

# Improving Cadets' Maritime English through Flipped Classroom Model-based E-Module

**Rizka Maulia Adnansyah\*, Mukhaiyar, Darmansyah**

Doctoral Program of Education Science, Postgraduate – Universitas Negeri Padang (UNP), Indonesia

Corresponding author: ikalia112@gmail.com

## Abstract

**Purpose:** The purpose of this research is to find out the effect of applying flipped classroom model by giving an e-module on the students' mastery of Maritime English and the students' responses toward the implementation of flipped classroom model at POLTEKPEL SUMBAR.

**Methods:** The participants of this study are two classes of cadets in a nautical program in the first year. To collect the data, the researcher used tests and interviews. Then, the data were analyzed by using statistical analysis and qualitative analysis.

**Results:** The result of the data analysis proves that the cadets improved their listening, reading, writing, and vocabulary scores after they learned by using flipped classroom model-based e-module. Furthermore, the interview result shows that the cadets gave positive responses to the implementation of flipped classroom-based e-module at POLTEKPEL SUMBAR.

**Conclusions:** The cadets agreed that flipped classroom model-based e-module fostered their learning autonomy and improved their Maritime English ability.

**Keywords:** cadets, maritime english, flipped classroom, e-module, poltekpel sumbar.

## 1. Introduction

One of the college's goals is to prepare students to work as a competent seafarer in international shipping companies. Colleges base their courses on the International Convention on Standards of Training, Certification, and Watchkeeping for Seafarers (STCW), which states that all personnel working on board must be able to communicate in English, perform various ship jobs, and comprehend specific requirements. According to Martes (2015), the purpose of the International Maritime Organization (IMO) course is to "assist marine training institutes and their teaching staff in organizing and introducing new training courses or in enhancing, updating, or supplementing existing training material where the quality and effectiveness of the training courses may be improved".

As one of the maritime colleges in West Sumatra Province under the Ministry of Transportation, the Politeknik Pelayaran Sumatera Barat (POLTEKPEL SUMBAR) requires its cadets to have high skills and competencies to compete globally. As a result, in addition to other maritime competency courses, this institution makes English a requirement. Maritime English for Nautical-Diploma III Study Program is five credits and the total credits for English courses in the Diploma-IV level of the Sea transportation study program are 12 credits.

Evidence suggests that cadets at POLTEKPEL SUMBAR have poor English skills. The results of recruitment held by one of the shipping companies in 2020 showed that cadets' average English proficiency score in POLTEKPEL SUMBAR is less than 5.0. This means that some cadets continue to receive test scores below 5.0. Then, based on data collected by the Youth and Alumni division as a supervisory unit for graduates and cadets who will perform sea projects, it was discovered

that just 28% of grads have worked aboard ships. This data backs up a statement by the Directorate General of Sea Transportation in 2008 that said graduates of Indonesian shipping institutions were unable to compete globally for jobs on ships.

Furthermore, a preliminary test was conducted to see the cadets' English skills in POLTEKPEL SUMBAR in January 2022 in four classes of the Nautical Study Program. The results of the pre-test indicate that the average value of the cadets is below 75 or below the KKM. Meanwhile, the results of the researchers' initial observations showed that many activities besides learning interfered with learning activities. This causes the cadets to have very limited time to learn English. Field observations reveal that the cadets at POLTEKPEL SUMBAR only receive 3 hours of Maritime English instruction per week. One hour is spent on presenting materials, while the remaining two hours are spent on practicing. When compared to the time it takes cadets to acquire Maritime English, the predicted period is quite short. According to the IMO 2015 Model Course 3.17, Maritime English study is predicted to take roughly 441 hours and 91 hours for independent learning. Compared to this regulation, the time allocation for Maritime English POLTEKPEL SUMBAR is lower than the time allocation suggested by IMO 2015 Model Course 3.17. In addition to the short teaching period in class, the cadets also did not get Maritime English material from other sources. They can only get maritime English learning resources from books, which are very limited in variety. This condition is in the opinion of Dirgayasa (2014) who states that learning in Maritime Education and Training is not fully by the 2010 STCW standard curriculum in terms of teaching materials, learning methods, and evaluation. At the POLTEKPEL SUMBAR, the books used are still books published several years ago and no newer books are used.

