

A QUASI-EXPERIMENTAL STUDY ON USING PROJECT BASED LEARNING ON IMPROVING SPEAKING SKILL

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Received:	16/5/2022	The study aimed to find out the effectiveness of using project-based learning on improving speaking skill at Thai Nguyen University of Medicine and Pharmacy by using a quasi-experimental research consisting of two non-equivalent groups, an experimental and a control one. Each group consisted of 30 students, in which the experimental group was taught by using project-based learning while the control group was taught in traditional method. The statistical package for the social sciences, version 20 was utilized to analyze the mean and standard deviation which were to check the differences between pre-test and post-test; the Pair sample T-tests which were to check the impact of the treatment; and the correlation coefficients finding out the significant correlation of the study. After six weeks of learning, the study found that there was an improvement of using Project Based Learning in speaking skill through the four dimensions including fluency, pronunciation, vocabulary and grammar, thereby this research suggested that project-based learning should be widely implemented in the classroom.
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NGHIÊN CỨU VỀ VIỆC SỬ DỤNG PHƯƠNG PHÁP DẠY HỌC DỰ ÁN ĐỂ CẢI THIỆN KỸ NĂNG NÓI CHO SINH VIÊN

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THÔNG TIN BÀI BÁO		TÓM TẮT
Ngày nhận bài:	16/5/2022	Nghiên cứu được thực hiện nhằm tìm hiểu quan niệm của người học về hiệu quả của việc sử dụng phương pháp dạy học dự án trong việc cải thiện kỹ năng nói cho sinh viên trường Đại học Y Dược Thái Nguyên. Nghiên cứu thực nghiệm bao gồm hai nhóm, nhóm áp dụng dạy học dự án và nhóm dạy theo phương pháp truyền thống. Phần mềm phân tích số liệu thống kê, phiên bản 20 được áp dụng để phân tích các giá trị trung bình, độ lệch chuẩn, T-tests và các hệ số tương quan của đề tài. Sau sáu tuần học tập, nghiên cứu tìm ra rằng có sự cải thiện tích cực trong việc sử dụng phương pháp dạy học dự án để cải thiện kỹ năng nói cho sinh viên, đặc biệt thông qua các tiêu chí như độ trôi chảy, phát âm, từ vựng và ngữ pháp. Qua đó, nghiên cứu đề xuất việc áp dụng phương pháp dạy học dự án trong lớp học, đặc biệt trong việc học kỹ năng nói cho sinh viên.
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1. Introduction

It cannot be denied that speaking is one of the important skills that students should master to understand and convey information, ideas, and feeling as well as to develop knowledge, technology and culture. It refers to the ability to function in the language which is generally characterized in terms of being able to speak the language, as stated by David Nunan (1999) [1]. Hence, the aim of teaching speaking skill is to develop students' skill in speaking and develop communicative competence. At Thai Nguyen University of Medicine and Pharmacy, English is a compulsory subject in the curriculum. However, many students found difficulties in learning English, especially speaking skill. They often felt shy to express their ideas in English and nervous when speaking. Moreover, the students did not know how to apply different transactional and interaction expressions in different situations. Some of them did not attempt to respond, they seemed lazy to speak. Consequently, the students could not develop their English creativity and they still have low skill in speaking. Some of them expressed that they have no vocabulary to express what they want to say. To solve the above problems, it is necessary to apply some new techniques to develop their own learning by being attached into several ranges of activities in accordance with their interests, physical, and psychological development. Therefore, PBL is supposed to address the problem of learning speaking. PBL is a student-centered pedagogy in which students learn about a subject through the experience of problem solving [2]. Besides, PBL also elevated student's willingness in learning. In line with this idea, Patton (2012) [3] asserted that the PBL technique refers to a method which allows doing the designing, planning and carrying out tasks in order to produce, publish and present a product. Therefore, the researcher hypothesized that PBL will benefit the students in learning speaking process. In order to facilitate the study, the research question was conducted:

“What is the effectiveness of using PBL on improving students' speaking skill?”

