated in phase one. The lecturers also joined the classes as consultants[14] and observers.

To design teaching methods that attract and engage students, the researcher based on several elements of cognitivism, constructivism, and connectivism learning theories. Firstly, considering there could be different types of learners among students (e.g., visual, auditory, kinesthetic), the teaching activities and the materials used were diversifying. For example, the lesson design includes different learning tasks concerning group discussion, role-modeling, and problem-based activities. Besides, the teaching slides were created using more pictures and videos to illustrate the content. Secondly, the academic placed the focus on students when creating learning

[14] Since the researcher is not an expert of the delivering topic, the lecturers also participated in the classes with the support role. If there is any error during the class in term of knowledge, the lecturers could give advice personally for the researcher to amend timely.

activities. In most of the tasks, students are the ones who critically examine the problems and generate their understanding. With the instructor's role, the researcher facilitated this process and enriched their constructed knowledge by providing them with basic underpinning communication theories and discussing their new understanding of the problems with relevant videos and pictures. Thirdly, during the learning process, the author often identified keywords and gave instructions to students on how to search for relevant information to broaden their prior knowledge about the problems.

### 5.3.2 Implementation

*5.3.2.1 Familiarization with participants*

From the findings of the first phase, one of the reasons that reduce the interaction during online class is the shyness of participants. Therefore, it is necessary for the author to familiarize with students and lecturers before and during the research classes. In fact, the academic had actively formed a close connection with participants in phase one by creating group chats to keep students and lecturers informed of the study and maintain small talks about everyday stories. Furthermore, at the beginning of the 3-hour lesson, the researcher allocated some time for students to introduce themselves by talking about their names, hobbies, and hometowns. The author took turns to do the same and had a small discussion on relevant stories. These practices made all members of the research classes feel comfortable and created the first impression, which enhanced students' focus and engagement later on. One of the problems highlighted in the "interaction" challenge is that all students turn off their cameras during class. However, owing to the familiarization process and encouragement from the researcher and lecturers, many students opened their cameras in the research class (Figure 5.1), which improved the interaction as members could see each other's facial gestures. Although not all the students did that due to several factors (e.g., equipment errors), the socialized activities constitute an improvement compared to the current status.

**Figure 5.1**

*Students turned on their cameras during class*[15]

*5.3.2.2 Diagnosis test and discussion*

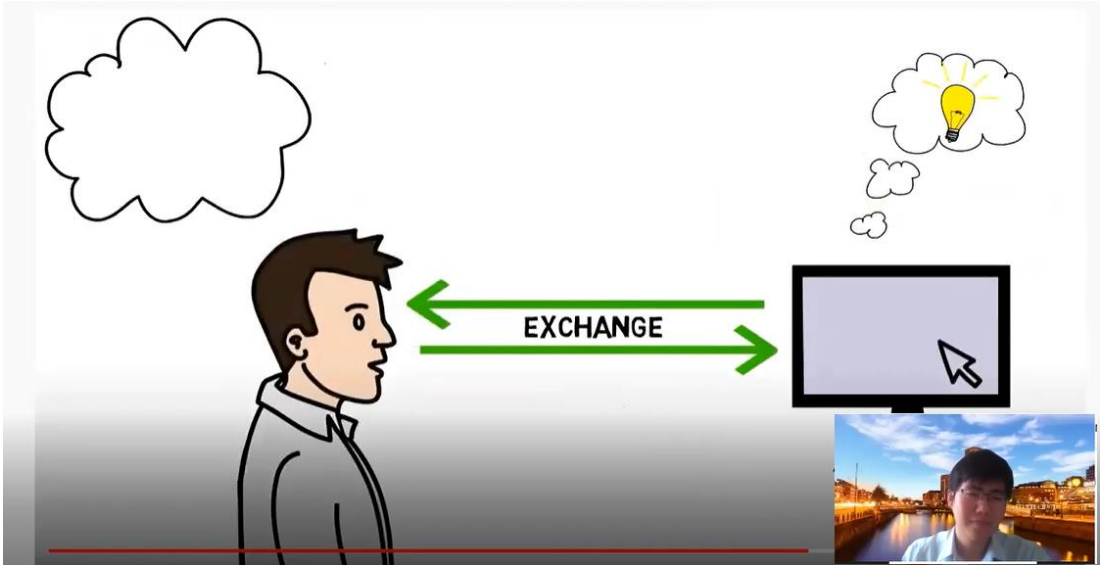
One vital element in the constructivism approach is the prior knowledge of participants. The researcher[16] tested this factor by conducting a quick diagnosis test, asking students general questions about communication (i.e., regarding definitions, characteristics, maritime applications). After acknowledging several opinions, the academic enriched the students' understanding by requiring them to critically examine a relevant video about communication (Figure 5.2). Then the author held a discussion with the learners on the perspective in the video. These approaches enhanced lecturer-student interaction, which was lacking in the current online classes in phase one.

[15] The participants' names and figures were hidden and blurred due to privacy reasons

[16] The researcher played a role as instructors in class

**Figure 5.2:**

*The video used for students to critically examine*




*5.3.2.3 Group discussion*

Aside from limited interaction between lecturers and students, the findings of the first phase also indicated the need for communication between students. Therefore, when the students had gained fundamental knowledge about communication from the first activity, group discussion was implemented to explore how to communicate effectively in general and in the maritime context. Firstly, the researcher broke this central problem into several relevant questions to facilitate students' discussions. Secondly, the academic randomly divided the class into smaller groups with the help of the IT tool[17] (Figure 5.3). These groups were then sent to separate "breakout rooms"[18] for discussion. During the teamwork activity, the researcher moved back and forth between the rooms to advise students on good practices to conduct effective group discussions and suggest ideas for them to investigate the problems deeper. After

[17] https://www.randomlists.com/team-generator

[18] This is one of the functions of the e-learning platform (i.e., Zoom), which allows the host (who established the meeting) to create different virtual rooms for a group of participants to discuss or do the teamwork. These rooms are connected with the main room. Therefore, when the group activity is finished, all participants could return to the original meeting room.

the discussion, all groups were returned to the main room. Each group took turns presenting the results of their teamwork (Figure 5.4). Based on these findings, the academic organized a short debate between groups to argue the elements, factors that make effective communication in several contexts. Finally, the researcher concluded by critically analyzing and summarizing important ideas raised by the students.