The usage of printed books is also no longer effective, according to field findings. Printed books are enormous, heavy, and require a lot of space to store. Printing books necessitate a specific location and time. When the cadets want to read maritime English content, they should bring their books expressly. This is no longer true in light of recent technological breakthroughs, such as the digitization of books. A learning model that manages to combine face-to-face and online learning is one of the learning models that are regarded as appropriate in consideration of the gaps stated above. In other words, the type of learning that is ideal for the POLTEKPEL SUMBAR is a blend of online and offline learning. Students participate in online learning by using their smartphones to access material in the form of digital products. Digital products such as e-module that contain Maritime English materials that include graphics, animations, audio lessons, and quick-response assignments are needed to decrease cadets' obstacles to learning English Maritime outsides of the classroom. In other words, the cadets are possible to acquire Maritime English immediately whenever they need it.

In addition, many studies have proven that the use of E-modules has succeeded in increasing the ability of students. Dewi et al (2019) conducted research on the development of E-modules for learning English for Specific Purposes (ESP) using a computer application. The designed e-module is equipped with images, animated learning, audio learning, and tasks that can be answered quickly. This module provides a simulation for students about the use of computer applications. The test of the e-module application is used to determine the practicality of using the e-module application by the user. The test results show that the practicality score of using e-module computer applications is 76.4%.

E-modules were also created to help health analysis students increase their motivation and foreign language skills, namely English language skills. Mustika & Sophia (2019) used a 4D research model to conduct their study. The findings of the development research are as follows: The designed e-module has a good level of validity and can be used to learn English. The average kappa moment score (k) of 0.79 confirms this. The score falls into the high validity category when viewed in terms of the kappa moment.

Responding to cadets' focus on understanding English in the situation of global employment competitions, the blended learning model based on E-modules is projected to overcome the boundaries and address the worldwide problems mentioned above. This study focuses on the usage of e-modules as an online learning tool in blended learning. Blended learning can help students become more autonomous by giving them greater control over their program of study. This autonomy encourages students to take control of their processes (Lust et al., 2013). Consequently, the learning model E-module blended learning is student-centered. This learning model might inspire cadets to participate in the learning process proactively.

## **2. Methods**

This research employs a quasi-experimental design that used a quantitative method strategy in analyzing the data, and it involved group pre-test and post-test designs (Sung et al., 2019). The data was analyzed using quantitative and qualitative ways to see how the flipped classroom-based e-module based affected cadets' maritime English skills.

This research involved a class of first-year cadets from the nautical fishing vessel study program of the POLTEKPEL SUMBAR who majored in Maritime English during the second semester of the 2022 academic year. For this research project, the cadets were purposefully chosen. Data was collected using the Maritime English test, flipped classroom instructions, and questionnaires. To begin, cadets were given pre-tests to assess their aptitude in Maritime English. The researcher then used a Flipped Classroom-based e-module to teach Maritime English (Kazu & Kurtoglu, 2020). After studying with an e-module through flipped classroom instruction, the students were post-tested on their Maritime English skills. Participants' opinions on the flipped classroom-based e-module implementation were gathered using an interview guide.

In this research, the data were collected by giving tests, treatments, and questionnaires. The data were collected by using a test that was given before and after the researcher apply flipped classroom model-based e-module. This flipped classroom model using e-modules is allocated 50% online learning and 50% face-to-face learning. The cadets were taught maritime English in the classroom for 2 meetings and they were also instructed to learn the material from the e-module as a replacement for the other two meetings. After learning Maritime English from the e-module, the cadets were asked to complete the task and made some notes to be discussed in the classroom meeting. After the treatment, the cadets were given post-test and questionnaires to find out the cadets' ability after the treatment and the cadets' responses to the implementation of flipped classroom model-based e-module at the institution.

