

THE USE OF E-LEARNING IN MARITIME ENGLISH LEARNING CAN IMPROVE THE VOCABULARY SKILL OF CADETS MAJORING IN ELECTRO-TECHNICAL OFFICER SHIPPING

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ABSTRACT

Purpose: The increasingly global trade in the world demands the sea transportation industry, especially ships, to further increase the capabilities and expertise of the crew, especially the ability to communicate in English. So in the national education system, learning English is very important. .

Design/methodology/approach: Various methods are used to improve English language skills, one of which is the use of technology in learning for students, namely by using e-learning.

Findings: This study aims to determine the use of e-learning in maritime English learning, one of which can improve the vocabulary skills of cadets majoring in Eto Pelayaran and to find out the obstacles that might occur when using e-learning in learning English maritime eto shipping.

Research limitations/implications: This study uses a quantitative approach with the analysis used is descriptive-quantitative analysis that reveals the problems that occur

Practical implications: The sample of this study was 25 cadets in the ETO Shipping class in Semester II, totaling 25 people.

Originality/value: This research conducted at the ETO Shipping class in Semester II.

Paper type: This paper can be categorized as a Study cases

Keyword: E-learning, Vocabulary, Maritime English.

Received: October 13rd, 2020

Revised: November 25th, 2020

Published: November 30th, 2020

I. INTRODUCTION

A. Background

World trade in an increasingly globalized era encourages the maritime or shipping industry to multiply. World trade, which includes commodity goods, such as crude oil, foodstuffs, etc., chooses the ship as its means of transportation. It is because ships are made based on the type of cargo that can carry a more significant number of cargoes at a lower cost than other means of transportation.

Therefore, the skills of a sailor or, in this case, a merchant ship officer are fundamental things that must be fulfilled to operate a ship. The skills must comply with the standards of training, certification, and watchkeeping (STCW 95 and above). One of the qualifications referred to is the ability to communicate effectively at sea (Koji Sekimizu, 2010). The communication is in the form of oral and written, which is carried out in typical situations between ships at sea, at the port in requesting a guide, the process of docking, anchoring, unloading, as well as in emergencies, such as collisions, aground, fire, people falling into the sea, and others.

Effective communication must be in English because English is the language of the sea, as determined by the IMO (International Maritime Organization). IMO states that "English is the language of the sea" (IMO, STWC 78/95). So, practical communication training, orally and in writing, must be obtained by seafarers or ship officers before they carry out their duties on board.

Commercial shipping officers consist of deck officers or navigators, machinists, and shipping electro officers. Navigators are officers who are responsible for the smooth operation of the platform related to navigation activities and also operational activities on the deck, such as loading and unloading. Engineers are officers who are responsible for the smooth operation of the ship's engine. Electro-Technical Officers are officers who are responsible for the electrical system of the ship that supports the smooth running of various equipment and machines, such as electricity for navigation equipment, loading and unloading tools, lighting, and cooling systems, ship machinery and so on. It can be said that the marine electrical officer also plays a significant role in the smooth running of activities on the ship.

The Surabaya Shipping Polytechnic, as one of the higher education institutions that provide education and training for cadets and cadets of prospective ship officers, sets maritime English courses in its curriculum.

English for maritime electro-shipping is the English language learning that refers to Model Course 3.17 of the IMO, which sets the level of basic and intermediate proficiencies that must be mastered. The students must be able to explain various electrical operational activities on ships, such as power generation, electrical systems, electrical instruments, and so on.

Based on observations from several meetings and the pre-test of Maritime English learning, various obstacles are found, namely the lack of vocabulary in ship electrical terms. Therefore, other learning methods need to be tried, one of which is using the technique that utilizes technology, namely e-learning. The method is the result of advances in technology and information that are developing globally and offers various facilities, especially in learning activities.

B. Problem Formulation

Based on the above background, the problem formulation of the study is whether the use of e-learning in maritime English learning can improve the vocabulary skills of cadets majoring in Electro-Technical Officer Shipping?

C. Research Objectives

To find out whether the use of e-learning in maritime English learning can improve the vocabulary skills of cadets majoring in ETO shipping.

D. Benefits of Research

The benefits of the research are divided into two, namely theoretical benefits and practical benefits.