**Figure 5.3**

*The random team generator website*[19]

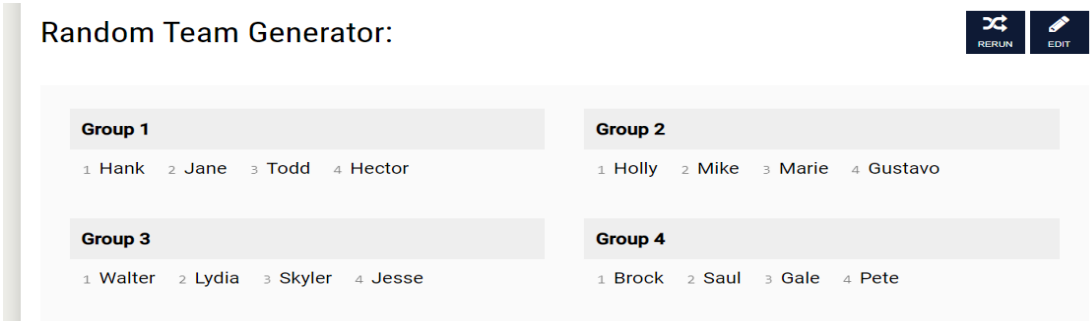
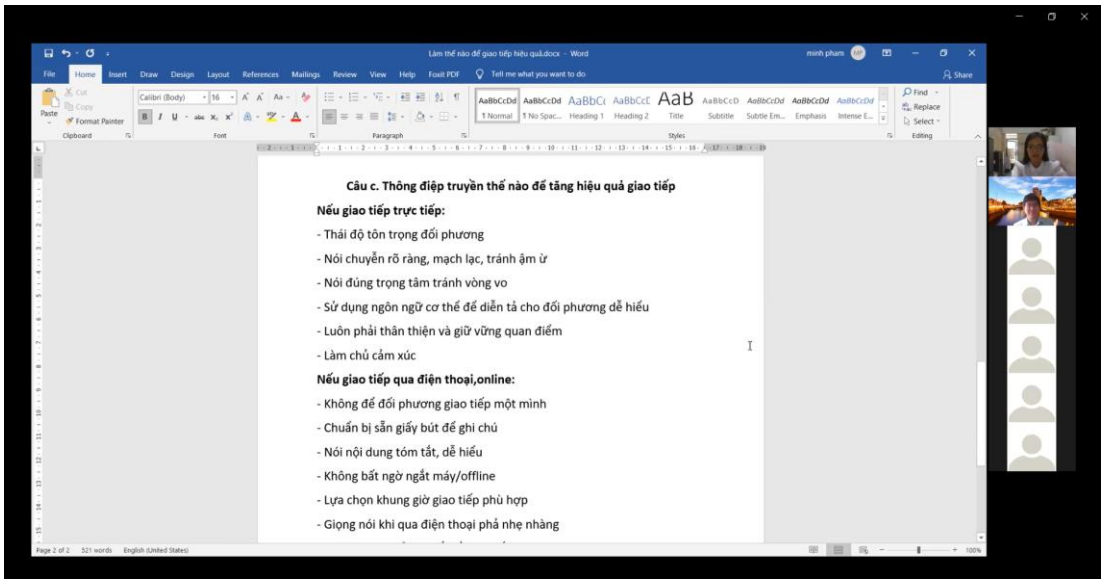



**Figure 5.4**

*One group presented the results of their discussion*




[19] The participants' names have been changed

*5.3.2.4 Problem-based learning*

For students to apply the knowledge that they have learned from the above activities, the researcher employed a problem-based learning approach. In this method, the academic posed two situations: the first one situated in a general context containing communication problems linked to generation differences, the second one positioned in a maritime-related circumstance, where there is a communication barrier associated with cultural differences. First, the students worked in the same group as the previous activity to build solutions for the issues in the two situations. Before they went to the "breakout" rooms, the author explained all of the relevant questions from students to help them have a clear picture of the situations and encouraged learners to connect with their prior knowledge[20] while constructing solutions. In the like manner of the last activity, the researcher moved back and forth between the rooms to enhance students' discussion. Second, when all groups returned to the main room, each one presented their solutions. Then the academic summarized the main ideas in these results and invited them to watch a video, including tips for overcoming generation and cultural disparities in communication (Figure 5.5). Lastly, the researcher discussed with students to enrich and improve the solutions suggested by the groups based on critical reflection of the video.

[20] The theories that they have learned and their own experience

**Figure 5.5**

*The video used to enrich the suggested solutions*[21]


*5.3.2.5 Role modelling*

Similar to problem-based learning, the role-modelling activity also aims for students to internalize the theories and concepts that they perceived. However, in this approach, learners are placed in a reality-simulated situation to practice communication skills. To begin, the researcher divided the class into two groups. One group played a role as cargo owners, and the other group took the role of representatives (rep.) of a shipping company. The scenario is that the cargo owners and shipping company rep. would negotiate with each other to reach an agreement on the freight rate[22]. Each group had some time to prepare their arguments prior to the negotiation. During the preparation time, the academic advised students on how to search for favorable information to

[21] Although the language used in the lessons is Vietnamese, the author chose English video because there is a dearth of Vietnamese videos on such topics. During the video, the researcher regularly stopped to explain the main ideas in Vietnamese. Furthermore, the video used animated figures to illustrate the points, which make it easier to understand.

[22] The fee paid to shipping companies to carry cargo from one place to another according to agreements.

form persuasive arguments and urged students to apply the knowledge learned to conduct professional and effective communication. In the negotiation, each group will take turns to make their arguments and defend them. Finally, the researcher and students discussed lessons drawn from the negotiation.

*5.3.2.6 Mindmap*

At the end of the lesson, the academic consolidates theories and concepts that students encountered by a mindmap (Figure 5.6). This tool might facilitate the reviewing process of students and help them to retain the knowledge longer. This mindmap and other resources of the lesson (i.e., videos, slides) are accessible to students through LMS.

**Figure 5.6**

*The summary mindmap of the lesson*


### 5.3.3 Improvements and summary

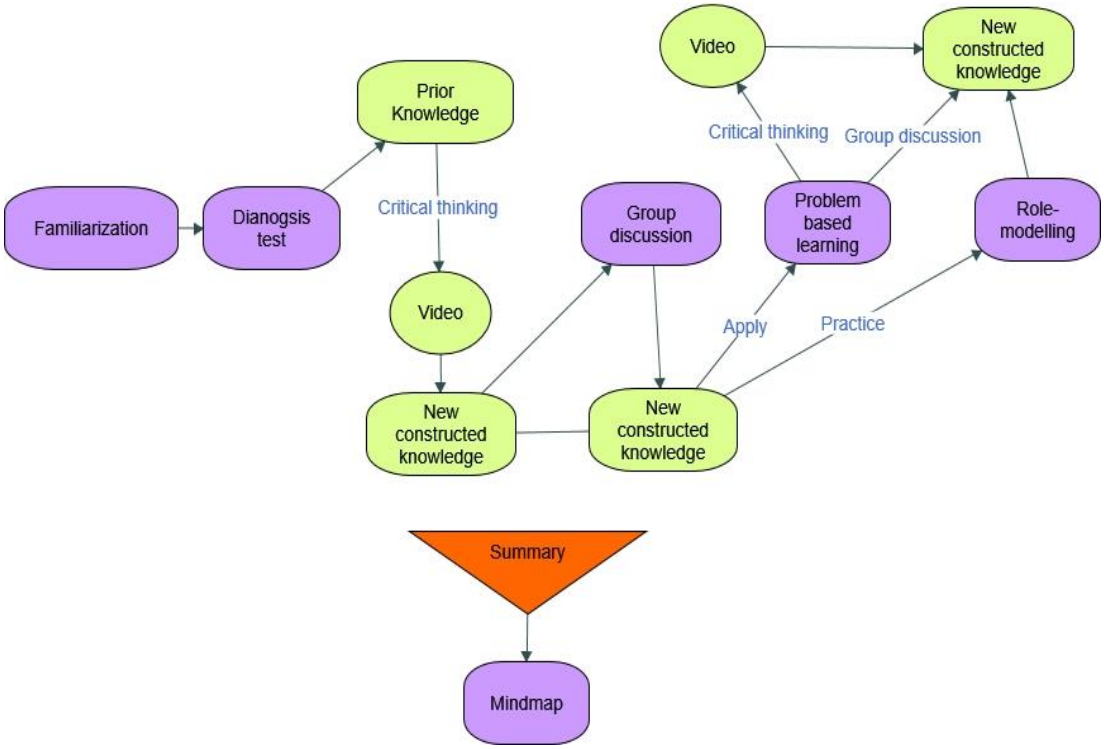
The conspicuous improvement during the online research classes is the increase in interaction between participants. Since most of the approaches are student-centered, they are more engaged and active, constructing the new knowledge based on their prior experience and the critical reflection on the materials with the help of the lecturer (i.e., researcher). Furthermore, the findings of phase one indicate that challenges or needs are interrelated. Therefore, the improvement of one element has the potential to boost

other aspects. For example, if the interaction in the class improves, students can be more focused and reduce the distraction.