The researcher utilized SPSS version 22 to analyze the data from the test scores. The difference between the pre-test and post-test results was analyzed using procedures including mean, standard deviation, and the Wilcoxon Test (Perolat et al., 2015). Meanwhile, a qualitative analysis procedure was used to analyze the interview result.

### 3. Results/Findings and Discussion

#### 3.1. Results/Findings

##### 3.1.1 Descriptive statistic, the normality, and the result of Wilcoxon signed-rank test of listening

The students' ability to fill in the blanks with the proper maritime terminology determines their listening abilities. The following Table 1 shows the descriptive statistic output of the listening pre-test and post-test scores.

Table 1. Descriptive statistic of listening scores

	N	Minimum	Maximum	Mean	Std. Deviation
listening_pre-test	28	7	13	10.54	1.527
listening_post-test	28	12	20	16.00	2.776
Valid N (listwise)	28				

The descriptive statistic of the listening scores in the pre-test and post-test are shown in Table 1. The results of the listening scores analysis show that the greatest listening score in the pre-test is 13 and the lowest listening score in the pre-test is 7. The pre-test mean is 10.54, with a standard deviation of 1.52. Meanwhile, the maximum listening score in the post-test is 20 and the lowest listening score in the pre-test is 12. The post-test mean is 16.00, with a standard deviation of 2.77. The post-test mean is higher than the pre-test, indicating that the use of a flipped classroom model-based e-module improved students' listening. In addition, the researcher utilized the normality test to determine the distribution of the listening score data. The following is the result of the normalcy test (Table 2).

Table 2. The result of normality test of listening scores

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
listening_pre-test	.220	28	.001	.908	28	.017
listening_post-test	.157	28	.024	.908	28	.017

The results of the normality test of the listening scores are shown in Table 2. The table shows that the Asymp. Sig. (2-tailed) significance value for the pre-test is 0.01 and for the post-test is 0.02 or less than 0.05 (Asymp. Sig. 0.05). It implies that the data is not distributed normally. As a result, the nonparametric test is used (Pallant, 2011). The researcher used the Wilcoxon Rank signed test in this situation. It is one of the SPSS program's applications. The specifics of the Wilcoxon rank signed test for listening scores are listed below (Table 3).

Table 3. The result of Wilcoxon rank signed test for listening scores

		N	Mean Rank	Sum of Ranks
listening_post-test - listening_pre-test	Negative Ranks	0 <sup>a</sup>	.00	.00
	Positive Ranks	28 <sup>b</sup>	14.50	406.00
	Ties	0 <sup>c</sup>		
	Total	28		

The Wilcoxon rank test of listening scores reveals that the total number of participants is positive (no negative rank of total participants). As a result, Wilcoxon statistics can be used to take the data analysis to the next step (Table 4).

Table 4. Test statistic for Wilcoxon rank signed test of listening scores

listening_post-test - listening_pre-test	
Z	-4.636 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

The Wilcoxon test results in terms of listening are shown in Table 4. According to the results of the Wilcoxon test for listening scores, The asymp. Sig. (2-tailed) is 0.00. It falls short of the statistical range's basic standards (0.05). It rejects the first hypothesis (Ho) and affirms the second (Ha). In other words, this finding implies that there are significant differences in listening scores between the pre-test and post-test. It means that the flipped classroom model-based e-module improved students' listening scores significantly.

### 3.1.2 Descriptive statistic, the normality, and the result of Wilcoxon signed-rank test of reading

The reading ability of the cadets is measured by their ability to answer questions based on a passage about a nautical issue. The descriptive statistic output of the reading pre-test and post-test scores is shown in the Table 5 below.