Fulcher and Davidson [4] reviewed some criteria for assessment of speaking skill, including fluency which refers to speaking rapidly without pauses; accuracy which refers to paying attention to correctness and completeness of language form; grammar which relates to the range and the appropriate use of the learners' grammatical structure; vocabulary which is the appropriate selection of words during speaking and pronunciation which considers different sounds, stress and intonation in speaking. Based on the assessment from English modules at the university, some of these criteria were applied, including: pronunciation, fluency, grammar and vocabulary.

Various investigations have shown the positive viability of a reception of PBL in the classroom. As Essien (2018) [5] finished up the significance of PBL in her review, PBL associated academic circumstances to the real world by offering a stimulation of specific and authentic issues to the classroom. In addition, it allowed developing motivation and autonomy, to expand intellectual development and to improve diversity of skills and knowledge [6].

In terms of using PBL in learning speaking skill, according to Fragoulis [7], there are many benefits of implementing the PBL technique in teaching speaking, such as: creating contextual and meaningful learning for students; bringing an optimal environment for practicing speaking English; making students actively engage in project learning; enhancing students' interests, motivation, engagement, and enjoyment; promoting social learning that can enhance collaborative skills and giving an optimal opportunity to improve students' language skills. Moreover, according to Dörnyei [8], the advantages of project work are: it encourages motivation, fosters group cohesiveness, increases the expectancy of success in the target language, reduces anxiety, increases the significance of effort relative to ability, and promotes effort-based contributions. In short, the previous studies show that speaking skill is very much emphasized in PBL participation and thus has a high potential of enhancing and improving students' speaking skills.

2. Subject and methodology

The study employed a quasi-experimental research design because quasi-experimental

research because it would be primarily concerned on the nonequivalent groups. This method will indeed require two groups that are actually experimental and control groups. In the experimental group, the researcher gave a pre-test, treatment by using short stories and then posttest. Meanwhile in the control group, the researcher only gave a pre-test and posttest without any treatment. According to McMillan and Schumacher (2010) [9] point out non-equivalent groups of pretest-posttest-control group design or comparison group design is very prevalent and useful in education. Because it is often impossible to randomly assign subjects. The researcher used intact, already established groups of subjects, gave a pretest, administered the intervention condition to one group, and gave the post-test after that.

The study was conducted at Thai Nguyen University of Medicine and Pharmacy with sixty students who were purposely chosen according to their needs and desires to improve their speaking skill. They were divided in two groups, the experimental group which was taught by using PBL to learn speaking skill and the control group which was taught traditionally. Each of the groups contained 30 students.

To analyze the data of the study, Mean (M) and Standard deviation (SD) were to check the differences between pre-test and post-test; Pair sample T-tests were to check the impact of the treatment and correlation coefficients were to find out the significant correlation between the pre-test and the post-test.

3. Findings and discussion

To find out the effect of using PBL on improving students' speaking skill, the average grades for every student were used to get the result as presented in Figure 1:

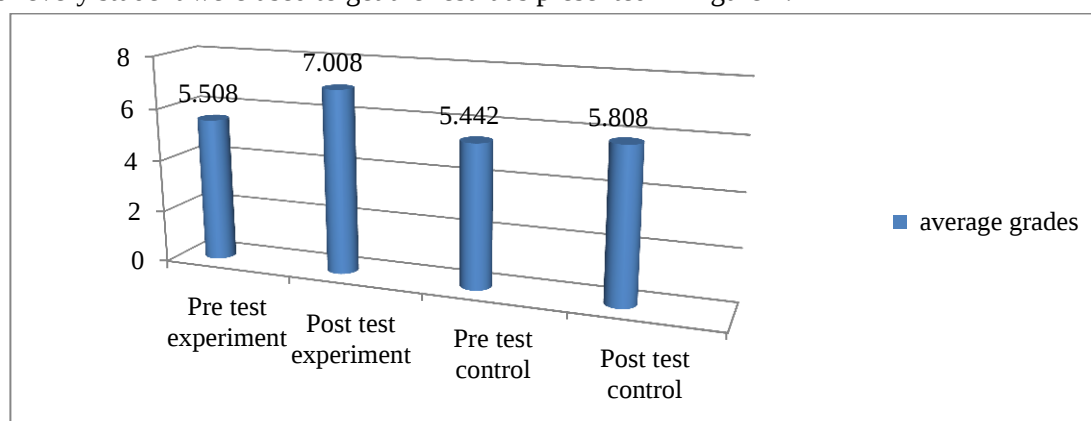


Figure 1. The total average of the Pre-test and the Post-test Grades distributed by the experimental group