Figure 5.7 summarizes innovative teaching methods in phase 2, depicting the flow of them during the research classes. These suggested approaches can inform the answer to the second research question. However, the results of these approaches (e.g., applicability) needed to be further examined considering lecturers' and students' standpoints to provide a more comprehensive response to the question. This is the work of the last phase.

**Figure 5.7**

*Summary diagram of innovative teaching approaches in phase 2*




## 5.4 Evaluate the results – phase three

This section depicts the findings of the last phase, showing further examination of the effectiveness of teaching approaches employed in phase two based on participants' perceptions. Similar to phase one, the thematic analysis is used to analyze the follow-up participants' interviews after the research class. The analysis revealed five main

themes: 1. *Interaction is key, 2. Actively constructing knowledge enhances its retainment,* 3. *Content appropriateness is important,* 4. *Intended learning outcomes (ILOs) -assessment: things to consider,* 5. *Students' background is a concern*. These themes will be detailed in the following:

### 5.4.1 Interaction is key

Perhaps unsurprising, the most noteworthy improvement perceived by students and lecturers is the interaction. Students highly appreciated the importance of communication during the class either with the researcher (as a lecturer) or other students (in group activities). These conversations not only increased their concentration on the lesson but also improved the quality of their learning. The below quotes from students exemplified this point:

> *Student:* I think these approaches attract learners. For example, there are some subjects that make us feel very sleepy, maybe because of the teaching methods or because we are lazy. However, when I learned this way, it helped me concentrate on the lesson. I understand the problem deeper and feel very comfortable in the class.
>
> *Student:* In my opinion, it (the class) is amazing. There are just a few online classes that I do not feel sleepy. This class felt different, very vibrant. I like the way you guide students, not letting them say "I don't know", encouraging them and making it easier to raise opinions.

For lecturers, they valued the role of the researcher as a facilitator who assisted students in the knowledge construction process. The following quote captures a lecturer's opinion:

*Lecturer:* I think the way you teach is impressive, giving the students a chance to dig deeper into the problems. I like how you give students clues and ideas to construct their knowledge.

The definition of interaction, in this case, might not be limited to the communication between the researcher and the students or among the students themselves. It can refer to the internal process within each student, where their prior knowledge interacts with their critical thinking. These interactions can happen when

students critically examine a video or exchange their ideas in the group. Therefore, this inner process builds a foundation for students to construct their new knowledge. For example, one student commented:

> *Student:* I think the skills that we learned today are very important to our studies. For example, the team working skills. If we have many ideas from different perspectives, we can come up with a better solution or answer to the problem and understand it deeper.

The preceding demonstrates how the students value the interaction with other students in a group. It also implied the role of inner interaction, which helped the student gain a deeper understanding of the problem.

### 5.4.2 Actively constructing knowledge enhances its retention

As mentioned, interaction in the online class helps the students learn better. Further, students recognized that when they actively engaged in the lesson, they would retain more knowledge. For instance, a student stated:

> *Student:* I think these learning activities are beneficial for students. We can find and capture the knowledge actively, so we can retain it for a longer period of time. While in the usual online class, the lecturers just teach without any interaction; sometimes, the knowledge goes from one ear to another ear. It's hard to remember the main ideas after the classes

The above student highlighted the benefit of the learner-centered approaches, which posit students in an active position to search for and construct knowledge. Thus, the knowledge retention process will be enhanced. In contrast, when students passively receive the knowledge, it tends to go “from one ear to another ear”. This insight further explores the positive learning effects generated by enhanced interaction.

### 5.4.3 Content appropriateness is important

Although the lecturers acknowledged the benefits of the new teaching approaches, they also highlighted the significance of content selection in accordance with the teaching methods. The following quote reflected one lecturer’s perspective:

> *Lecturer:* It (teaching approach) depends on each lesson, content, material. For example, for some subjects that are closely related to calculation, I think it's

> very challenging to do group work or group discussion. Take an example of maritime economics. When I teach this subject, there is no group work activity because the subject content includes formulas, calculations. It requires precision. I think these approaches will be suitable for social-related subjects.

The above shows that there might be no single teaching method that fits all the subject's content and materials. To the subjects that require precision involving mathematical problems, lecturing and giving individual exercises might be a proper approach. On the other hand, when the content relates to investigation on a social phenomenon or applying concepts or theories in certain situations, lecturers could employ more interactive approaches such as group discussion or role-modelling and make use of visual aids (i.e., videos and pictures). Overall, it is necessary to diversify the teaching methods with consideration of the content's suitability. This requires lecturers' flexibility in choosing appropriate teaching and learning activities to enhance the quality of the lessons.

### 5.4.4 Intended learning outcomes – assessments: Things to be considered

One of the insights deriving from the analysis emphasizes the importance of the alignment of three vital elements of any subject: ILO- teaching approaches – assessment. The change in teaching approaches alone can not be as effective if it does not synchronize with the other two factors. From the lecturers' perspective, the general focus of Vietnamese education and the assessment form are the concerns when applying innovative teaching approaches. The following quotes demonstrate this point:

> *Lecturer:* I think Vietnamese education places emphasis on theoretic exams, grades, assessments, so the knowledge application and skills are not much appreciated. During classes, lecturers often give extra marks when they do exercises or have good answers. It is an incentive form. However, during the final assessment, students have to know the concept and theories highlighted in the intended learning outcomes. The assessment doesn't put much emphasis on how they apply them.

*Lecturer:* About the assessment, it's also very hard to design assessment methods for these approaches. For example, when I used the assessment form of problem-based situations, it was hard to prepare one definite correct answer to assess. There might be many ways to solve the problems. And usually, the students can not consider all the perspectives when giving the solutions for the problem; they just can give a basic answer. Since there's no common denominator, the assessment might depend on the feeling of the assessors. We cannot avoid the bias of lecturers.

Apparently, there are many challenges associated with the change in teaching approaches. In the above quotation, although the lecturers attempted to adjust the teaching approaches to enhance students' ability to apply the knowledge, they encountered numerous obstacles. While some hurdles seem to be beyond their control, such as the theoretical-focus expectation of the education system, others, such as assessment design, maybe under their power. Therefore, this finding indicates that to design and implement innovative teaching approaches, ILO and assessments must be carefully considered. In the research classes, the author has attempted to align ILO, teaching methods, and assessment. As mentioned, the ILO for the topic "communication" was set based on the current ILO of the lesson and carefully aligned with the new teaching approaches. Furthermore, during the class, the element of formative assessment has been carried out. For example, in the role-modeling activities, the researcher asked students questions about what they had learned to help them apply it when communicating under their assigned roles. However, in the wider scope of the whole subject or even the entire program, the alignment between these three elements is crucial and needs to be examined thoroughly.