Table 5. Descriptive statistic of reading scores

	N	Minimum	Maximum	Mean	Std. Deviation
Reading_Pre-test	28	7	16	10.82	2.074
Reading_Post-test	28	12	22	15.61	2.986
Valid N (listwise)	28				

The descriptive statistic of the reading scores in the pre-test and post-test are shown in Table 5. The highest reading score is 16 and the lowest is 7 on the pre-test. The reading means is 10.82, with a standard deviation of 2.07. Meanwhile, the greatest reading score on the post-test is 22 and the lowest reading score on the pre-test is 12. The post-test mean is 15.61, with a standard deviation of 2.98. It means that the post-test reading means is higher than the pre-test reading mean. It means that the use of an e-module based on the flipped classroom model increased cadets' reading abilities.

Table 6. The result of normality test of reading scores

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Reading_Pre-test	.261	28	.000	.889	28	.006
Reading_Post-test	.169	28	.039	.920	28	.035

The results of the normality test of the reading scores are shown in Table 6. The table demonstrates that Asymp. Sig. (2-tailed) has a significant value of 0.00 and 0.03. They are less than 0.05 (Asymp. Sig.0.05). It implies that the data is not normally distributed. As a result, a nonparametric test, in this case, the Wilcoxon Rank signed test, is used to determine the significance of the difference in reading scores between the pre-test and post-test. The following is a breakdown of the Wilcoxon rank signed test results for reading scores (Table 7).

Table 7. The Result of Wilcoxon rank signed test for reading scores

		N	Mean Rank	Sum of Ranks
Reading_Post-test - Reading_Pre-test	Negative Ranks	0 <sup>a</sup>	.00	.00
	Positive Ranks	28 <sup>b</sup>	14.50	406.00
	Ties	0 <sup>c</sup>		
	Total	28		

Table 7 shows that there is no negative rank of total participants on the Wilcoxon rank test of reading scores. Thus, the test can be carried out to the next stage of analysis by Wilcoxon statistics below (Table 8).

Table 8. Test statistic for Wilcoxon rank signed test of reading scores

	Reading_Post-test - Reading_Pre-test
Z	-4.636 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

According to the results of the Wilcoxon test for reading scores in Table 8, the asymp. Sig. (2-tailed) is 0.00. It is below the statistical range's basic standards (0.05). It rejects the first hypothesis (Ho) and affirms the second (Ha). In other words, this finding implies that there are significant differences in reading scores between the pre-test and post-test. In other words, it implies that the flipped classroom model-based e-module improved students' reading scores significantly.

### 3.1.3 Descriptive statistic, the normality, and the result of Wilcoxon signed rank test of writing

The reading ability of the cadets is measured by their ability in writing sentences or phrases to complete nautical passages. The descriptive statistic output of the writing pre-test and post-test scores is presented in the following Table 9 below.

Table 9. Descriptive statistic of writing scores

	N	Minimum	Maximum	Mean	Std. Deviation
writing_pre-test	28	7	13	10.54	1.621
writing_postetst	28	12	20	15.71	2.706
Valid N (listwise)	28				

The descriptive statistic of the writing scores in the pre-test and post-test are shown in Table 9. The highest writing score is 13 and the lowest is 7 on the pre-test. The writing means is 10.54 on the pre-test, with a standard deviation of 1.62. Meanwhile, the highest writing score on the post-test is 20 and the lowest writing score on the post-test is 12. The post-test means the score is 15.71, with a standard deviation of 2.70. It means that the post-test score writing is higher than the pre-test scores. It means that the use of an e-module based on the flipped classroom model increased cadets' writing abilities.

Table 10. The result of normality test of writing scores

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
writing_pre-test	.228	28	.001	.901	28	.012
writing_postetst	.130	28	.200*	.921	28	.038

The results of the normality test of the writing scores are shown in table 10. It presents that Asymp. Sig. (2-tailed) has a significant value of 0.00 and 0.02. They are less than 0.05 (Asymp. Sig.0.05). It implies that the data is not normally distributed. As a result, a nonparametric test (the Wilcoxon rank signed test) is also used to determine the significance of the difference in writing scores between the pre-test and post-test. The following is a breakdown of the Wilcoxon rank signed test results for writing scores.