1. Theoretical Benefits

Theoretically, the results of the study are expected to be a reference or input for the development of language teaching, especially English, of maritime ETO shipping.

2. Practical benefits

Practically, the results of the research are expected to be input for lecturers and cadets as well as other parties to improve the English vocabulary of maritime ETO shipping.

II. LITERATURE REVIEW

A. Technology

The general public gives various meanings of technology. Technology can be interpreted as a computer device (hardware) to the definition as an application in helping humans do various jobs. From the etymology point of view, technology comes from the Greek word of *technologia*, where *techne* means to craft, and *logia* mean to say. Rogers (2005) defines that technology is a design for instrumental action that can reduce the uncertainty that occurs in a cause-effect relationship in achieving an expected result. Technology is increasingly developing into designs in human life to obtain information and communicate.

B. E-learning

Philosophically, first, Cisco (Bagong, 2005) describes e-learning as the delivery of information, communication, education, and online training. Second, e-learning provides a set of tools that can enrich the value of conventional learning to answer the challenges of globalization. Third, e-learning does not mean replacing conventional learning models in the classroom but strengthening the learning model through

content enrichment and educational technology development. Fourth, students' capacities vary widely depending on the form of the content and the way it is delivered. The better the harmony between the content and the learning style delivery tools, the better the student's capacity to give better results.

Then according to (Hartley, 2001) E-learning is a type of teaching and learning that allows the delivery of teaching materials to students using internet media or other computer network media.

C. Characteristics and Components E-learning

E-learning has four characteristics that are categorized as good. The first is e-learning that utilizes electronic technology services, where teachers and students, fellow students, or fellow teachers can communicate easily without being limited by protocol things. The second is to take advantage of the advantages of computers (digital media and computer networks). The third is to use self-learning materials stored on a computer so that teachers and students can access them anytime and anywhere if they need it. The last is to take advantage of the learning schedule, curriculum, the results of learning progress, and things related to educational administration that can be viewed at any time on the computer. (Suyanto, 2005)

The components that makeup e-learning are the e-learning infrastructure. E-learning infrastructure can be in the form of personal computers (PCs), computer networks, the internet, and multimedia equipment. It also includes teleconference equipment if we provide synchronous learning services via teleconference. E-learning systems and applications are software systems that virtualize conventional teaching and learning processes. The systems make it easier to manage classes, to create learning materials or contents, to form discussion forums, to develop assessment systems, to conduct online examination systems, and to establish all features related to teaching and learning process management. The software system is often referred to as a Learning Management system (LMS). Many LMS are open source so that we can use them quickly and cheaply to build in schools, according to Cisco in Yaniawati (2010)

D. Functions and Benefits of E-learning

According to L. Smart & J. Cappel (2006) which writes a journal entitled student perceptions in e-learning as an application for improving the quality of education, many benefits will be obtained from the implementation of e-learning, including:

- a. It will facilitate and increase interaction time between students and learning materials, between students and teachers, and between fellow students.
- b. Students can continue to learn even though they are not physically present in the classroom.
- c. It allows students and teachers to share information or opinions about learning material so that they can optimize the face-to-face time available to concentrate on the material.
- d. It will improve the quality and performance of teachers with development, models, better learning, and teaching materials that are easy for students to understand and learn.
- e. It will reduce the digital divide between teachers and students by implementing systems based on internet technology in an integrated and integrated manner.
- f. It will facilitate the improvement and storage of teaching materials.

E. Learning Model of E-learning

There are three possibilities in the development of an internet-based system, namely web courses, web-centric courses, and web-enhanced courses, according to Haughey, & Muirhead (2005) quoted in the education journal of Penabur, (2005).

- a. a. Web Course is the use of the internet for educational purposes, where students and teachers are entirely separate, and face-to-face is not required. All teaching materials, discussions, consultations, practice assignments, exams, and other learning activities are delivered using the internet. The model uses a long-distance communication method.
- b. b. The Web-Centric course is the use of the internet that combines distance and face-to-face learning with complementary functions. In the model, teachers can provide instructions for students to study material via the web that they have made. Students are also directed to find other materials from relevant websites. In the face-to-face meeting, educators and students have more discussion about the findings of content that has been studied via the internet.
- c. A web-enhanced course is the use of the internet to support the quality of learning conducted in class. The function of the internet is to provide enrichment and communication between students and teachers, fellow students, and group members of students with other sources. The role of the teacher, in this case, is required to master the techniques of searching for information on the internet, guide students to search for and find sites that are relevant to learning materials, present material through the web that is interesting and of interest.