### 5.4.5 Students' background is a concern

Students' background involves their prior knowledge and experience, which results in their personalities or behaviors. In the interview, lecturers and students themselves recognized many elements related to students' backgrounds that could affect the new teaching approaches. For example, some students encountered group members who were shy and not willing to speak up. These members negatively impact the results of

the group activities. Interestingly, to explain this phenomenon, students gave two reasons: the native language accent[23] and the introvert personality. As one student commented:

> *Student:* I think some students are shy and hesitant to raise their opinions; it's one of the challenges to these methods. Some students have very different accents, so they are afraid that people will be confused. Therefore, they are not willing to communicate. Other students are introverts; they are really afraid of failure. When they say something, they may think that people will not like it. So, they tend to ignore and follow the majority. The fact that they don't give their own opinions makes it difficult to see a problem from several perspectives. Therefore, when the solutions are agreed, some conflicts may occur since these members do not fully agree, but they don't state their own opinions.

On the lecturers' side, they associated the problems with the long-lasting learning habits of students that were formed throughout their education. From primary to high school, students are accustomed to obtaining knowledge from teachers. Therefore, lecturers believed that students tend to be inactive in the class and reticent to contribute to the lesson, which deteriorated these new approaches. The following quote captures the lecturer's opinion:

> *Lecturer:* I agreed with a student talking about the Vietnamese education system before high education. The students are used to the approaches that lecturers will impart the knowledge, and they will note down passively, so they just know that. They don't have the chance to challenge lecturers' imparted knowledge. It also affects their study skills, critical thinking, group working skills

While there are some factors that might not be linked to students' background (e.g., introvert personality), this aspect is needed to be considered thoroughly when

[23] Although the language is Vietnamese, there are some regions in Vietnam where people speak with different accents. These differences often cause miscommunication even between Vietnamese.

employing any new teaching methods. In this case, the researcher may need to put more effort into encouraging students to overcome their comfort zone and differences, participating in the interactive activities actively, although the research classes were successful to some extent regarding interaction enhancement.

### 5.4.6 Summary

Table 2 summarizes the findings of the last phase. Overall, phases two and three clarify the new teaching methods' applicability, providing a more detailed answer to research question two.

**Table 5.1:**

*The three important elements creating the new approaches*

| Main themes | Brief description | Exemplary data |
|---|---|---|
| Interaction is key | Enhanced interaction in the new approaches was acknowledged by participants. It improves students focus and learning quality | "I think these approaches attract learners. …, when I learned this way, it helped me concentrate on the lesson. I understand the problem deeper and feel very comfortable in the class.*"* |
| Actively constructing knowledge enhances its retention | Learners-centered approaches allow students to actively construct their knowledge, enhancing the retainment of that knowledge | "I think these learning activities are beneficial for students. We can find and capture the knowledge actively, so we can retain it for a longer period of time." |
| Content appropriateness is important | The teaching approaches need to be adaptive with the lesson's content | "In my opinion, it will be very appropriate with some content, not all." |

| | | |
|---|---|---|
| ILO-assessments: things to consider | The change in teaching methods must synchronize with ILO and assessments not only for a single lesson but also for the whole subject. | "The most difficult challenge is the assessment, intended learning outcomes. In a subject, some knowledge is very rigid. Could you turn them into something more attractive? Are these methods appropriate? Or should we change the assessment methods, change the exam questions?" |
| Students' background is a concern | Students need more encouragement to overcome their prior experience and participate in interactive activities. | "The students are used to the approaches that lecturers will impart the knowledge, and they will note down passively, so they just know that. They don't have the chance to challenge lecturers' imparted knowledge. It also affects their study skills, critical thinking, group working skills." |

# Chapter 6: Discussion

## 6.1. Introduction

This chapter will critically reflect the findings in Chapter 4 and 5, considering relevant literature and theories. The result from this chapter will inform the recommendations for Vietnam maritime universities and METIs in general in the path of adapting e-learning as a formal educational form.

## 6.2 The current state of e-learning

The picture of the existing situation of e-learning in the Ho Chi Minh University of Transport is not a completely unique one. Many elements in the first phase's findings (i.e., Challenges, Opportunities, and Needs) are consistent with the results of numerous relevant pieces of literature. However, there are certain distinctive aspects in the results that characterize the salient features (both positive and negative) in the Vietnam e-learning context.

### 6.2.1 Opportunities

*6.2.1.1 Perceived advantage*

The flexibility of e-learning is the "perceived advantage" of participants in this study, which can be found in many other pieces of literature. Talebian et al. (2014) identified time and location flexibility as an advantage of online learning in Iranian agricultural education. A similar outcome was achieved in the Jordanian context, where 95,5% of the participants highlighted the e-learning benefit of time and space freedom (Alqudah et al., 2020). Despite the similarity, students and lecturers in the maritime context of this research also recognized other benefits of online learning compared with the above papers, such as the chances to nurture life-long learning skills, increasing the adaptability for the future.

*6.2.1.2 Acceptability*

For the theme "acceptability", the readiness and acceptance of e-learning vary from one context to another. In this research, the participants considered e-learning as a useful approach and wish to integrate it as a method in a blended learning program. In contrast, Aguilera-Hermida (2020) found that college students in the research prefer face-to-face lectures over e-learning. A similar conclusion was reached by Trout

(2020), who claims that students, who have never attended an online class before, decrease motivation when they have to change from face-to-face to online form of learning. On the other hand, in accordance with the participants' perception in this study, Khalil et al. (2020) indicated that e-learning is well-accepted by medical students who participate in the research, and they would prefer online learning in the future. These disparities might be due to the different characteristics of each setting (e.g., cultural differences, variations in e-learning implementation).

### 6.2.2 Challenges

*6.2.2.1 Interaction, internet connection, and IT skills*

IAMU (2020) has discovered that "student engagement", "internet connectivity" and "teachers' ability to use the software" are among the most notable challenges of maritime universities during the transition to online learning. This is in relative concurrence with three basic themes "Interaction", "Internet connection", and "IT skills" that are highlighted in the results of phase 1. While the first two themes imply the same problems with the first two difficulties emphasized by IAMU, the third theme explains a slightly different problem with the last challenge. Both obstacles are related to the lack of IT skills. However, students are the ones who were struggling with the deficiency of these skills in the research. Meanwhile, in the IAMU survey, the focus is on the teachers' side. Interestingly, the lecturers' capacity of using software is not highlighted as a challenge in this study, but as a need in the basic theme "knowledge and skills". Nonetheless, the "challenges" and "needs" in the study are not in isolation. Some of the needs might be embedded in the challenges, and the challenges can generate needs. Overall, the description of these categories complements the IAMU survey's results by adding more details and examples of the difficulties at a specific maritime university.

Similarly, "interaction" and "internet connection" are the common problems of e-learning in many papers within numerous contexts. Alqudah et al. (2020) identified "the lack of personal interaction" and "speed of Internet" are the main issues of e-learning perceived by Jordanian academics. Likewise, Choudhury & Pattnaik (2020), after critically reviewing 138 articles, explored that the lack of peer-to-peer

interaction is the major challenge of e-learning and that the online learning environment makes it difficult for lecturers to understand the body language of learners, which is critical in education. These findings are in line with the emphasis of the study on the interaction between instructors and students; and between students themselves. Besides, the internet issues are also highlighted in Choudhury & Pattnaik's paper. Similar difficulties of e-learning related to the deficiency of communication in the online classes and Internet access were discovered by Filippova (2015) in the Russian context.