Table 11. The result of Wilcoxon rank signed test for writing scores

		N	Mean Rank	Sum of Ranks
writing_post-test - writing_pre-test	Negative Ranks	0 <sup>a</sup>	.00	.00
	Positive Ranks	27 <sup>b</sup>	14.00	378.00
	Ties	1 <sup>c</sup>		
	Total	28		

Table 11 shows that there is no negative rank of total participants on the Wilcoxon rank test of writing scores. Thus, the test can be carried out to the next stage of analysis by Wilcoxon statistics below (Table 12).

Table 12. Test statistic for Wilcoxon rank signed test of writing scores

	writing_posttest - writing_pre-test
Z	-4.547 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

According to the results of the Wilcoxon test for writing scores in Table 12, the asymp. Sig. (2-tailed) is 0.00. It is below the statistical range's basic standards (0.05). It rejects the first hypothesis (Ho) and affirms the second (Ha). This finding implies that there are significant differences in writing scores between the pre-test and post-test. In other words, it implies that the flipped classroom model-based e-module significantly improved students' writing scores.

### 3.1.4 Descriptive statistic, the normality, and the result of Wilcoxon signed rank test of vocabulary

The cadets' vocabulary is measured by their ability in using proper terminologies in making sentences in context of nautical issue. The descriptive statistic output of the pre-test and post-test scores of vocabulary is presented in the following Table 13 below.

Table 13. Descriptive statistic of vocabulary scores

	N	Minimum	Maximum	Mean	Std. Deviation
Vocabulary_pre-test	28	7	13	10.39	1.571
Vocabulary_post-test	28	12	20	15.36	2.542
Valid N (listwise)	28				

The Table 13 displays the descriptive statistic of the cadets' vocabulary scores in the pre-test and post-test. The highest vocabulary score is 13 and the lowest is 7 on the pre-test. The vocabulary mean is 10.39 on pre-test, with a standard deviation of 1.57. Meanwhile, the highest writing score on the post-test is 20 and the lowest writing score on the post-test is 12. The post-test mean score is 15.36, with a standard deviation of 2.54. It means that the post-test score of vocabulary is higher than the pre-test scores. It implies that the use of an e-module based on the flipped classroom model increased cadets' vocabulary.

Table 14. The result of normality test of the vocabulary scores

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Vocabulary_pre-test	.242	28	.000	.865	28	.002
Vocabulary_post-test	.168	28	.043	.915	28	.026

Table 14 displays the results of the normality test of the vocabulary scores. The output presents that Asymp. Sig. (2-tailed) has a significant value of 0.00 and 0.04. They are less than 0.05

(Asymp. Sig.0.05). It implies that the data is not normally distributed. Thus, it uses a nonparametric test (the Wilcoxon rank signed test) to determine the significant difference of the vocabulary scores between the pre-test and post-test. The following is a breakdown of the Wilcoxon rank signed test results for vocabulary scores.

Table 15. The result of Wilcoxon rank signed test for vocabulary scores

		N	Mean Rank	Sum of Ranks
Vocabulary_post-test -	Negative Ranks	0 <sup>a</sup>	.00	.00
Vocabulary_pre-test	Positive Ranks	26 <sup>b</sup>	13.50	351.00
	Ties	2 <sup>c</sup>		
	Total	28		

The Wilcoxon rank signed test results for vocabulary scores shows that there is no negative rank of total participant at Wilcoxon rank test of vocabulary scores. Thus, the test can be carried out to the next stage of analysis by Wilcoxon statistics below.

Table 16. Test statistic for Wilcoxon rank signed test of vocabulary scores

	Vocabulary_post-test - Vocabulary_pre-test
Z	-4.468 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

The Asym. Sig (2tailed) is 0.000, as seen in the table. It means that the outcome of the test did not meet the statistical minimum of range (0.05). To put it another way, this result indicates that the first hypothesis (Ho) was rejected and the second hypothesis (Ha) was accepted. It implies that the vocabulary scores on the pre-test and post-test are significantly different. It implies that flipped classroom model based e-module significantly increased cadets' vocabulary.