F. Language Learning

Language has a vital role in the intellectual, social, and emotional development of students. Language is supporting success in studying all fields of study. Language learning is expected to help students get to know themselves, their cultures, and the cultures of others. Then, language learning is also beneficial for students in conveying ideas, ideas, and feelings. Students can participate in society and can discover and use the analytical and imaginative abilities that exist in themselves.

So, the purpose of language learning is to improve competence in communicating. The language learned includes receptive or productive abilities because language learning is obtained through visuals (reading and writing) and audio (listening and speaking). Jack C Richards (2008) explains that several components underlie the success of teaching speaking (speaking). The elements are grammatical, discourse, sociolinguistic, and strategic competence.

Grammatical competence is the competence of grammar, which are morphology and syntax, and vocabulary. It includes English sounds and spelling, pronunciation, intonation, stressing, and others. Discourse competence relates to the types of texts used in context or applied functionally meaningful. Sociolinguistic competence refers to knowledge of what language users expect socially and culturally, including how the language is used under the existing socio-cultural situation of the local community. What is meant by strategic competence is how to use language to achieve the goal of communicating appropriately, well, and correctly (Jack C Richards, 2008).

G. Maritime English

Maritime English is English at sea (the language of the sea) established by the IMO (International Maritime Organization) in 1977. IMO establishes The Standard Marine Navigational Vocabulary (SMNV) to identify vocabulary in the nautical field. It was developed to anticipate misunderstandings in the communication between ships, ships with coastal radios, and the crew themselves, who generally have different nationalities (multinational crew).

In the early 1990s, IMO realized that changing conditions needed more detailed standards to avoid misunderstandings in communication that could lead to accidents at sea. So, the SMCP (Standard Marine Communication Phrases) was established in 2001 as resolution number A.918 (22) (Rashed & Kamal, 2010)

In 1995, the International Marine Organization (IMO) established English as the official language or lingua franca used in communication (british council, 2016). Lingua franca in the sea, according to Pritchard & Woollard (2010), is known as a maritime language.

According to (Dirgeyasa, 2018) maritime English is the language used by IMO and government organizations in its manuals, specialized journals, and select educational institutions. Maritime English is a series of sub-languages that technically interact with one another to convey everything related to the naval world .

So, it can be concluded that maritime English is the English language that has a set of vocabularies in the naval field that has been standardized by IMO. It is used in regular communication to smooth activities at sea or with land parties and to avoid accidents due to misunderstandings caused by language factors.

H. Vocabulary

According to Jack C Richards (2008) vocabulary is a set of lexemes, including words, compound words, and idioms. Words are defined as the smallest of the linguistic unit, which can occur on its own in speech and writing. So, based on the above definition, vocabulary has a broader meaning than the meaning of the word. The word is used when referring to a single countable unit. The meaning of vocabulary, in general, is a unity that reflects the wealth of vocabulary from the language user.

The definition of the word is further elaborated by Biber et al. (2003). Biber describes the characteristics of the word based on the independency of the word, even though the definition of the word is not clear. The first is that the word is phonetical. It is preceded and followed by a pause. The second characteristic is that, orthographically, the word is marked by spaces or punctuation marks. The third is the syntactic characteristic of the word in which the word can be used singly. Then, the fourth is, semantically, the word can have the task of carrying one or more dictionary meanings.

Based on the main function and grammatical properties, Biber et al. (2003) classify words into three groups, namely lexical, function, and intersection. Based on the meaning associated with the words, Thornbury (2002) classifies words into two classes, namely grammatical and content words.

Furthermore, Biber et al. (2003) explain that the lexical words, namely noun, verb, adjective, and adverbial, are the bearers of the primary meanings in a text. Thornbury (2002) explains the same thing that all four types of words carry a lot of information.