*6.2.2.2 Equipment and Distraction*

Additionally, Filippova (2015) also recognized the uneven possession of required equipment (e.g., personal computer) as a disadvantage to online learning. Correspondingly, Choudhury & Pattnaik (2020) described this challenge as the lack of "access to sophisticated technologies". The same problem was identified in the theme "equipment" of the research, where students and lecturers reported the lack of necessary instruments to conduct or enhance e-learning classes. Likewise, the challenge "Distraction" in the study is implied in Filippova's work, when she emphasized the necessity of "rigid self-disciplines" in e-learning, which mainly depends on students. Since it is difficult to control this aspect of learners when they are in the virtual class, their concentration might be compromised by many distracting things at their places (e.g., smartphones). Islam (2021) also agrees that students could lose their focus by improper use of mobile phones during an online class.

*6.2.2.3 Health issues*

Besides, the "health issues" in online classes are a growing concern in recent literature. Singh et al. (2021) explored that eye strain is one of the most popular health problems reported by students during e-learning classes, which is in accordance with the findings in the first phase of this research. Furthermore, Singh and his colleagues indicated more health issues related to e-learning such as "sleep disturbance", "neck pain", "back pain", "headache". Since students' health is crucial, further research is needed to investigate the impacts of these health problems during e-learning classes and the solutions to mitigate those impacts.

*6.2.2.4 University support*

The challenge related to "University support" in this paper might be unique to the context of the Ho Chi Minh University of Transport. It is a reflection of lecturers' views about university policies. And institutional policies for e-learning may differ from one organization to another. According to Talebian et al. (2014), e-learning implementation in different settings might have different characteristics. Therefore, this aspect might be a characteristic of the e-learning state in Vietnam METIs, particularly in the university.

### 6.2.3 Needs

*6.2.3.1 Knowledge and skills*

Aside from the lecturers' need for IT skills that were discussed in light of IAMU's survey above, the need for the knowledge and skills to teach and learn in the online learning environment found by this study is in line with many publications. Alqudah et al. (2020) described "poor e-learning skills[24] of students or teachers" as a limitation of e-learning. Malik & Rana (2020) complemented this finding by adding that the lack of communication skills of learners might negatively affect the e-learning lessons. Although this need is not the main focus of the "action" in this research, the changes in phase two improved this issue to some extent. For example, the students were supported by the researcher in the group activities to enhance the communication between group members. The topic of the classes was also "communication".

*6.2.3.2 Teaching approaches*

The need for new teaching approaches was the main emphasis of the study. The drive for this need comes from many challenges (e.g., interaction, university support) that existed in the current method, which mostly is lecturing with slides. Intriguingly, this online teaching approach is not only common in Vietnam but also in other contexts: Singh et al. (2021) reported that 80% of nursing and medical e-learning classes in India used Powerpoint presentation as a teaching method. Another drive is the development of educational technologies, especially e-learning, which was discussed in chapter one.

[24] Alqudah et al., (2020) defined e-learning skills as video recording, editing or the ability to use applications in online classes

Bolmsten et al. (2021) also highlighted the need for "educational approaches" due to the continuous advancement of new technologies.

## 6.3 The deliberated changes

Since there are many similarities between the current state of e-learning in the research and other contexts in many research, the replication of the changes (i.e., innovative teaching approaches) in this study might be applicable to other settings with consideration of distinctive characteristics of each e-learning environment. This section discusses the relevance of the new teaching approaches in light of learning theories. As mentioned, constructivism, cognitivism, and connectivism are the backbone of these methods.

### *6.3.1 Constructivism*

The new teaching approaches were mainly inspired by constructivism theories. Two influential figures in this educational school of thought are Piaget and Vygotsky (Driscoll, 2005). Interestingly, there are many discussions on the resemblances and differences between the ideas of these two seminal. On the one hand, the presumably fundamental distinction is: While Piaget argues that individuals construct their knowledge individually or solitarily, Vygotsky proposed that people develop solely through participation in various forms of social interaction (Lourenço, 2012). On the other hand, many researchers opposed this argument, claiming that Piaget did not entirely exclude the socialized factors in the human development process, although these factors are less important in his theory compared to Vygotsky (Lourenço, 2012; Cole & Wertsch, 1996). Besides, Bruner (1997) supposed that these two schools of thought are incomparable. When Piaget sought to "explain" human development, Vygotsky attempted to "interpret" this aspect. Although the distinction between the two popular constructivists is controversial, it is not the main focus of this research.

The study did not gravitate towards any side among these two. Regardless of the resemblances or differences, both schools of thought have their own merits and implications for education (Lourenço, 2012). Therefore, the innovative teaching approaches combined the ideas of the two theorists. To apply Piaget's suggestion, the academic exposed learners to videos and asked them to critically examine the videos

based on their prior knowledge. The practice might help students to construct the new knowledge themselves. Besides, the group work and discussion activities were designed to enhance the interaction between the researcher and the students; and peer-to-peer interaction. These human interactions, with the consideration of Vygotsky's ideas, can facilitate the knowledge creation process within each member, including the researcher (as a lecturer).

### *6.3.2 Cognitivism*

As mentioned in chapter 2, one implication of cognitivism in the new teaching methods is the recognition of various types of learners (Alzaghoul, 2012). Therefore, the author diversified the approaches to match different learning styles. The three most common learning styles are visual, auditory, and kinaesthetic (Gilakjani, 2012). For visual learners, the researcher incorporated videos and pictures into the presentation to stimulate them. Furthermore, the videos selected have many illustrations helping the students to interpret the videos better. The researcher also remembered to summarize and reiterate the newly constructed knowledge after each activity. This action might facilitate the auditory learners. Additionally, the kinaesthetic learners had chances to practice and apply the knowledge in problem-based and role-modelling activities.

### *6.3.3 Connectivism*

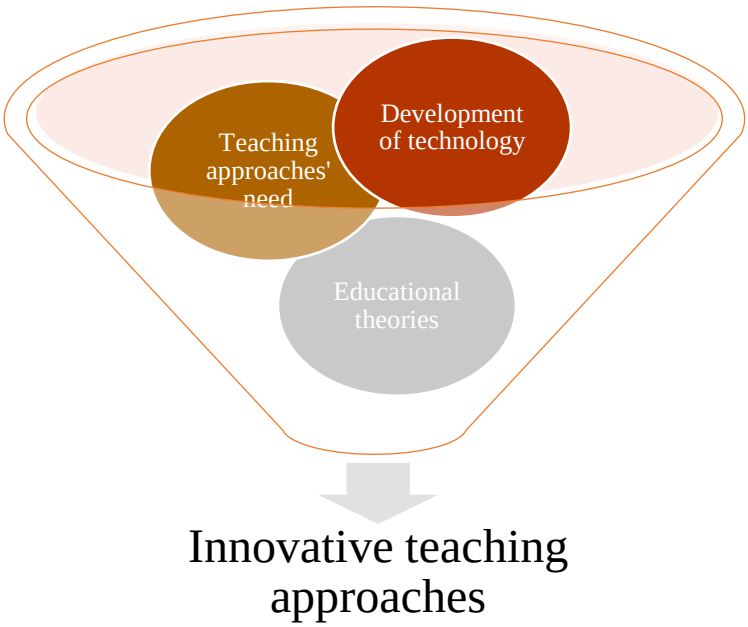
The most important implication of connectivism for the innovative teaching approaches is the emphasis on the skills to search for the needed knowledge and filter the unnecessary information (Kop & Hill, 2008). During the group activities, the academic guided students on how to search for the knowledge efficiently with keywords and gave them recommendations on how to find prestigious sources (e.g., scientific papers, prestigious websites). These practices might help students enrich their prior knowledge and have more ideas to contribute to the group results.

