EFFECTS OF PROJECT-BASED LEARNING ON SPEAKING ABILITIES OF NON-ENGLISH MAJOR CHINESE STUDENTS

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Abstract

Non-English major Chinese students have serious problems with speaking English since they are in the teacher-centered class and fail to have opportunities to use English. In the present study, project-based learning (PBL) as a student-centered, instructional approach was integrated into the English classroom in the Chinese context. The study investigated the effect of PBL on non-English major students' speaking ability, and students' opinions on PBL in Kaili University. Eighty students participated in this study. The data of the present study were collected via the speaking pre-posttest, the questionnaire and the semi-structured interview. The quantitative data was analyzed by t-test and descriptive statistics. The qualitative data was analyzed by the analysis method adapted from O'Connor, & Gibson (2003). The results revealed that PBL had positive effects on non-English major students' speaking ability and students' opinions. Moreover, other unexpected outcomes were reported positively, for instance, the development of technology skills. Therefore, the findings of the current study may benefit colleges and universities which have problems in instructing English speaking skill in China. Additionally, the findings of the present study may provide valuable information for the researchers who are interested in cooperating PBL into their teaching.

1 Introduction

With a high-speed economic development, there is an increasing demand for China to contact with the outside world. Therefore, companies, organizations and institutions would like to employ non-English major undergraduates who at lease hold the certificate of College English Test band 4 (CET-4). Unfortunately, studies (Huang & Wu, 2004; Hu, 2004; Hou, 2010) reported that even the students get hired, but most non-English major undergraduates who have the CET-4 certificate still have serious problems when they need to communicate in English, and this could impede their future career.

The reason of the low speaking ability is that most universities prefer using grammar-translation as the main means in college English teaching because grammar-translation and communicative teaching methods are the main methods of instructing college English in China. Grammar-translation method is a teacher-center method that teachers' talk takes most of the class time and focuses on analyzing grammar and structures, but not real-life

communication leading to unsatisfactory results (Li, 2001). Therefore, the students who are involved in this kind of class are not provided with opportunities to produce output, and have little ability in speaking (Ng & Tang, 1997). It was evidenced by Legarreta and Dorothy's study (1977) that in a teacher-centered classroom, teachers accounted for 70% to 89% of the total talk in the classroom and there was no communicative learning environment for majority of pupils, which discouraged pupils to learn the target language.

On the other hand, PBL has been considered as a powerful approach in content instruction and it was adapted into other disciplines. Two decades ago, PBL has been incorporating into language classrooms. It seems to produce positive results including studies in the Chinese context (Li, 2010; Sun, 2011; Wu, 2011). Thus, this research project was designed to implement PBL in English learning because features of PBL seem to match objectives of the present study. It could provide appropriate learning conditions for the first-year university students in China, and reasons are described briefly below.

To date, most studies focus on incorporating PBL to develop integrated skills, reading and writing skill. There is no study that incorporates PBL to improve speaking abilities of university students. Therefore, the present study that employs PBL to develop speaking ability of Chinese first-year non-English major students is worth conducting.

Therefore, the principal purposes of the current study are: to examine the effects of project-based learning on improvement of Kaili University(KU) first-year non-English major students' speaking skills in three aspects (accuracy & range, size & discourse management, flexibility & appropriacy) and how they improve their speaking abilities; to investigate their opinions in involving with the PBL approach in English learning and problems while engaging in the PBL approach. In order to accomplish the objectives, the present study addresses the following research questions: 1) Do PBL lessons help improving speaking skill of the first-year non-English major students at KU in three aspects (accuracy & range, size & discourse management, flexibility & appropriacy)? If so, How? 2)What are the opinions of the students on implementing the PBL approach in learning English language and problems they encounter during the learning process?

The findings of the present study may benefit colleges and universities which have problems in instructing English speaking skill in China. Additionally, the findings of the present study may provide valuable information for the researchers who are interested in cooperating PBL into their teaching.

2 Research methodology

2.1 Participants

The present study was conducted in the College English course at Kaili University (KU), located in Kaili, Guizhou, China. A total of 80 first-year students in the same major from two English classes were selected to participate in the study. A convenience sampling method is utilized to select the experimental group, 40 students and the control group, 40 students. The reason of selecting the first-year students is that they do not have any experience in learning English through PBL in the university level.

2.2 Research design

The present study is a quasi-experimental research study and employs a triangulated methodology to investigate the effect of implementing PBL in English class on improvement of non-English major university students' speaking abilities and their opinions on PBL.

2.3 Research instruments

In order to achieve the objectives of the present study, four instruments are adapted: (1) PBL instruction; (2) speaking pretest and speaking posttest; (3) a questionnaire; (4) a semi-structured interview.

