FOREIGN LANGUAGES AND VIETNAMESE

THE USE OF IMAGES TO IMPROVE THE MEMORY OF STUDENTS' COMPUTER TERMS

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ABSTRACT: The aim of this study was to investigate the influence of the use of images to improve the memory of the student's computer lexis by comparing two approaches to teaching computer terms: teaching computer terms with corresponding images and teaching terms without pictures. Participants were 50 third-year IT students from the Design Experimental Group (EG) and the Control Group (CG). The study is conducted in a three-week program, each with two fifty-minute classes. The obtained data is processed and analyzed. The results of the previous and subsequent tests were significant and supported the conclusion that students who received new computer terminology by using photographs scored higher than those who received conventional instruction. The average EG scoring was 26.4% higher than CG's 12.66 points. Accordingly, 92 per cent (approximately 23 students) agreed that the use of images to teach the computer terminology was crucial to better understand ESP reading texts. The research showed that the use of images in the language teaching is one of the best ways to effectively increase the memory of the vocabulary of students' computer terms at the Faculty of Natural Science and Technology at Hanoi Metropolitan University (HNMU).

KEYWORDS: Computing terms; improve memory; teaching methods; using images; foreign language teaching.

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1. Introduction

In Vietnam, English for Specific Purpose (ESP) has long been regarded as an important field. In order to meet the needs of real economic and social life, ESP is used to teach courses at universities and universities in Vietnam, and HNMU is not the exception. Some universities offer ESP courses in a variety of fields, including accounting, commercial management, international trade, financial, banking, and information technology. However, learning and teaching ESP at Vietnamese universities and colleges, especially at HNMU, has not yet been satisfactory. As an ESP teacher, the researcher recognized that there were some problems that ESP teachers and students at HNMU faced when learning and teaching ESP, such as: (1) the ESP teacher lacked experience and basic knowledge in teaching ESP. Many of us have long been teaching general English and ESP, so we found it very difficult to cover the content area; (2) ESP facilities were formerly used to learn and teach foreign languages, but have some limitations, such as: Classrooms and learning materials did not adequately equip or plan language courses such as videos, televisions, or projectors "the use of pictures, video clips, object, internet facilities help the students to have a real - life imagination of the context of what is being taught" (Bel, U & Ordu, A, 2021, p.210); and ESP learning materials did not facilitate students' needs. The main ESP learning materials at HNMU are collected mainly from the internet, because there is not a lot of explanation of the terms, and redesigned by ESP teachers. As a result, students were unable to recognize or retain the concepts they had learned because they did not really understand them, especially computer terminology. Moreover, some traditional teaching methods, which focused on grammar, were still used by ESP teachers and teachers also play an important role in classrooms, describing new concepts, explaining them, most of them in Vietnamese, and passively taking notes. According to the above arguments, the influence of the use of images to improve the

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memory of the student's computer terms is one of the most important factors influencing the implementation of the success of the authors' research.

2. Literature review

After teaching English for many years in the Faculty of Foreign Languages at HNMU, the author realized that, except for some excellent students, they were not interested in learning ESP concepts. These students do not recognize or acquire the concepts they have learned because they do not pay much attention to most of the concepts presented to them. As a result, they will face many difficulties with ESP skills, especially in reading comprehension skills, which will become very important. It is therefore imperative to encourage students to become more interested in learning vocabulary and to help them to remember as many ESP terms as possible in order to improve their comprehension of reading. According to Munawaroh (2017, p.668), "teaching method helps to determine the success or failure of a learning and teaching activity and it is a unity in teaching system. The more precise method that is used by teachers in teaching is expected to be more effective the achievement of learning goal". When you move from English General Purposes (EGP) to ESP, the key difficulty is the lexis (specialized vocabulary). Computer lexis is an ESP terminology brand that generally refers to only people who work in the computer field. In order to enable information technology students to effectively learn computer English and better prepare for their future employment, ESP teachers must implement appropriate teaching techniques to help students remember the meaning of words and increase their computer vocabulary. The author was really interested in whether using images in vocabulary teaching helped improve students' computing vocabulary memory. In order to answer this hypothetical question, the research was conducted with 50 third-year computer science students who have learned English as a second language.

The research focuses on vocabulary teaching and aims to investigate the influence of the use of images on improving students' memory of computational problems by comparing two approaches to computational terms teaching with corresponding images and computational terms teaching without images. This innovation covers only two methods of teaching (electronic teaching and image teaching). The study restricts the scope of editing to include only calculated names and images that do not move.