The new teaching approaches are the results of three elements: the need for more interactive approaches, the development of technologies (as discussed above), and educational theories. These three factors reflect the combination of the reality's needs and the theories to form a solution to improve the current state (Figure 6.1). One important thing to note is that the research did not seek to imply the current method is

misplaced. The author believes that the current commonly used approach (i.e., lecturing with slides) has its own merits and may be suitable considering various conditions such as the lessons' content, number of students, time permission. Instead, the researcher wants to explore the possibility of applying new teaching approaches and their relevance in the e-learning environment within the Vietnam METI context.

**Figure 6.1**

*The three important elements creating the new approaches*




Another thing to consider is that the researcher formulated these interactive approaches with few resources. The author did not purchase any software or tools to facilitate it. However, these approaches are still successful to some extent, and the students acknowledged their benefits. Therefore, in the case of this study, it might not require fancy gadgets or software to create a good lesson design, although the use of more resources can enhance the quality of the lessons.

## 6.4 The evaluation of the results

### *6.4.1 Interaction is key*

The findings of phase three indicated the vital role of interaction in the e-learning environment. As stated by students, their concentration and ability to absorb the

knowledge increased due to the enhanced interaction. In the literature, the significance of interaction is widely recognized, not just in e-learning settings but in all educational contexts (Vlachopoulos & Marki, 2019; Mehall, 2020). According to Mehall (2020), e-learning interaction results in "increased perceived learning", and "high levels of students' satisfaction". This finding is in line with students' opinions in the present study. Furthermore, Mehall also pointed out the positive relationship between interaction and students' grades. Although in the scope of the research, the author could not examine this argument[25], student's achievement in the university might be better since they learn more effectively and feel engaged in the interactive lessons. For the lecturer, they appreciated the methods that the researcher took to improve the interaction, such as engaging in discussion with students or encouraging them to raise opinions. These techniques are based on the constructivist approach discussed above. Besides, they are in concurrence with the strategies suggested by Vlachopoulos & Marki (2019) to improve lecture-student interaction in the e-learning environment (i.e., "encouragement and continuous support", "participating and guiding discussion").

Furthermore, research from the maritime context also recognized interaction as a key factor in online classes. Bolmsten et al. (2021) explored that the students highly valued the interactions or socialized processes between each other in an e-learning course. Intriguingly, these interactions not only have implications for learning but also for networking creation, which is very important in the maritime industry (Bertram & Plowman, 2020).

Another finding in this study is the inner-interaction in students, which helps them to develop their knowledge during the online classes. This phenomenon concerns Vygotskyian's and Piagetian's views of "self-regulation", which are used interchangeably with inner-interaction. According to Vygotskyian's perspective, the inner-interaction occurs as a result of "regulation by others in a specific task and promoted by external regulators" (Adel M, 2015). In the class, the researcher always guided students before each learning activity, such as critically examining a video or

[25] The author implemented the new approaches in two classes. Therefore, the process is not long enough to test the improvement in students' achievement

group discussion. This action might generate the inner-interaction in students to construct new knowledge, which is consistent with the Vygotskyian explanation. Interestingly, in Piagetian's view, self-regulation is a psychological process and happens when people are given the freedom to make choices and decisions (Adel M, 2015). This is not the case in this study. The application or examination of this perspective in an e-learning context requires further research.

*6.4.2 Active constructing knowledge enhances its retention*

The students recognized that their knowledge retention level would increase when they played an active role in the learning process. This finding is supported by Ibrahim & Al-Shara (2007), who indicated the attention span and knowledge retention would be significantly affected if students had limited chances to communicate or give feedback. Besides, Bauerle & Park (2012) explored the importance of experiential learning in helping students retain knowledge better. Many learning activities took the forms of "learning by doing" in the research classes, such as problem-based learning and role-modelling. By participating in these methods, students are encouraged to apply their knowledge into reality simulated situations and then critically reflect on their results. Therefore, it is understandable when students reported an increase in their knowledge retention level, although the extent of the increase needed to be further examined.

*6.4.3 Content appropriateness is important*

The participants in the research emphasized the need for careful consideration when creating teaching approaches for corresponding lessons' content. The innovative teaching approaches in this study might not be implemented optimally when the content of the lesson is inappropriate. In line with this opinion, Bolmsten (2021) indicated that the teaching methods should be "malleable" and adaptable for various topics. Besides, when considering e-learning as a teaching approach, the suitability of the content is a relevant concern. Galić et al. (2020) called for additional research to determine the extent to which online learning can be applied in the maritime context. The researchers doubted that training practical seafaring skills might not be applicable to online environments. The lecturers in this study had relatively the same concern. They argued that the constructivist approach or even e-learning might not be proper

when delivering maritime subjects involving calculation. The scope of determining the extent to which e-learning is appropriate in the maritime industry might not be limited only to seafarers' education but also to the wider application of maritime capacity building.

*6.4.4 Alignment of ILO, teaching approaches, assessment*

A noteworthy finding in phase three is the importance of alignment between ILO, assessments, and the new teaching activities. According to Ali (2018), the synchronized process of these three elements is called constructive alignment, which is the fundamental concept for curriculum design and development. In this study, the lecturers are more concerned with the assessment aspect. They think Vietnam education generally places emphasis on theoretic exams. While it is difficult to adjust the ILO and teaching methods considering the expectation of the whole educational system, lecturers can take small steps to align the three elements within a lesson or even a part of lessons to give students a chance to apply the theories and concepts that they learn to some extent.

Another concern is the lecturers' bias when assessing the activities that involve knowledge application (e.g., problem-based learning). It is hard to avoid bias because there is no common denominator for this kind of exercise. Although lecturers can not completely eliminate the subjective aspect when assessing, there are some ways to reduce it. One of the solutions is that the lecturers could use triangulation methods, asking students to do self-assessment or peer-assessment and comparing them with the lecturer's assessment (Surabaya, 2020). Another way is to have another colleague assess the same performance to ensure consistency (Ferdinand-James, 2016)

*6.4.5 Students' background is a concern*

In phase three, the study explored that the prior knowledge and experience of students can affect constructivism-based learning activities. Some students in the classes are hesitant to contribute to the discussion or group activities because of cultural factors (e.g., native language accent) or study habits (e.g., passively receiving the knowledge). This is in concurrence with the concern that Gredler (2005) raised for applying constructivist approaches in learning. He argued that learners with low abilities and

those from various cultures might encounter challenges during the learning process. To improve this issue in the context of this study, the students' preparation prior to the class is probably vital (Andersen et al., 2018). It may help the students to enrich their prior knowledge relevant to the topics that they are about to learn. Thus, they can feel more confident when participating in the class. Lecturers might maintain regular communication with students and continuously encourage them to enhance their preparedness before each class.

