

IMPROVING ENGLISH COMMUNICATION SKILLS FOR ENGINEERING STUDENTS: A CASE STUDY AT NAM DINH UNIVERSITY OF TECHNOLOGY EDUCATION

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ABSTRACT

During the past few decades, with the need for communication skills in English as one of the most important recruitment criteria, future graduates need to be equipped with sufficient English language and communication abilities relevant to their respective fields. In response to these requirements, English for Specific Purposes (ESP) has been introduced in the curricula of many universities all over the world. This paper states the current situation of teaching and learning ESP, measures which have been implemented together with some achievements, and proposes further solutions for better quality of ESP teaching and learning as well as English communication skills of Engineering students at Nam Dinh University of Technology Education (NUTE), Vietnam. The analysis is based on the comparison between the curriculum first compiled in 2013 and the one currently used, and the scores of ESP module by second-year students from the Faculty of Electronic Electrical Engineering in the last 3 years and survey responses by NUTE lecturers and students. The results show that there have been remarkable changes in increasing the focus on communication skills and better scores on the module final exam. The limitation of the study is a quite small sample of participants in an institution. Hence, further research with a larger number of participants and more measures to improve the English proficiency of engineering students is highly recommended.

Trong vài thập kỷ qua, yêu cầu kỹ năng giao tiếp bằng tiếng Anh là một trong những tiêu chí tuyển dụng quan trọng nhất, sinh viên tốt nghiệp trong tương lai cần được trang bị đủ tiếng Anh và khả năng giao tiếp phù hợp với lĩnh vực tương ứng của họ. Để đáp ứng yêu cầu này, tiếng Anh chuyên ngành (ESP) đã được đưa vào trong chương trình giảng dạy của nhiều trường đại học trên thế giới. Bài viết trình bày thực trạng dạy và học ESP, các biện pháp đã được thực hiện cùng với một số kết quả đạt được và đề xuất các giải pháp tiếp theo nhằm nâng cao chất lượng dạy và học ESP cũng như kỹ năng giao tiếp tiếng Anh của sinh viên Trường Đại học Sư phạm Kỹ thuật Nam Định (NUTE), Việt Nam. Phân tích này dựa trên sự so sánh giữa chương trình được biên soạn lần đầu vào năm 2013 và chương trình hiện đang được sử dụng cùng với tổng hợp kết quả kết thúc học phần ESP của sinh viên năm thứ hai Khoa Điện - Điện Tử trong 3 năm qua, câu hỏi phỏng vấn giảng viên và sinh viên Nhà trường. Kết quả cho thấy đã có sự thay đổi rõ rệt trong việc tăng cường tập trung vào kỹ năng giao tiếp và sinh viên đạt điểm cao hơn trong bài thi cuối học phần. Hạn chế của nghiên cứu là mẫu người tham gia trong một đơn vị Nhà trường khá nhỏ. Do đó, cần có những nghiên cứu sâu hơn với số lượng người tham gia lớn hơn và nhiều biện pháp hơn để góp phần nâng cao hiệu quả trình độ tiếng Anh của sinh viên kỹ thuật.

Keywords: Communication skills, ESP, engineering students.

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1. INTRODUCTION

English language learning has become one of the top priorities in many countries in the process of globalization. In the corporate world, employers and managers need people who are not only experts in their respective areas but who can also communicate with different groups of people, therefore, requiring a high level of English competency (Mckay, 2003). The challenges of the present-day globalized world have led to significant changes in the academic curricula of the world's universities. In most higher education institutions, ESP courses have been introduced. ESP is primarily defined as a sphere of English teaching focused on students' acquisition of competence in those English language skills that are most appropriate for the student's professional lives. (Li, Wang & Feng, 2018). In the field of engineering, the ESP courses prepare engineering students to be able to read specialized texts, comprehend lectures and tutorials in English, and freely express themselves in discussions on engineering topics.

In recent years, Vietnamese engineering students have had many advantageous conditions and environments to learn English. However, some engineering students show a general lack of concern regarding the significance of English for their future careers. They may have not fully realized that proficiency in English is a competitive advantage in today's globalized work market. Another reason is that many ESP courses are not sufficiently practice-oriented (Harmer, 1991). Therefore, students are unable to effectively create links between the knowledge acquired in class and real life. In order to have English competence, in addition to improving the general English level, students also need to promote the ability to access and exploit scientific and professional resources in English and to reach a higher level of major fields trained in English. This is completely consistent with the policy of encouraging and promoting international integration in order to develop Vietnam's higher education at a regional and world level.