3. Methodology and data

3.1. Research question

In this research, the researcher applied an experimental method with the goal of attempting to manipulate the students of information technology who introduce new images-related terms remember more terms than students who have learned computer vocabulary without pictures. After that, the outcomes from both groups would be examined and compared with.

(1) Null hypothesis: How are information technology students able to remember more new terms with pictures than without pictures?

(2) Alternative hypothesis: How do information technology students remember more new terms with learning vocabulary than without pictures?

3.2. The participants

Participants were 50 (29 males and 21 females) third-year students in information technology who designed experiments (EG) and control groups (CG). The Faculty of Natural Sciences and Technology of HNMU offers only two courses for students in third-year information technology and the researchers want to select all students for innovative research. They are 29 women (58%) and 21 men (42%). Respondents were between 20 and 22 years old. The age criteria were chosen because the population is large and students aged 20 to 22 are present. According to Hastings, N.B. (2005), the study was not directed at students of different ages because students' age differences may affect

their ability to receive and recall information differently. Students acquired similar basic knowledge and skills in English through two years of general English in a 240-hour university teaching programme. The New Headway Elementary and New Headway Pre- Intermediate courses (Soars, J and Liz, 2000) have been adopted. In the third year, they studied English for a month (8 lessons) before the experiment.

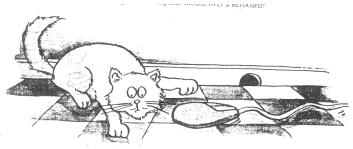
3.3. Materials for treatment

The vocabulary lesson is 50 minutes long, and the terminology of computing is selected from a special text of an information technology third-year student textbook (Esteras, R and Santiago, 2001). Each lesson contains about 30 to 40 computer terms, selected based on various criteria, including frequency of use, visual complexity, speech parts, and whether the word refers to concrete or abstract concepts. These images used in this study represent the nautical concept, and some supplementary images of concepts belonging to the general purpose are also presented to help strengthen the student's understanding of the specialized terms. The images and vocabulary used in this study are collected from sources on the Internet. The teaching of computing terms without images has been applied to CG. These students were presented with the spelling, phonetic translation, the English definition and the Vietnamese meaning of each word. The CG calculation terms (non-picture vocabulary) were in the following format.

Mouse	/mʌus/	"A common cursor control input device used with a graphical user interface. It has two or three bottom switches on top and a ball underneath that is rolled on a flat surface" (Esteras, R and Santiago, 2001, p.207).	Con trỏ

On the other hand, the terms of teaching computational terms with images have been applied to EG. The image vocabulary has the same parts in appearance as the non-image vocabulary, but the picture depicting the concept has been added. The image vocabulary (computing term for experiments) appears as follows:

Mouse	/muʌs/	"A common cursor control input device used with a graphical user interface. It has two or three bottom switches on top and a ball underneath that is rolled on a flat surface" (Esteras, R and Santiago, 2001, p.207).



Both groups have taught the same number of words in specialized English-language information technology texts for IT and computer students (Esteras, R & Santiago, 2001).

3.4. Research procedures

The study took place in a three-week program, with two fifty-minute lectures per week. The two courses of information technology (EG and CG) at the Faculty of Natural Sciences and Technology at HNMU are described in Table 1:

***Table** 1. The procedures for each phase*

What was done	When was done
The pre-test of the vocabulary	Three days before the study
The post-test of the vocabulary	Three days after the treatment
Questionnaire	Three days after the treatment

As shown in Table 1, the pre-test was carried out three days before the start of the experiment to determine the student's knowledge of calculating vocabulary and the post- in the research process, researchers designed each test at a time limit of about 30 minutes and delivered it to both groups. Subsequently, the researcher collected and classified the test, analyzed the data of both groups, and presented the results of the data analysis and discussed them below. The questionnaire was completed with the support of 25 students of EG after one week of treatment. The researcher returned the question after half an hour of delivery. Questions were collected and the data obtained processed and analyzed 25 questionnaires were issued and 25 were collected.

3.5. Data collection instruments

For answers to research questions, vocabulary tests and questionnaires are used as data collection tools. In this study, researchers used the same test content before and after the experiment to measure the exact words students remembered. The test is designed in a corresponding format and covers the same 50 words. The following tests of CG and EG were the same in content, but slightly different in format. The CG after-test matches the glossary, but the EG after-test matches the glossary with the image. The data collected from both tests were analyzed by the T test: "The T test isa method to determine whether a single score or two sets are random samples of a particular population... The T test aims to determine whether the null hypothesis is rejected or maintained. The zero hypothesis always assumes that the samples come from the same population. In other words, it claimed that independent variables had no effect" (Tilley, A, 1990, p.65).