It can be seen clearly from this figure that there was a relatively equal average in the pre-test between the control group at 5.442 and the experimental group at 5.508. However, Figure 1 indicated that the total average of the post-test was higher than the pre-test in the experimental group and the total average of the pre-test and post-test of the experimental group was also higher than the one of the control group, by the mean grades at 7.008 compared with 5.808. It means that the students had better performances in the experimental group after learning speaking through PBL. This progress could also mean that the students participated, cooperated through activities of PBL, which had better good results in their speaking performance than students sitting in rows in class and learning in the traditional way.

Beside that, pair sample T-test was utilized to investigate the significances of differences according to the four dimensions and the total average grade for the tool of the study by measuring the mean of the students' grades on the pre-test and the post-test of the experimental group, which was presented in Table 1:

Table 1. Paired Sample T-test of the students' grade mean on the Pre-test and the Post-test of the experimental group according to the dimensions and the total average

Sig.(2-tailed)	T	Degrees of freedom	Standard Deviation	Mean	Exam
0.000	-5.075	58	1.295	5.33	Pre-test fluency
			1.299	7.03	Post-test fluency
0.000	-5.354	58	1.305	5.57	Pre-test pronunciation
			1.299	7.37	Post-test pronunciation
0.000	-3.825	58	1.404	5.60	Pre-test vocabulary
			1.497	7.03	Post-test vocabulary
0.002	-3.200	58	1.306	5.53	Pre-test grammar
			1.276	6.6	Post-test grammar
0.000	-4.484	58	1.292	5.51	Pre-test total average
			1.299	7.01	Post-test total average

The above table showed that there were statically significant differences at ($\alpha \leq 0.05$) in the effectiveness of using PBL on improving students' speaking skills according to the four dimensions and the total average between the pre-test and the post-test of the experimental group. In general, the mean of the total average of the post-test was higher than the one of the pre-test, which ranged from 5.51 to 7.01 in the mean values and from 1.292 to 1.299 in the standard deviation values. It means that the students made an achievement in the post-test compared with the pre-test.

According to the mean of four dimensions of the two tests, the mean of pronunciation of the post-test was 7.37 which ranked the first. After that, the mean of vocabulary and fluency in the post test had the same mean values at 7.03 taking the second place. It means that the students made a big progress in terms of pronunciation, fluency and vocabulary after learning speaking through PBL. These results also showed that there was significant increase in terms of pronunciation, fluency and vocabulary scores in the post test compared with the pre-test scores in this group. Following that, the mean of the post-test grammar characteristics ($M= 6.60$; $SD=1.276$) were the lowest mean score in comparison with other characteristics; however, it was still relatively higher than the value of grammar scores in the pre-test. It can be concluded that there was an improvement about grammar between the two tests. It can also be explained that the students focused more pronunciation, fluency and vocabulary characteristics than on grammar one. Moreover, the aspects of grammar require a long time to practise and improve.

Paired Sample t-test was also used to figure out the significance of the differences of means of the four dimensions and the total average grade in improving the student's speaking skill by measuring the means of students' grades in the pre-test and post-test of the control group. The results are illustrated in table 2.

Table 2. Paired Sample T-test of the students' grade mean on the Pre-test and the Post-test of the control group according to the dimensions and the total average

Sig.(2-tailed)	T	Degrees of freedom	Standard Deviation	Mean	Exam
0.522	-0.643	58	1.213	5.33	Pre-test fluency
			1.196	5.53	Post-test fluency
0.589	-0.544	58	1.224	5.53	Pre-test pronunciation
			1.149	5.70	Post-test pronunciation
0.081	-1.776	58	1.224	5.47	Pre-test vocabulary
			1.388	6.07	Post-test vocabulary
0.116	-1.597	58	1.223	5.44	Pre-test grammar
			1.202	5.93	Post-test grammar
0.238	-1.190	58	1.190	5.44	Pre-test total average
			1.195	5.81	Post-test total average

The table showed that there were no statically significant differences ($\alpha \leq 0.05$) in learning speaking skills in terms of the four dimensions and the total average between the pre test and the

post test of the control group. The data showed that there was a little progress in the results of the students in the control group in comparison with the results of the students in the experimental group. The mean scores of grammar and vocabulary ranging from 5.93 to 6.07 were higher than the mean scores in the category of fluency and pronunciation ranging between 5.53 and 5.70. It referred that the students emphasized more on accuracy than on fluency when learning speaking in the traditional way. However, there were no statically significant differences ($\alpha \leq 0.05$) in values collected from the data.