1.1. ESP teaching and learning at Nam Dinh University of Technology Education - Curriculum, objectives and learning outcomes.

At NUTE, the ESP course contains 2 credits in 30 periods. The curricula are compiled by lecturers of the Foreign Languages Department, Faculty of General Education for 17 different majors and approved by

the Scientific Council of the Faculty, namely English for Economics, English for Electrical and Electronics Engineering, English for Information Technology, English for Mechanical Manufacturing Engineering, English for Welding, English for Automobile Engineering and English for Mechatronics.

Each major has its own description, objectives, and learning outcomes. Within this paper, the curriculum of English for Electrical and Electronics Engineering will be taken into consideration.

1.1.1. Course description

English course for Electrical - Electronics major provides basic knowledge, vocabulary, and specialized terms about conductors, insulators, semiconductors; electrical circuits; DC motors, cathode ray tubes, consumer electronics, semiconductor diodes, high-definition television, and data transmission methods. In addition, the course also reviews and consolidates grammar topics such as relative clauses, conjunctions, pronouns, passive sentences, time clauses, etc. Thereby, students can apply their knowledge, vocabulary, specialized terms, and grammatical structure to practice reading, writing, and translating skills of English documents specialized in electrical electronics. At the same time, students have the ability to work independently or form study groups, know how to coordinate to complete assigned exercises, and flexibly apply knowledge and skills of the module.

1.1.2. Objectives

Knowledge: Have basic knowledge, vocabulary, and specialized terms about conductors, insulators, semiconductors; electrical circuits; DC motors, cathode ray tubes, consumer electronics, semiconductor diodes, high-definition television, data transmission methods... Demonstrate knowledge of grammar about relative clauses, conjunctions, pronouns, passive sentences, time clauses...

Skills: Be able to read, understand, summarize, and translate texts related to Electrical - Electronics major. Write simple sentences and paragraphs using English vocabulary, terms, and structures specialized in Electrical and electronics.

Autonomy and responsibility: Be persistent and flexible in applying learned knowledge to complete assigned tasks. Know how to coordinate, and organize work in pairs and in groups effectively.

1.1.3. Learning outcomes

Knowledge: Apply knowledge of English grammar, and specialized vocabulary to listen, speak, read, write, and translate English documents specialized in Electrical - Electronics into Vietnamese.

Skills: Practice specialized foreign language skills such as reading and understanding technical documents, writing sentences and paragraphs, and translating texts in Electrical and Electronic Engineering.

Autonomy and responsibility: Have perseverance and flexibility in applying learned knowledge to do exercises. Know how to coordinate and organize teamwork to complete assigned tasks.

1.2. The objectives and research questions

The present study aims to assess the current situation of teaching and learning ESP, measures which have been implemented together with some achievements and proposes further solutions for the better quality of ESP teaching and learning as well as English communication skills of Engineering students at Nam Dinh University of Technology Education (NUTE), Vietnam.

The specific research questions in this study are as follows:

1. How is the situation of teaching and learning ESP at NUTE?
2. What are some measures that have been implemented in the ESP teaching and learning process to focus more on students' communication skills?
3. To what extent do these measures have effects on students' learning results and communication competence?
4. What are some further solutions to achieve students' better communication skills in ESP teaching and learning?

2. LITERATURE REVIEW

In the modern era of globalization, outstanding communication skills are the key to professional job success. In this sense, students with the best communication skills are considered to be significant factors in any organization. Accordingly, excellent communication skills have become an explicit requirement in current job tests which include full or partial English or communicational knowledge (Morgan & Regan, 2008). However, many engineering students lack professional communication skills (Mudraya, 2006).

Mckay (2003) said that communication plays a vital role in professional career development. Hence, effective communication skills are necessary for students' professional success. Many reviews have found that such skills are greatly lacking among engineering students, which negatively impacts their academic success, professional communication, and employability (Kamsah, 2004). It has been argued that the ESP courses for engineering students where students learn the English language and communication skills unique to their profession and career prospects are an absolute necessity (Hossain, 2013).