### 3.1.5 The summary of descriptive statistic for cadets maritime english scores

To sum, the result of the statistical analysis for the total scores of the cadets' maritime English scores are presented as follows.

Table 17. The summary of descriptive statistic for the total scores

	N	Minimum	Maximum	Mean	Std. Deviation
Maritime English (Pre-test)	28	33	54	42.29	3.700
Maritime English (Post-test)	28	50	79	62.68	7.394
Valid N (listwise)	28				

The descriptive statistic of the cadets' maritime English scores in the pre-test and post-test are displayed in Table 17. The highest Maritime English score was 54 and the lowest score was 33 on the pre-test. The mean of the pre-test is 42.29, with a standard deviation of 3.70. Meanwhile, the highest Maritime English score in the post-test is 79 and the lowest is 50. The mean of the post-test is 62.68, with a standard deviation of 7.394. It means that the post-test mean of the Maritime English score is higher than the mean of the pre-test. It means that flipped classroom model-based e-module improves the cadets' Maritime English. The result of the above analysis is also supported by the result of the Wilcoxon test as follows.

Table 18. The result of Wilcoxon test for the total scores

		N	Mean Rank	Sum of Ranks
Post - Pre	Negative Ranks	0 <sup>a</sup>	.00	.00
	Positive Ranks	28 <sup>b</sup>	14.50	406.00
	Ties	0 <sup>c</sup>		
	Total	28		



The Wilcoxon rank test of the Maritime English scores shows that there is no negative rank of total participant. It means that Wilcoxon statistics test is possible to be used as the next stage of data analysis for Maritime English scores data analysis. The result of Wilcoxon test is presented in the following Table 19 below.

Table 19. Test statistic for Wilcoxon rank signed test of the total scores

	Post - Pre
Z	-4.626 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000

The Asymp. Sig. (2-tailed) value for the pre-test and post-test scores of the Maritime English is 0.000, as shown in the table 19. The result of the test is less than the alpha value (0.05). This result refutes the first hypothesis (H<sub>0</sub>) while affirming the second (H<sub>a</sub>). This indicates that there are statistically significant differences between the pre-test and the post-test scores of the cadets' Maritime English.

### 3.1.6 *The cadets' responses toward the implementation of flipped classroom-based e-module*

The cadets gave various responses toward the implementation of flipped classroom model-based e-module in teaching Maritime English in their classes. Cadet A said that the implementation of flipped classroom-based e-module fostered their learning autonomy. He said, *"During learning by using e-module, I learned English by myself. I just need to follow the instruction given"*. It is in line with a statement by cadet B who said, *"I felt free to learn by myself and I think this e-module given by the lecturer helped me to learn better without direct instruction from the lecturer"*.

Meanwhile, cadet C said that he liked learning by using an e-module because it gave him more flexible time in which he can manage his time to learn everywhere by using his phone. He said, *"I like learning by using e-module because I can access the learning material everywhere and every time. I can use even 10 minutes when waiting for friends"*. In similar tones, cadet F agreed that learning by using an e-module during the implementation of flipped classroom model reduced stress. She said, *"Learning by using e-module reduced stress because I can learn by using e-module everywhere and it supported me to learn much about Maritime English terminology. I did have to buy a thick maritime book so that it saved my money"*. Furthermore, other cadets stated that they liked learning flipped classroom-based e-module because of their involvement in the discussion section. *"I like discussion sessions during face-to-face learning activities. We are, I mean the cadets, have learned the material so that we could involve actively in discussion sessions to share our knowledge"*. In the same tone, another cadet said, *"Learning by using e-module is just like playing the game and then we share what we have found to others during face-to face learning activities"*.