# Chapter 7: Recommendations and Conclusion

## 7.1. Introduction

This chapter will summarize the dissertation's main points by briefly answering three research questions, which are also the guidance of the research process. Then, the perceived limitation and the concluding thoughts will be presented.

## 7.2. Conclusion and Summary

### 7.2.1 Research conclusion

*7.3.1.1 Research question 1*

*What is the current situation (opportunities, challenges, and needs) of e-learning implementation in a Vietnam METI from the perspectives of lecturers and students?*

The current state's picture of e-learning implementation in the Ho Chi Minh University of Transport is a mixed one. There are opportunities and promising conditions that might facilitate the e-learning adaptation path. Students and lecturers recognized many advantages of online learning and considered this education a good approach in a blended-learning application. This is a favorable factor in incorporating e-learning in the program as the participants are willing to adopt it.

However, there are also many challenges and needs highlighted through the lens of lecturers and students. For challenges, seven issues are identified: interaction, distraction, IT skills, health issues, equipment, university support, and internet connection. These difficulties are not isolated but correlated with each other. Some of the challenges generated the needs of participants, which are knowledge and skills, and teaching approaches. Although the study did not seek to improve or address all the challenges and needs highlighted, the researcher desires to depict the comprehensive view of the e-learning reality in the study's context from lecturers' and students' perspectives. The existing challenges and needs in this reality will be a motivation for future research or projects.

*7.3.1.2 Research question 2*

*What new e-learning teaching methods could be applied considering the condition of Vietnam maritime universities?*

In the context of the Ho Chi Minh University of Transport, constructivist teaching approaches such as group activities, problem-based learning, and role-modelling are applicable in online classes. However, there is a need for thorough consideration of the content, ILO, assessments, and students' background.

*7.3.1.3 Research question 3*

*What are the recommendations for the relevant stakeholders in the research to better adapt to the deployment of e-learning?*

The lessons drawn from conducting and critically examined three phases of the action research cycle inform the recommendations for three following stakeholders:

*For students*

*i.* In the e-learning environment, the requirement for self-discipline is huge. Therefore, to have an effective e-learning lesson, students should commit themselves to this form of education.

*ii.* It is possible to have an interesting and interactive e-learning lesson. However, to achieve this, it requires effort from both lecturers and students in the class. Students need to be more courageous to interact and contribute to the lessons when possible. This practice will help students increase their concentration and absorb the content better

*iii.* To increase the adaptability to the online learning environment, students should nurture their self-study and IT skills. These skills will not only help them to learn better in e-learning classes but also be useful in the future technological era.

*For lecturers*

*i.* Lecturers should diversify the teaching methods and seek to design more interactive approaches in online classes with the thorough consideration of lesson content, ILO, and assessment. The enhanced interaction in e-learning classes not only increases students' engagement and performance but also motivates lecturers themselves to deliver better lessons.

*ii.* To create interactive online lessons, expensive gadgets or software is not necessarily required. With the limited university support, lecturers can still create attractive and engaging lessons where appropriate.

*iii.* Lecturers should improve their interactive skills, especially voice training[26] to have better online learning classes. Furthermore, lecturers also need to cultivate technology knowledge and skills to facilitate their classes in the online learning environment. These skills might help them to be more resilient with disruptive educational technologies.

*For Ho Chi Minh University of Transport*

Although the study did not include the perspective of the university's managers, these recommendations highlighted the challenges and needs from the bottom-up approach. Considering these suggestions might help the university to better adapt to the e-learning form of education:

*i.* The university should have more forms of assistance to lecturers and students during e-learning implementation. For example, the institution can organize online IT sessions, workshops to introduce useful e-learning tools, software. These instruments might help lecturers have more options while designing teaching approaches. For students, the university could hold e-learning familiarization sessions, in which basic IT skills, self-study tips, and good e-learning practices will be shared with learners.

*ii.* The university might consider holding online meetings between lecturers to discuss and share effective e-learning teaching approaches.

### 7.2.2 Research limitation

The study's main weakness is its limited scope and exploratory nature. These characteristics might reduce the generalizability of the research. However, as stated, since the academic found many similarities in the current e-learning condition of this study and numerous other contexts, there is a possibility to replicate the action research cycle considering the potential distinctive features within each context.

Furthermore, since the data-gathering process occurred in a class setting, there is a chance that participants were influenced by what they imagined the researcher expected them to answer (Rosenthal & Fode, 1963). Nevertheless, during the

[26] Since the interaction in the e-learning platform is much less than the face-to-face classroom, a good voice will be an advantage for lecturers to deliver online learning lessons.

interviews and research classes, the academic always encourage participants to raise their own opinions and ensure that their answers will not influence their current work by any means (e.g., students' grades, lecturers' reports).

### 7.2.3 Concluding thoughts

The study depicted a rich picture of the current e-learning conditions in a Vietnam METI context, contributing to other relevant research (e.g., Bolmsten, 2021; Boulougouris et al., 2019) to further investigate the opportunities, challenges, and needs of online learning in MET. The researcher attempted to conduct innovative teaching approaches based on reality's needs and learning theories with the hope of improving some aspects of the current state. The results proved that the new deliberated change was successful to some extent. Although the endeavor of study is too humble to completely improve the complex and multifactorial status quo, every big change may start with a small initiative. Therefore, the future study can implement more action research cycles or combine them with other research methodologies to incorporate theories and concepts into maritime reality, generating small incremental steps. Gradually, these initial steps will pave the way for METIs to build their resilience to e-learning technologies or any disruptive ones (Bartusevičienė et al., 2021).

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# Appendix

## 1. Summary of methods used in each phase

The methods used for each phase of the action research cycle will be highlighted as followed:

**Table A1:**

*Data collection process*

| Phase | Method to collect data | Data form |
|---|---|---|
| • Phase 1: Observe the current online classes and conduct semi-structure interview with students and lecturers to understand the current problems and difficulties | Semi-structured interview, observation | Records of interviews and current online classes |
| • Phase 2: Deliberate changes and implement new e-learning delivery approaches | Deliver lessons with new methods | Record of research classes |
| • Phase 3: Conduct semi-structure interview with students and lecturers to evaluate results | Semi-structured interview | Records of interviews |

## 2. Interview questions and the translation

Although the interviews were semi-structure, the researcher still prepared potential follow-up questions to further explore the current state of e-learning in this context and dig deeper into the participants' perception.