Some literature surveys on language proficiency and communicative competence have explicitly focused on English proficiency levels among engineering students (Popescu, 2012). They revealed that along with technical expertise directly associated with career success, engineering students need to acquire English communicative skills. Tabrizi and Renani (2016) highlighted that the need to improve English communicative skills and competence among engineering graduates and professionals has been at the center of linguistics discussion and research. Mitra (2006) supported the introduction of ESP for engineering, which will continue to improve English language proficiency and communication skills.

3. METHODOLOGY

3.1. Participants

Participants in this study are 6 teachers taking part in English for Electronic Electrical Engineering teaching and 100 students who have completed the English for Electronic Electrical Engineering course at NUTE. The teachers all were female, aged from 38 to 42 years old, have completed a Master's Degree, and have been teaching ESP for 10 to 15 years. The students included second-year, third-year, and fourth-year students. Their age ranged from 19 to 25 years old with the majority being male. This is because the major of Electrical Electronic Engineering is more attractive and suitable for males.

3.2. Survey questionnaires

Teachers and students were asked to respond to items on a survey carried out to examine the ESP teaching and learning at NUTE. Items for the survey are created with reference to previous surveys assessing ESP teaching and learning in different contexts. In developing the survey, specific scales are chosen to answer the proposed research questions. A pilot survey is also tested to make any necessary changes before the final one is used for this research.

The survey applied in this study includes 17 items of the following sections: the contents of the ESP course and the time allocation for each part (for teachers), self-assessment of language knowledge competence, and language skills competence (for students)

In the general information section, teachers were asked to provide personal and educational information, including age, gender, highest qualification, and number of years in teaching. Meanwhile, students were asked to provide personal information, including course code, age, gender, and level of English proficiency. In the survey section for teachers, they were suggested to share opinions about the ESP course content and time distribution on average for each part during class. In the survey section for students, they were asked to self-assess their specific language knowledge and skills. Responses to these sections used a 4-point Likert scale ranging from Strongly Disagree to Strongly Agree. There were also 2 open-ended questions included in the survey for expressing teachers' and students' thoughts on the usefulness of the ESP course and additional comments if any.

3.3. Data collection

The questionnaire was distributed among 6 teachers and 100 students (35 second-year, 35 third-year, and 30 fourth-year). 100 % of participants positively responded by filling in the questionnaire sheet. The two versions of the ESP coursebook (the old one used in 2013 and the current one used in 2023) were compared in terms of contents and time for each language skill. The students' final scores of ESP in examinations in the last 3 years were also collected for analysis.

3.4. Data analysis

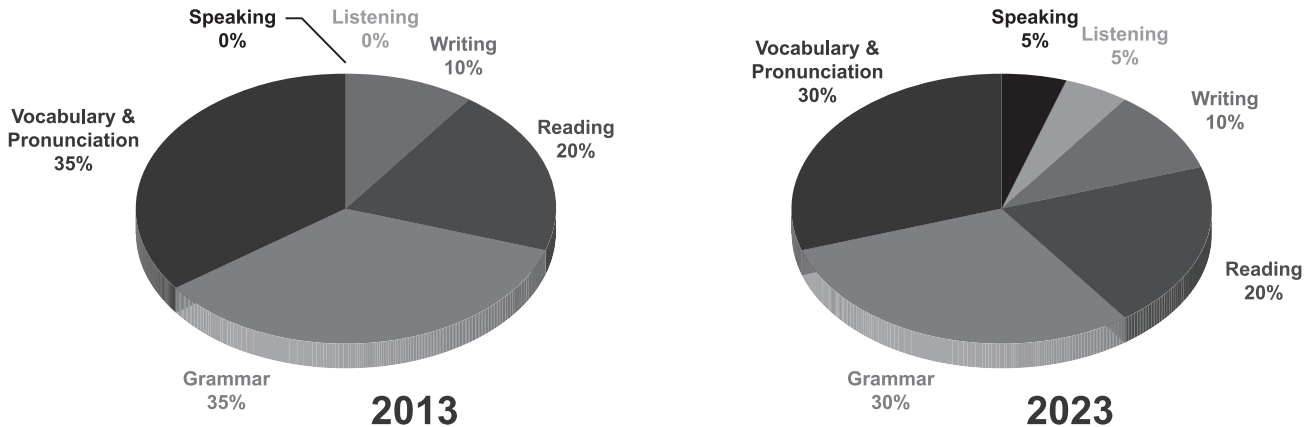
Data from participants' responses were analyzed using Excel. The descriptive statistics regarding ESP course content and final scores were counted and shown in percentages (Figures 1, 2, and 3).