I. Vocabulary Learning

Vocabulary learning, in general, is the learning process that is not prepared solely for vocabulary but is carried out implicitly on another subject. For example, some vocabularies, such as ship's generator, main switchboard, bus bars, circuit breakers, and so on, are discussed with various types of activities, such as guessing words, speaking, etc., in learning to read power distribution on ships in the Electro Sailing class. You can describe the function or the use of something or tell the form and how it works to find meaning.

J. Framework of Thinking

English is an essential international language for all students to master, especially cadets at the Surabaya Shipping Polytechnic. However, based on observations from the written and practical test scores of cadets, their speaking ability in English cannot be categorized as good. Apart from the test scores, the duration of time needed to speak, at the time of question and answer, is too long. The students often have difficulty in choosing vocabulary to explain their ideas.

The research is conducted to improve maritime English vocabulary skills so that the results could later be useful for the development of English language teaching, in general, and lecturers and cadets at the Surabaya Shipping Polytechnic, in particular.

K. Research Hypothesis

The research hypothesizes that the use of e-learning in maritime English learning can improve the vocabulary skills of cadets majoring in ETO shipping.

III. RESEARCH METHOD

A. Research Approach

The research uses a quantitative approach using descriptive-quantitative analysis, which focuses on discussing the added value obtained by cadets from using the web (E-learning) to improve English vocabulary. Data are obtained from questionnaires and observations to determine the constraints that occurred.

B. Research Variables

The research involves two variables, namely the independent variable, or variable X, and the dependent variable, or variable Y. The independent variable is English learning by using e-learning. The variable can be manipulated and controlled by the researcher. Meanwhile, the dependent variable is the level of English vocabulary mastery of the cadets.

C. Research Location

The location used in the research is the ETO class in the second semester of the 3-year diploma program at Surabaya Shipping Polytechnic.

D. Population and Research Sample

According to Arikunto (2010), the population is the entire research subject. The population of the study is all cadets of the diploma program majoring in electro shipping in the second semester of the 2018 academic year, totaling 45 people. Arikunto (2010) defines a research sample as representative of a randomly selected population to be studied. Here, the technique used in determining the sample is simple random sampling in which the sample is chosen randomly. The sample of the research is 25 cadets in the ETO regular class.

E. Types of Data

The study uses quantitative data that is data in the form of numbers. The grades are obtained from the results of the initial vocabulary test (pre-test) and the grades of the final test results (post-test).

F. Research Instrument

1. Determination of Research Instruments

The instrument used in the study is the vocabulary test. The initial vocabulary test is used to determine vocabulary skills before lessons using E-learning. The same test is given again as a final test that is used as a measure of the level of English vocabulary skills achieved by cadets. The second instrument is a questionnaire given to cadets that contain inhibiting factors or obstacles in using E-learning.

2. Instrument Testing

The instrument is first tested outside the sample before the distribution is done to all samples. The goal is to determine the quality of the instruments, such as the level of validity, reliability, and objectivity Arikunto (2010)

3. Validity of Instruments

An instrument is said to be valid if it can measure what is desired and reveal the self-data of the variables under study accurately Arikunto (2010). The validation that will be used in the research is content validity, which states that a test is valid if it is conducted under the material or content provided.

4. Reliability of Instruments

The reliability criterion of research instruments refers to the notion of whether an instrument can measure consistently over time (Nurgiyantoro, 2011). The reliability of the instrument is tested using the Cronbach Alpha Reliability Coefficient formula because the data obtained are in the form of scale value. Measurement is performed on cadets in the same population but outside the sample.

G. Research Procedure

In experimental research, it is necessary to pay attention to the steps of implementing the experiment. The steps are as follows:

1. Pre-experimental stage

The stage is used to prepare everything that is needed in an experiment. The random sampling technique is used to determine the research sample.

2. Experiment Stage

d. Pre-test

A pre-test is a preliminary test conducted to find out the improvement in English reading comprehension. The result will then be compared with the learning outcomes achieved by cadets after receiving the treatment. The pre-test is given to cadets before treatment.

e. Treatment

At this stage, the lecturer provides treatment to the experimental class. The intended treatment is the use of e-learning in learning to speak English.

f. Post-test

The post-test is carried out to see the achievement of the cadets' English vocabulary level after being given treatment. The result will be compared with the vocabulary test scores achieved at the pre-test. The post-test will show whether the results are increasing, equal, or just decreasing.