*Phase 1*

| Phase | Participants | Intended interview's questions |
|---|---|---|
| *Phase 1*: Semi-structure interview with students and lecturers to understand the current problems and difficulties | Lecturers | 1. What do you think about online learning before COVID-19?<br><br>*Potential follow-up questions:*<br>*1.1 Have you tried to adapt new technology into your lecture?*<br>*1.2 What is your perception about the applications of technology in maritime education?*<br><br>2. What are your main teaching approaches in the physical classroom?<br><br>3. What are your main teaching methods in the online class?<br><br>*Potential follow-up questions:*<br>*3.1 Are they as effective as classroom-based methods from your perspective?*<br>*3.2. What are the differences between the teaching approaches in physical classroom and online class?*<br>*3.3.What guidance did the university publish to help you to deliver online class?*<br><br>4. What are the major difficulties when you deliver the subject online?<br><br>*Potential follow-up questions:*<br>*4.1 Why is it a difficulty? What makes it challenging to deal with?*<br>*4.2 Have you come up with any solutions?*<br><br>5. What are the advantages of online learning that you realized when lecturing?<br><br>*Potential follow-up questions:*<br>*5.1 Do you think online learning could be a part of your future approach to lecture? Why or why not ?* |

| | | |
|---|---|---|
| | | 6. What lecturers could do to improve online learning class?<br><br>*Potential follow-up questions:*<br>*6.1 What are the roles of students, universities' managers in improving the quality of online learning class in your perspective?*<br>*6.2 What skills/knowledge the lecturers need to teach online?* |
| | Students | 1. Before COVID-19, what is your experience/ opinions of online courses or online classes?<br><br>*Potential follow-up questions:*<br>*1.1 What are advantages and disadvantages of the online courses/classes that you experience*<br>*1.2 What are the teaching approaches do they use in the online courses or classes?*<br><br>2. What are the challenges for you to take online classes in the time of COVID-19?<br><br>*Potential follow-up questions:*<br>*2.1 Why it is a challenge for you?*<br>*2.2 What do you do to cope with these challenges?*<br><br>3. What are the common methods that lecturers often use to teach in the physical class and in online class?<br><br>*Potential follow-up questions:*<br>*3.1 What are the differences between them?*<br>*3.2 What have been your favorite learning activities so far? (both in face-to-face class and online class)*<br><br>4. What are the advantages of online learning that you perceived when you take online class?<br><br>*Potential follow-up questions:*<br>*4.1 Do you want to join the subject delivered in classroom, or in online platform, or in multiple approaches? Why/Why not?*<br><br>5. What skills/knowledge do the students need to learn online effectively? |

| | | |
|---|---|---|
| | | *Potential follow-up questions:*<br>*5.1 How can students achieve these skills? (through extra session provided by university or self-study?)*<br>*5.2 Which personalities do you think will better adapt with online study?*<br><br>6. From the viewpoint of a student, what is needed to improve your online learning experience? (from lecturers, university's managers)<br><br>*Potential follow-up questions:*<br>*6.1 Why do you think these supplements will improve your experience?*<br>*6.2 How could lecturers or university's managers provide these supplements in your perspective?* |

*Phase 3*

| | | |
|---|---|---|
| *Phase 3*: Semi-structured interview with students to evaluate results | Lecturers | 1. In your opinion, what are the differences between this new approach and your current teaching approach?<br><br>*Potential follow-up questions:*<br>*1.1 Do you think it is a good idea to combine your teaching approaches with this approach? Why/ Why not?*<br><br>2. What are the benefits of this new approach to students' performance from your perspective?<br><br>*Potential follow-up questions:*<br>*2.1 Why it (lecturers' answer) is considered a benefit of this approach?*<br>*2.1 Which cognitive level in Bloom taxonomy that students could achieve by using this method?*<br>*2.2 What form of assessment is suitable for this teaching approach?*<br><br>3. What are the drawbacks of the new approach that might negatively impact students?<br><br>*Potential follow-up questions:*<br><br>*3.1 What makes it (lecturers' answer) a drawback?* |

| | |
|---|---|
| | *3.2 Could the learning outcomes be achieved using this approach? Why/Why not?*<br><br>4. Do you have any recommendations to improve the new approach?<br><br>*Potential follow-up questions:*<br>*4.1 What is potential resistance when implementing this approach? (from university, lecturers, and students' point of view)*<br>*4.2 What are the roles of stakeholders (lecturers, students, university managers/leaders) to effectively implement certain teaching approaches?*<br>*4.3 Do you think that this online learning in general and this online teaching approach, in particular, could have potential application in the future (after COVID-19)? Why/Why not?* |
| Students | 1. In your opinion, what are the differences between these new learning activities and your current online learning activities?<br><br>2. What are the benefits of these learning activities from your perspective?<br><br>*Potential follow-up questions:*<br><br>*2.1 Do you think that you understand the concepts/ knowledge of the subject better (more in-depth)?*<br>*2.2 What additional skills that you could improve through these learning activities?*<br>*2.3 Do you think these skills are important for your study? Why/Why not?*<br><br>3. What are the drawbacks of this new learning activities to your study?<br><br>*Potential follow-up questions:*<br>*3.1 Why is it a challenge?*<br>*3.2 What are the potential solutions for this challenge?*<br><br>4. Do you have any recommendations to improve the new approach? |

| | |
|---|---|
| | *Potential follow-up questions:*<br>*4.1 What could you – students do to engage in these learning activities better?*<br><br>*4.2 What could lecturers do to improve these learning activities?* |

*Translation*

The author has translated the main questions into Vietnamese and sent to participants in advance. This practice aided in the smooth conduct of the interviews.

# Câu hỏi phỏng vấn

**Giai đoạn 1:**

**I/ Dành cho giảng viên**

1. Thầy/cô nghĩ gì về hình thức học trực tuyến trước khi đại dịch COVID-19 diễn ra? (ứng dụng của học trực tuyến, độ phổ biến…)

2. Phương pháp giảng dạy chính của thầy/cô trong lớp học trực tiếp trên lớp là gì?

3. Phương pháp giảng dạy chính của thầy/cô trong lớp học trực tuyến là gì?

4. Khi dạy học trực tuyến, thầy/cô đã gặp phải những khó khăn gì?

5. Thầy/cô nhận ra lợi ích gì của việc học trực tuyến sau khi giảng dạy theo hình thức này?

6. Thầy/cô có những giải pháp gì để cải thiện chất lượng việc dạy trực tuyến?

**2/ Dành cho sinh viên**

1. Trước đại dịch COVID-19, em đã tham gia khóa học online nào hay chưa? Nếu có thì trải nghiệm của em như thế nào? Em suy nghĩ như thế nào về hình thức học này?

2. Khi tham gia các lớp học trực tuyến trong thời gian COVID-19, em đã gặp phải những khó khăn gì?

3. Các phương pháp phổ biến mà giảng viên thường sử dụng để giảng dạy trong lớp học trực tiếp và lớp học trực tuyến là gì?

4. Em thấy những lợi ích gì từ việc học trực tuyến, đặc biệt trong dịp COVID-19?

5. Theo em, sinh viên cần có những kỹ năng / kiến thức nào để học trực tuyến hiệu quả?

6. Từ quan điểm của một sinh viên, điều gì là cần thiết để cải thiện trải nghiệm học tập trực tuyến của em? (Ví dụ các giảng viên, nhà trường, gia đình, bản than có thể làm gì?)

**Giai đoạn 3**

***I/ Dành cho giảng viên***

1. Theo thầy/cô, phương pháp trong buổi học này có khác gì so với phương pháp thông thường sử dụng trong các lớp học online hiện tại?

2. Những lợi ích mà phương pháp mới có thể đem lại cho sinh viên là gì?

3. Phương pháp mới này thì có những hạn chế nào?

4. Thầy/cô có khuyến nghị nào để cải thiện phương pháp này hay khắc phục những hạn chế của nó?

***II/ Dành cho sinh viên***

1. Các bạn thấy được điều gì khác biệt từ những hoạt động học tập vừa rồi các bạn học và phương pháp học hiện tại của mình

2. Theo các bạn thì những lợi ích của những phương pháp này là gì

3. Những hạn chế của những phương pháp giảng dạy này là gì đối với việc học của bạn?

4. Bạn có những đề nghị hay đóng góp gì để cải thiện những phương pháp này không