4. FINDINGS AND DISCUSSIONS

4.1. Current situation of ESP teaching and learning at NUTE

The ESP coursebooks for different majors currently used at NUTE were compiled during the school years from 2011 to 2015 by lecturers of the Foreign Languages Department at the Faculty of General Education and have been periodically rectified every two years. English for Electronic Electrical Engineering syllabus was compiled in 2013 and like other majors, the teaching and learning content and quality show a strong focus on language rather than skills as can be seen from the pie chart below.

Figure 1: Language and skills in ESP teaching and learning at NUTE



The pie chart shows that in 2013, the curriculum and coursebook of Electrical Electronic Engineering mainly focused on ESP grammar, vocabulary, and pronunciation which accounted for 70%, whereas reading comprehension and writing accounted for 30% of teaching and learning time, and there was no time for communication skills practice of listening and speaking. However, recognizing the importance of enhancing listening and speaking skills, NUTE has been paying more attention to these skills practice through extra activities. Compared to the present, in 2023, there has been a significant change in the percentage of teaching and learning focus on language and skills with 5% for speaking and listening each, while there has been a small decline in grammar, vocabulary, and pronunciation with 30% each. Writing and reading still consist of 10% and 20% respectively. The form of assessment has also changed from written tests into oral and multiple-choice tests based on a question bank developed by the English language department, following the detailed curriculum of the module, with periodical additions and corrections. The content of the assessment focuses on testing grammar, vocabulary, reading, and writing skills, students have time to prepare and answer questions; therefore, a small part of the test is for listening and speaking check through one-on-one teacher-student interaction about subject matter on students' question paper. Students read out loud answers and practice grammar structures after doing exercises or listen to teachers' questions and then answer.

This effort has made students use the language in the form of speaking and listening but not enough to ensure the students' ability to communicate in practical work in the future.

Through a survey with 6 teachers taking part in English for Electronic Electrical Engineering teaching and nearly 100 students who have just completed the English for Electronic Electrical Engineering course, nearly 90% of them think that the knowledge of ESP after studying provides sufficient ESP vocabulary and improves reading skill, which allows them to understand the reading texts content. However, with respect to writing skills, most teachers and students (85% and 80% respectively) assert that students have little opportunity to practice writing skills for general work-related tasks in general and the technical field in particular. When it comes to communication skills, 30% of teachers and 20% of students agree that students can practice communication skills in situations commonly related to their future jobs. In particular, with listening and speaking skills, all lecturers and students confirm that they are just mentioned but not enough time for practice.

In short, if engineering graduate students have insufficient English communication competence, they will be less confident when interacting with colleagues, especially foreigners to exchange and discuss in the working environment. As a result, the job performance will be remarkably reduced. Therefore, improving the quality of ESP teaching and learning with more focus on communication skills at NUTE is urgent.

4.2. Some implemented measures and achieved results

In the past ten years, being aware of the importance of English competence and communication skills for engineers at work in integrated periods, labor mobility throughout the world and between ASEAN countries, owing to the leaders’ attentive directions, the continuous effort of both teaching staff at Foreign Language Department and students, the teaching and learning ESP at NUTE has achieved some encouraging results.

First, professional development courses including English courses for the teaching staff have been carried out regularly. During the past years, there have been several English courses held at NUTE in cooperation with prestigious institutions such as IIG Vietnam, National University Hanoi, E-quest, and Apollo. Each one lasts for 3-5 months with the attendance of 25- 40 teachers per course. There have also been professional development courses overseas, both short ones for several months, for example, the course on the Internet of Things in Korea in 2022, and long ones for several years like doctoral study on Linguistics in New Zealand in 2021, and Information Technology in Canada in 2015. These courses aim at improving English competence for teachers in combination with action research in specialized fields. By attending these courses, teachers have chances to do research and present information using English frequently. Some teachers have looked for, participated in, and completed English courses, and have achieved certificates themselves. There was also foreign teaching assistance from the Fulbright Program by The USA Embassy taking part in English teaching and English club, and extra English classes for students.