To find out the significance of the mean differences of both post-tests in using PBL on improving students' speaking skills with regard to the control group and the experimental group of the total average grade and the four categories, Table 3 was used to display the results of the post-test of the students of the experimental group and the students of the control group.

Table 3. (independent T-test) the mean of the post-test due to the Control and the Experiment Group

Significance*	(t)	Control group		Experimental group		Total average
		Standard Deviation	Mean	Standard Deviation	Mean	
0.000	5.467	1.196	5.53	1.299	7.03	Post-test fluency
0.000	5.932	1.149	5.70	1.299	7.37	Post-test pronunciation
0.005	3.023	1.388	6.07	1.497	7.03	Post-test vocabulary
0.039	2.163	1.202	5.93	1.276	6.60	Post-test grammar
0.000	4.214	1.195	5.81	1.299	7.01	Post-test total average

The data showed that there were statically differences ($\alpha \leq 0.05$) between the post-tests of the two groups according to the average value. The results from the dimensions also displayed that there was a positive effect on the achievement of speaking performance in the experimental group in comparison with the control group. Based on the significance value, it can be said that there was a positive effect on the achievement of speaking performance in the experimental group in comparison with the control group in terms of the total average and the four dimensions of the speaking test. It can be referred that the students made higher improvement after learning speaking though PBL in the four criteria of the speaking test compared with the results of the post-test in the control group. It seems that learning though communicative approach is more effective for students than learning in traditional way, especially in learning speaking. PBL can bring an interactive and motivating environment for students to encourage them use English in communicative way and the PBL activities can help students know how to develop their speaking performance after a period of practicing.

To find out there was a significant correlation between the pre-test and the post-test or not in order to examine the effectiveness of using PBL on learning speaking skill, the correlation for each of the four dimensions and the total average of the grades before and after applying the tool were also calculated and illustrated in Table 4.

Table 4. Correlation Coefficients Distributed by the three dimensions before and after applying the tool

Correlation	Number	Description
0.735	60	Pre-test fluency & Post-test fluency
0.689	60	Pre-test pronunciation & Post-test pronunciation
0.852	60	Pre-test vocabulary & Post-test vocabulary
0.787	60	Pre-test grammar & Post-test grammar
0.821	60	Pre-test total average & Post-test total average

The results showed that there were correlation coefficients between the pre-test and the post-test according to the total grades at 0.821 and the four dimensions of the test which was from 0.689 to 0.852. Therefore, it can be confirmed that there was a clearly positive effect of using PBL on improving speaking skill after a period of applying this technique in teaching and learning.

4. Conclusion

The conducted study examined the effect of using PBL on improving speaking skill for the second year students at Thai Nguyen University of Medicine and Pharmacy. The results of the study shed some light on concerning issues using communicative approach to enhance interaction and collaboration in learning in general and learning speaking skill in particular. This finding also matched with the findings of Boss, Krajcik, and Patrick (1995) [10] about the benefits of PBL for students. In details, the study showed that there were effective and obvious effects in using PBL on improving speaking skill for students in terms of fluency, pronunciation, vocabulary and grammar characteristics. The main results can be summarized as followed:

- There was an obvious effect of using PBL on improving the students' speaking performance.
- There were statistical differences in using PBL on students' speaking skill between the pre-test and the post-test of the experimental group.
- There were no statistical differences in using traditional way on students' speaking skill of the control group.
- There were correlation coefficients between the pre-test and the post-test of the experimental group.
- The students highly agreed about the effectiveness of PBL on their process of speaking.
- The students confessed that they were encouraged and motivated in learning speaking via PBL.

Accordingly, the findings of the study suggested that PBL should be implemented in teaching English in general and in teaching speaking in particular because of its great benefits.

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