The key level used in this study is 0.05 (p=0.05). If the probability value(p)is below the significance level (p=0.05), the researcher rejects the zero hypothesis and accepts the alternative hypothesis. The researcher also concluded that this conclusion was statistically significant. On the other hand, if the probability value exceeds the significance level (p= 0.05), the researcher cannot claim that the zero hypothesis has not been rejected and concludes that the study results are not statistically significant. In addition to the test, questionnaires were also collected. The questionnaires were simply open questions. Open (unlimited) questions require free responses and provide greater depth of response. Researchers can easily collect and analyze collected data and obtain more valuable information from respondents. The questionnaire consists of 10 questions, divided into two parts. The first part consists of five questions to get information about students' attitudes to the use of illustrations to improve the memory of computer terms. In the second part, we collect information on students' suggestions for future programs using five questions.

4. Data analysis and evaluation

4.1. Data analysis

a) Results of the student's pre-and post-test

The researcher began comparing the results of the pre-and post-test between CG and EG, as shown in Table 2.

Table 2*. Description the pre-and post-test of EG and CG*

Descriptive statistics	**Control group (CG)**		**Experimental group (EG)**	
	Pre-test	**Post-test**	**Pre-test**	**Post-test**
Mean	50.5	63.05	50.69	75.45
Mode	56	62	56	80
Median	52	62	52	78
Low	30	48	32	46
High	68	84	65	92
Range	38	36	33	46
Standard deviation	8.8	10.18	8.10	10.68

Table 2 shows the results of the CG and EG pre- and post-tests. The pre-test results of CG and EG were almost identical. After a three-week experiment, however, the differences between the two groups were considerable. The table also shows that EG is higher in average, mode, and average than pre-test medium. The average values of the experimental pre-test were 50.69. This means that the central trend is 50.69. However, the average score after the test was 75.45, higher than before the test. The standard deviations in the previous test were lower than in the subsequent test (8.10 and 56), and the results showed that EG students received better answers for all the elements of the subsequent test. The standard deviation of the EG value was higher than the CG value. The results showed that both groups had different scores after the test, and the differences were statistically significant. After treatment, the terms of the two groups were improved, and the two classes improved before and after the tests, and the two classes improved after the tests. The results of pre- and post-test tests are important and support this conclusion, as students learning new computer terminologies using images score better than conventional teachers.

In addition, statistics for EG and CG scores before and after the test are described, allowing researchers to remember the words between the two groups (EG and CG) in Table 3.

Table 3: Mean EG and CG gains

Experimental Group	N	M (gain)	d	T (value)	f	T-crit (table)	P
	5	24.8	0.24	17.06	8	2.13	0.047
Control group	N	M	d	T	f	T-crit	P
	5	12.66	0.26	22.04	8	2.39	0.027

Table 3 shows the differences in the average gains between the two groups before and after the test. The average score of the EG was 24.8 points higher than that of the CG (12.66 points). The standard deviation of CG is also smaller than the standard deviation of EG 8.24 and EG 9.23. The test group's T value (T=17.06) is significant because the value of p is smaller than 0.05 (p=0.047) and the value of T is larger than the T-crit value of 2.13. As a result of the statistics, the zero hypothesis that image teaching does not help students recognize the meaning of words is therefore rejected. It also helps learners recognize the meaning of words with a picture of alternative hypotheses that are accepted. Three weeks later, there were considerable differences between the two groups. The results suggest that teaching computer terminology with images can improve students' memory of computer terminology.

b) Student questionnaire results

Students' questionnaires showed that most students were interested in improving the concept of image diagrams and participating in experiments. With regard to students' attitudes towards the use of images to improve terms' memory, the highest percentage is related to images of items that help me better remember terms of calculation (96% of students are strongly in agreement and 4% are in agreement). 24 students (96%) thought that the picture drawn them in and more interested in vocabulary classes. Five students (20%) strongly agreed, while four students (16%) agreed that they were drawn to the curiosity of images when learning vocabulary. 23 students (approximately 92%) believe that the use of illustration photographs will make the class more active and active. Accordingly, 92% (about 23 students) say the use of images to learn computer terminology helps them better understand the language of ESP reading.

As shown by the results of the questionnaire on student proposals for future programs, 23 students (92 % of the total) shared the idea of increasing the possibility of improving image calculation limits.