3. Post Experiment Stage

After the pre-test and post-test are given, the next stage is post-experiment. It is the completion stage of the research. Here, the pre-test and post-test data are analyzed using statistical calculations. The results of the calculation are used to answer the hypothesis, whether it is accepted or not.

H. Research Data Analysis Techniques

The following steps analyzed the initial test and the final test:

1. Determine the assessment criteria given to cadets and tabulate the frequency according to the assessment category.
2. From the data tabulation results, the percentage of each data can be calculated according to the domain.
3. Drawing conclusions from each data obtained based on the size of the percentage.

Data analysis shows the percentage level of changes in vocabulary skills. The results of the initial and final tests will be compared to determine an increase.

I. Implementation Schedule

The implementation schedule for the preparation, compilation, and completion of the planned research is as follows:

No.	Activity	Month			
		1	2	3	4
1	The preparation of data collection	■	■		
2	E-learning implementation		■	■	
3	Data collection			■	■
4	Data analysis				■
5	Report writing				■

IV. DATA ANALYSIS AND DISCUSSIONS

The chapter will discuss several matters related to research data processing, starting from presenting data, testing hypotheses, and discussing research results. As for more details as follows:

A. Data Analysis

1. Presentation of Data

a. Normal Distribution Test

The distribution normality test is used to determine that the sample data from the population are normally distributed. The technique used is Kolmogorov-Smirnov.

The data tested for the normal distribution are pre-test and post-test data from the selected sample.

Table 4.1 Summary of Data Normality Test Results

Test	Kolmogorov-Smirnov	Explanation
Pre-test	1.133	z > 0.05 indicates that all pre-test and post-test data are normally distributed
Posttest	2.311	

Table 4.1 above shows the value of Kolmogorov-Smirnov $z > 0.05$ (5%). It can be concluded that the proposed sample represents the study population.

b. Homogeneity Test of Variance

The homogeneity test of variance is one way to determine the homogeneity test decision. The test results can be seen in the following table.

Table 4.2 Summary of Homogeneity Test Results

Test	Sig.	Explanation
Pre-test	0.338	Sig > 0.05 means that all pre-test and post-test data are homogeneous
Post-test	0.521	

The table above shows the significance value (Sig) > 0.05 (5%), so the conclusion is that all pre-test and post-test data are homogeneous.

2. Test Result Descriptions

a. Pre-test Data

Before the pre-test, learning activities in class using conventional methods, namely lectures and discussions. The pre-test s held after several meetings. Vocabulary testing in the pre-test is carried out through oral and written. For the oral test, cadets are asked to explain the function and how to use the terms in electrical navigation. Researchers used the matching test in the written test, namely matching terms with their definitions or meanings. For the weight of the research, each type of test is 50. By using the SPSS 17 program, the presentation of data is as follows:

Based on the data management above, the average score of the vocabulary test is 64.52. Meanwhile, the median number is 67, and the mode or value that occurs frequently is 62. The lowest score is 60, and the highest is 76.

b. Post-test Data

After the pre-test, class learning activities use conventional methods of lectures and discussions about 20% of the meeting, and the remaining 80% by e-learning. E-learning is carried out through presentations and short videos about the uses and descriptions of power generators, electrical installations, electrical propulsion systems, and safety devices. The question exercises and individual or group assignments are sent via e-learning. The type of vocabulary testing is the same as in the pre-test, which is by speaking and writing.

The following is the presentation of the data from the post-test:

Table 4.6 Post-test Descriptive Statistics

N	Valid	25
Missing	0	
Mean		82.0676
Median	84.0000	
Mode		82.0000
Std. Deviation		6.4273
Minimum		78
Maximum		92

Based on the data management in table 4.6 above, the average score of the vocabulary test is 82.06. Meanwhile, the median number is 84, and the mode or value that occurs frequently is 82. The lowest score is 78, and the highest is 92.

c. T-test data between pre-test and post-test for hypothesis testing

The T-test is needed to compare the results of the pre-test and post-test. Here are the results of the calculation of the t-test:

Table 4.7 The results of the pre-test and post-test

Test	Average	T-count	Df
Post-test	82,06	1,402	52
Pre-test	54,62		

Table 4.7 proves that the probability t-value is 1.402. Because the probability > 0.05, then H0 is rejected. In other words, there is a difference in the results of the pre-test and post-test. So, the hypothesis that says the use of e-learning in maritime English learning can improve the vocabulary skills of cadets majoring in ETO shipping can be proven.