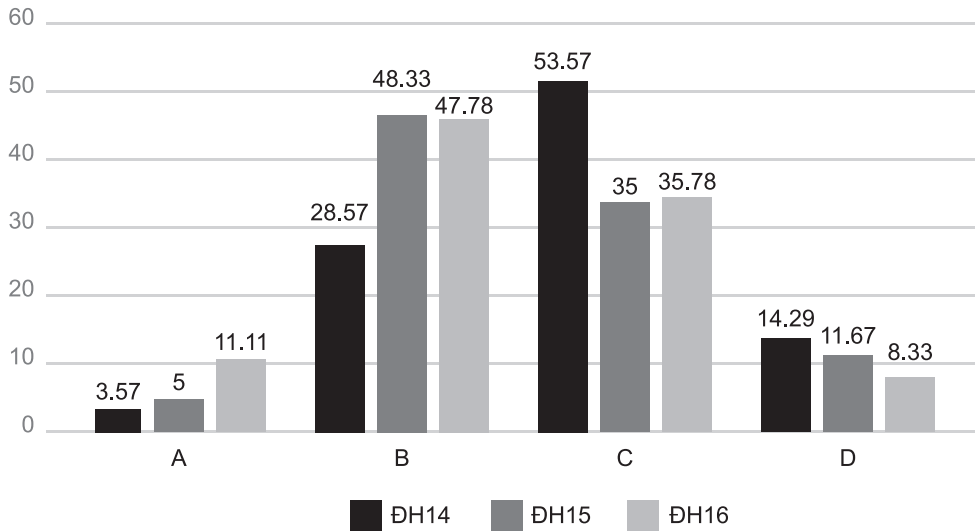
Second, NUTE has actively participated in international exchange and cooperation using the English language with organizations and institutions across the region and worldwide. One outstanding program is the Agreement on Developing Finnish-Vietnamese Collaboration on Digital Transformation for Higher Education 2022. Within the scope of this cooperation, there was a pilot course for teachers and 6 members were given certificates of completion. In 2014, there were 11 teachers from the faculties of Electrical and Electronic Engineering, and Information Technology attending a 5-month course in Chisholm Institute, Australia and they all completed the course with excellent results. During the year 2015-2017, 2 teachers from NUTE attended several courses in Southeast Asia on Human Development for Vocational Education sponsored by GIZ, Germany.

Third, with the effort in the teaching and learning process of both NUTE teachers and students, the results of Basic English in general and ESP in particular of Engineering students at the end of each semester have increased gradually in recent years. However, there is still limited progress on listening and speaking competence for some reasons mentioned above. The result of the English for Electrical and Electronic Engineering module by NUTE students in the last 3 years can be seen in the chart as follows.

Ranking	Scores in number	Scores in letter
Excellent	From 8,5 to 10	A
Good	From 7,0 to 8,4	B
Average	From 5,5 to 6,9	C
Poor average	From 4,0 to 5,4	D
Poor	Below 4,0	F

Figure 2: Score scale of English for Electrical Electronic Engineering curriculum

Figure 3: Final scores of English for Electrical Electronic Engineering at NUTE in 2021, 2022, 2023



The chart shows the progress of final scores in English for Electrical Electronic Engineering of NUTE students for 3 school years up to now. It can be seen that there has been a gradual increase in the percentage of A and B scores and a small decrease in scores C and D (the rest percentage was for students absent from class and ineligible for taking the final test). It can be concluded that the quality of ESP has achieved some positive changes proved by final scores and more focus on communication skills during the teaching and learning process. However, there should be stronger measures to maintain and improve the teachers and students' English communication competence in the near future to keep up with other universities in Vietnam and shorten the distance of English competence with other countries across the region and all over the world, as well as to achieve a higher ranking in English Proficiency Index of Vietnam in the upcoming years.