21 students (84%) confirmed that they continue to use pictures to learn vocabulary. Almost 100%of students agree that using images in teaching terms is essential to improving ESP reading skills. With the exception of one student, many students do not believe that photographs should be taken into account and included in teaching and information technology materials. 23 of the 25 students (approximately 92%) agreed to add photos to the technical book to illustrate technical concepts. From the student's attitude results, it can be said that the use of images in vocabulary teaching is effective and necessary.

4.2. Evaluation

Data analysis of the results obtained from T tests and questionnaires reported in the previous section provides the following basic assessment of the main results. The results showed significant differences in the performance of the two groups, so that the null hypothesis that the terms associated with the new image could not be remembered more than those without the image was rejected. Rather, alternative hypotheses were accepted, and the results of innovation indicated that the use of images in computer terminology training is an effective method of increasing students' vocabulary memory and motivation to learn vocabulary. Furthermore, the teaching methodology of vocabulary should not only apply to computing and other ESP topics in terminology teaching, it was suggested.

Double-encoding theory states that learners can establish reference links between both forms of mental representation when both language and visual materials exist and become more effective learners (Al-Segher, 2001, p.202-232). Oxford, R & Crookall, D (1990, p.9-30) further explained that images and texts can produce more parts of the brain together and therefore achieve greater processing depth than text alone. The results of this study not only confirmed previous research results, but also confirmed the theory of literature that the use of images was one of the most effective ways to improve the learning of language.

In order to make images efficient for students in the fields of information technology and in the general technical fields, images must be taken into account and concluded in students' curriculum and materials. Two reasons for the inclusion of photographs in the technical book are as follows: 1) in HNMU, the ESP teacher is taught in a traditional vocabulary, and the ESP student cannot improve the vocabulary and it is difficult to understand the ESP; 2) the ESP teacher does not know the advantages of using images in computer terms. This problem is not so complicated and can be solved. The writer decided to innovate because he realized that using images to teach computer terms could improve students' memory.

5. Conclusion

In conclusion, we tested the hypothesis that the use of images in terminology teaching has had a positive impact on third-year students at HNMU's Faculty of Natural Science and Technology. According to the results of the research, the use of images in teaching vocabulary is one of the best ways to effectively improve vocabulary memory in HNMU's Natural Sciences and Technology Faculty. This also means that positive results must be applied, particularly to the improvement of current teaching manuals on English in information technology and to the improvement of textbooks on technical texts in the HNMU. Finally, the research objectives have been achieved and we hope to contribute significantly to improving the current state of teaching and learning in computer terms not only in computer science but also in other HNMU faculties.

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Sử dụng hình ảnh để nâng cao trí nhớ của sinh viên về thuật ngữ máy tính

Tóm tắt: Mục đích của nghiên cứu này là khảo sát ảnh hưởng của việc sử dụng hình ảnh để cải thiện trí nhớ thuật ngữ máy tính của sinh viên năm thứ 3 tại Khoa Khoa học tự nhiên và Công nghệ Trường Đại học Thủ đô Hà Nội bằng cách so sánh hai cách tiếp cận dạy thuật ngữ máy tính: có hình ảnh tương ứng và không có hình ảnh. Với 50 sinh viên năm thứ ba ngành CNTT đươc chia thành hai nhóm: Nhóm Thực nghiệm thiết kế (EG) và Nhóm Kiểm soát (CG). Nghiên cứu được thực hiện trong khoản thời gian ba tuần, mỗi tuần có hai lớp học với thời lượng một tiết học 50 phút. Kết quả của các bài kiểm tra trước và sau đó kết luận rằng những sinh viên tiếp nhận thuật ngữ máy tính mới bằng cách sử dụng các hình ảnh luôn đạt điểm cao hơn những sinh viên được hướng dẫn thông thường. Điểm trung bình nhóm EG cao hơn 26,4% so với 12,66 điểm trung bình của nhóm CG. Theo đó, 92% (khoảng 23 sinh viên) đồng ý rằng việc sử dụng hình ảnh để dạy thuật ngữ máy tính là rất quan trọng và có cơ hội hiểu rõ hơn các văn bản chuyên ngành. Sự đổi mới cho thấy việc sử dụng hình ảnh trong dạy học ngoại ngữ là một trong những cách tốt nhất giúp tăng cường trí nhớ thuật ngữ chuyên ngành máy tính không chỉ đối với sinh viên Khoa Khoa học Tự nhiên và Công nghệ mà còn đối với những sinh viên chuyên ngành khác một cách hiệu quả.

Từ khóa: thuật ngữ máy tính; nâng cao trí nhớ; phương pháp giảng dạy; sử dụng hình ảnh; dạy học ngoại ngữ.