The above cadets' statements indicate that the cadets gave positive responses toward the implementation of flipped classroom-based e-module. However, further discussion about the findings and their supporting theory will be discussed in the next session.

## 3.2. Discussions

The result of the cadets' Maritime English scores proved that the cadets Maritime English scores improved after learning by using flipped classroom model-based e-module. The result shows that the cadets' scores in listening, reading, writing, and vocabulary are significantly improved. It is supported by the theory by Nasution (2013) that using an e-module helps students to achieve the set learning objectives. Proved this study that the cadets improved their ability to listen to maritime English passages, fill the blank parts in a nautical passage complete sentences by using proper maritime terminologies, and their ability to write a sentence correctly based on the context. Furthermore, the result of the interview proved that flipped classroom model-based e-

module was able to break down barriers and address the aforementioned global issues. This research looks at how e-modules are used as an online learning tool in blended learning. Using e-module as the media of learning during the implementation of flipped classroom model help students become more self-sufficient by offering them more choice in their academic program (Lust et al., 2013). Furthermore, the result of the interview also proved that learning independently outside of the classroom empowers cadets to take charge of their learning (Lust et al., 2013). The cadets admitted that learning by themselves outside by using an e-module fostered their learning autonomy.

The result of the interview also brought evidence that the implementation of flipped classroom model-based e-module made the learning process became more practice. The cadets admitted that they can assess e-module outside of the classroom whenever they have time to learn. Furthermore, the e-module includes audio which is very helpful for the cadets who need to improve their knowledge about maritime terminologies. 0-module To put it another way, an electronic module is a digital version of a module that is more practical, interactively packaged, and can include audio (Nasution, 2013). It is also in line with the previous theory by Sri (2018) who claims that the flipped classroom concept encourages flexibility, pedagogical elements, and student access to the learning process and learning resources while also enhancing financial efficiency.

The above notion implies that flipped classroom model-based e-module is an efficient way to address the needs of today's student-centered education system. This agrees with Thorne's definition of blended learning, as expressed by Sjukur (2012): "*Blended learning is the combining of technical innovations and traditional learning exchanges that suit the issues and needs of today's learning*". In the context of the implementation of blended learning at Politeknik Pelayaran Malahayati, flipped classroom model-based e-module learning settings integrate e-learning benefits with traditional learning features like face-to-face interactions. The cadets learn maritime English as if they learn from a teacher. The cadets are possible to access the nautical glossary, maritime passages, questions, etc. from their smartphones wherever they need to learn.

According to Muir & Geiger (2015), one notable element of the flipped classroom learning strategy is the amount of interaction and consultation time between students and teachers. Students and teachers discuss and solve problems in class. Whether through direct instruction or constructivist learning, the teacher serves as a guide to cadets in the classroom. Meanwhile, outside of the classroom, cadets engage in conversations and problem-solving exercises to demonstrate their understanding of the material. As a result, the flipped classroom enables the cadets to solve problems, create, criticize, and synthesize what they have learned (Bart, 2014).

#### **4. Conclusions**

Teaching Maritime English by using flipped classroom model-based e-module enabled the cadets to access learning material by themselves. E-module learning settings based on the flipped classroom paradigm combine the benefits of e-learning with traditional learning elements such as face-to-face interactions. The cadets are taught maritime English as if it were a subject taught to them by a teacher. Cadets can use their smartphones to access nautical vocabulary, marine passages, and quizzes, among other things. As a result of teaching Maritime English by using this model, the cadets improved their listening, reading, writing, and vocabulary scores. In teaching by using flipped classroom model-based e-module, the teacher should provide clear instruction for the cadets before they access the learning material on the e-module. Thus, the cadets clearly understand what objectives should be achieved. Furthermore, to make sure that all of the students are actively involved in face-to-face discussion, the teacher should make sure that all of the cadets have already learned the learning material from the e-module before the discussion

session. So that, all of the students knew about what knowledge and issue they will share in the class.

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