B. Discussions

The results of hypothesis testing by using the t-test prove that there is a significant difference from conventional learning with e-learning. In other words, using e-learning can improve maritime English vocabulary skills of cadets majoring in ETO shipping.

V.CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Based on the results of the analysis and discussion, which show significant differences between pre-test and post-test, the conclusion that can be drawn from this study is that e-learning can improve the ability of maritime English vocabulary from the ETO Shipping department. For the type of learning or material in e-learning, it can be adjusted to the existing subject matter, such as a presentation after giving the assignment to present a subject learned. E-learning can play a short video that shows objects or machinery and equipment related to electricity so that it can be better understood and applied in communication practices on board. Various types of practice questions and assignments can also be included in e-learning so that cadets have more time to practice and learn Maritime English vocabulary.

B. Recommendations

1. For institutions, the results of the study can motivate shipping polytechnics to provide and maintain e-learning media, especially for maritime English courses.
2. For lecturers, the results of the study are expected to provide new insights as well as additional types of learning methods to improve the learning outcomes of cadets.
3. Cadets or students are expected to be more motivated to use technology wisely and adequately, especially in improving English maritime skills to compete in the international world and become professional sailors.
4. For other researchers, it is hoped that it can be taken into consideration for carrying out further research.

BIBLIOGRAPHY

Arikunto, S. (2010). *Research procedure: a practical approach*. Jakarta: RinekaCipta.

- Bagong, S. (2005). *Metode Penelitian Sosial Berbagai Alternatif Pendekatan*. Yogyakarta: Pustaka.
- Biber, D., Johansson, S., Leech, G., Conrad, S., & Finegan., E. (2003). Longman Grammar of Spoken and Written English. *Journal of English Linguistics*, 31(1), 90–97. <https://doi.org/10.1177/0075424202250290>
- british council. (2016). *Creative Hubs : Understanding the New Economy*. London: British Council.
- Dirgeyasa, I. W. (2018). The Need Analysis of Maritime English Learning Materials for Nautical Students of Maritime Academy in Indonesia Based on STCW'2010 Curriculum. *English Language Teaching*, 11(9), 41. <https://doi.org/10.5539/elt.v11n9p41>
- Hartley, D. E. (2001). *Selling E-Learning*. amerika: American Society for Training & Development.
- Haughey, M., & Muirhead, B. (2005). Evaluating Learning Objects for Schools. *E-Journal of Instructional Science and Technology*, 8(1).
- Jack C Richards. (2008). Methodoly in Language Teaching: An Anthology of Current Practice. Cambridge University Press. 239pp. *Per Linguam*, 18(2), 239. <https://doi.org/10.5785/18-2-130>
- Koji Sekimizu. (2010). *STCW A Guide For Seafarers*. Retrieved from https://www.mptusa.com/pdf/STCW_guide_english.pdf
- L. Smart, K., & J. Cappel, J. (2006). Students' Perceptions of Online Learning: A Comparative Study. *Journal of Information Technology Education: Research*, 5, 201–219. <https://doi.org/10.28945/243>
- Nurgiyantoro, B. (2011). *Penilaian Pembelajaran Bahasa (Berbasis Kompetensi)*. Yogyakarta: BPFE.
- Pritchard, & Woollard. (2010). *Psychology for the Classroom: Constructivism and Social Learning*. London: Routledge.
- Rashed, S. K., & Kamal, A. E. (2010). Maritime English Holds A Great Stake In Both The Safety And Security Of Merchant Vessels. *International Maritime English Conference*. IMEC 22.
- Rogers, E. (2005). *communicationTechnology: The new media in society*. new york: free press.
- Suyanto, A. H. (2005). *Mengenal E-Learning*. Retrieved from www.asep-hs.web.ugm.ac.id
- Thornbury, S. (2002). *How to Teach Vocabulary*. London: Longman.
- Yaniawati, P. (2010). *e-learning Alternatif Pembelajaran Kontemporer*. Bandung: Arfino Raya.