5. PROPOSALS OF FURTHER SOLUTIONS FOR BETTER QUALITY OF ESP TEACHING AND LEARNING AND STUDENTS' COMMUNICATION SKILLS

5.1. Editing and compiling communication-oriented curriculum and coursebook

It is necessary to edit and recompile the ESP curriculum and coursebook in the direction of developing communication situations and the ESP curriculum should be suitable to the teaching and learning conditions at NUTE and follow the curriculum frame regulated by the Ministry of Education. It is really important for the coursebook to be authentic in only the target language with information that is modern, relevant to updated training, and contains reliable facts (Elena, 2020). Teachers should be able to choose, select, and compile suitable teaching materials and rearrange class time appropriately for communication skills practice. In the process of editing and recompiling the curriculum, the actual situation of teaching and learning at NUTE such as student's foreign language level and; the number of students in an ESP class... should be paid serious attention to develop a curriculum that should bring about practical results and avoid situations beyond the student's ability or too far from practical work. It would be much better if there is cooperation between institutions across the country and region in developing a common curriculum for each ESP so that there is mutual recognition between institutions in the region.

5.2. Selecting effective and appropriate communication-based approaches

Teachers flexibly select positive, appropriate approaches in the direction of practicing communication to bring the highest results with an emphasis on the learning autonomy of students. For example, project-based, task-based, group work has been applied in many institutions. In addition, communication-based situations must be closely linked to reality and the time for practicing speaking and listening skills should be allocated to ensure that it is adequate for students to learn and practice the necessary skills in English communication. Students should actively grasp the contents provided by the teachers, make use of time for communication practice, and actively participate in the lessons. During

classes, vocabulary is given in the context together with facial expressions, gestures, and illustrations. Game situations, pair work tasks, filling the gaps, error identification, and comparative exercises are used instead of grammar exercises. At the same time, students not only develop language skills but also broaden their horizons, develop creative abilities, students study target language culture and traditions (Jalolov, Makhkamova & Ashurov, 2015). Besides, the university and teaching staff look for aid sources and equip students with multi-purpose classrooms with an internet connection, language labs, and software supporting the teaching and learning process. There should be regular professional conferences held within national and regional projects where experts, teachers, policymakers, government, and stakeholders discuss and share best practices, experiences, and solutions on new effective methods.

In ESP classes with communication-based textbooks, an English-language atmosphere close to the natural conditions of the linguistic environment is created. The university and faculty make plans and organize real situations using English during events like English game shows, English competitions, and professional meetings... for teachers and students every one or two months. Each activity should be implemented with assessment, feedback, and recognition to make teachers aware of their responsibility and encourage students to join. The faculties coordinate with the relevant units in other institutions to regularly organize visiting lessons to adjust the teaching content and methods, take field-trip to factories or workshops where English must be used during working time; so teachers and students have opportunities to interact and cultivate knowledge, form qualities like professional skills and personal skills. Besides, enhancing the preparation of courses for teachers studying abroad, searching for teachers, and student exchange programs with English-speaking countries are also potential solutions for English competence development. In the context of NUTE, this community, once established and works stably,

will create benefits and contribute an important part in promoting lifelong learning for teachers and learners, both teachers and students will increase their self-control and knowledge, actively learn, and update their practical issues.

Such English community activities prepare both teachers and students for modern life, namely: to participate in negotiations, seminars, and workshops; to make presentations at symposia; to conduct research work, and business correspondence; to read foreign scientific literature by their specialty; as well as the ability to declare oneself as a world-class specialist. When students possess foreign language skills, they can be engaged in self-education and professional growth, informationally aware of the latest world achievements in the field of science and technology in the chosen field of activity.

6. CONCLUSION

This paper reaffirms an important issue that the communication skills of engineering students are extremely necessary for society in general and NUTE in particular. By stating the current situation of teaching and learning ESP, measures which have been implemented together with some achievements, some proposals for further solutions of better quality in ESP teaching and learning as well as English communication skills of Engineering students at Nam Dinh University of Technology Education has been recommended. However, the process of implementation should be conducted synchronously and continuously. This requires continuous effort and specific strategies to overcome obstacles and successfully achieve the goals. The author also would like to express a strong desire to conduct further research with other universities across the country that have the same objectives of improving the quality of English communication skills for engineering students for better-qualified future engineers to meet the demand of global requirements.

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