2.3.1 Research instruments

In this study, in order to provide students with more opportunities in producing speaking output, three mini projects, namely drama project, investigation project and storytelling project were designed for the learning process. The reason for designing three projects was the duration of the semester. Three projects was an ideal number to engage the students to practice their speaking abilities which can provide relatively equal opportunities to practice each aspect of speaking abilities and other skills. Furthermore, the three mini projects before adapted the Stoller's 10 steps procedure (1997, p.6), which will be presented below.

1. Students and teacher agree on a theme for the project.
2. Students and teacher determine the final outcome.
3. Students and teacher structure the project.
4. Teacher prepares students for the language demands of information gathering.
5. Students collect information.
6. Teacher prepares students for the language demands of categorizing and analyzing data.
7. Students organize and analyze information.
8. Teacher prepares students activities for the final presentation.
9. Students present the final product.
10. Students evaluate the project.

2.3.2 Tests

The speaking pre-test and post-test were utilized in the present study to measure the change of the students' speaking abilities before and after implementing the PBL lessons. The national speaking test, Chinese English test Spoken English Test (CET-SET) in 2005 and 2007 developed by the national committee of CET and implemented since 1999 are adopted as the speaking pre-test and post-test. Moreover, CET-SET is used to evaluate students speaking abilities in six aspects (accuracy, range, size, discourse management, flexibility and appropriacy).

2.3.3 Questionnaire

The questionnaire was a post-experimental questionnaire and it aims to investigate the students' opinions on PBL. The questionnaire includes 21 questions. Moreover, the students will give their opinions in a five point scale (Likert Scale).

2.3.4 Semi-structured interview

A semi-structured interview is conducted after the speaking posttest and questionnaire to collect additional data from participants, aiming to investigate the students' opinions on PBL and problems they encounter while doing the projects. Half of the participants in the experimental group are selected randomly to take part in the interview.

2.4 Data analysis

There were two types of data of the present study. The quantitative data that includes the students' scores from speaking pretest, speaking posttest and questionnaire were analyzed by SPSS21. The qualitative data from the interview was analyzed by the method adapted from the analysis steps proposed by O'Connor & Gibson (2003).

3 Results

3.1 Answering research question 1

3.1.1 Result of speaking tests in general

The result of the speaking pretest showed that the p-value was lower than 0.05, which means that the students in the control group and the experimental group had the similar ability in English speaking, and the bias in the study can be avoided.

Table 1. The paired-samples t-test of speaking pre-test

	Paired Differences		t	df	Sig. (2-tailed)
	Mean	Std. Deviation			
Pre-test CG - EG	.2250	2.1302	.668	39	.508

The finding in Table 2 shows that the p-value was 0.013, which was less than 0.05. It indicates that there was a statistically significant difference between the control group and the experimental group in the speaking post-test. It infers that there is a difference between the scores of the two groups.

Table 2. The paired-samples t-test of speaking post-test

		Paired Differences		t	df	Sig. (2-tailed)
		Mean	Std. Deviation			
Post-test	CG - EG	-.9625	2.3272	-2.616	39	.013

In order to explore more details, the researcher used simple t-test to see whether both groups made significantly improvement in the speaking pre-post test and the students' level of ability change of these two groups. The aim was to see whether and how much the students in the control and experimental group had improved after the 12-week experiment.

Table 3. The paired-samples t-test of speaking tests of two groups

		N	Correlation	Sig.
Pair1	PreCG PostCG	40	.912	.000
Pair 2	PreEG PostEG	40	.598	.000

Table 3 shows that both groups made progress after 12 weeks English learning. However, two groups made progress in different degree. For the control group, the mean score in the pre-test is 7.675, and in the post-test is 8.263, totally increasing 0.588. However, for the experimental group, the mean score of pre-test is 7.45 and the post-test is 9.125, increasing 1.675. It implies that the students in the experimental group got a better achievement through learning in PBL.

3.1.2 Result of speaking tests in three individual aspects

The above results have shown that the students in the experimental group have improved significantly via PBL instruction. Then, according to the research question, three aspects what are accuracy & range (A & R), size & discourse management (S & DM), flexibility & appropriacy (F & A). needed to be examined whether they had improved or not.

Table 4. The paired-samples t-test of three individual aspects in speaking tests

	Pretest-Posttest	t	df	Sig. (2-tailed)
Pair 1	A & R- A & R	-5.375	39	.000
Pair 2	S & DM -S & DM	-7.093	39	.000
Pair 3	F & A - F & A	-7.164	39	.000

As the result presented, the p-value of all these three aspects was less than 0.05, which means that there is a significant difference between the scores of the pretest and the posttest. It demonstrates that the students in the experimental group had improved significantly in all these three aspects.

3.1.3 The qualitative data

In order to answer the second part of research question 1, to explore how the PBL lessons can help the students progress in their speaking abilities, the researcher analyzed qualitative data obtained from the semi-structured interview by the means of content analysis. According to the quantitative data, from twenty participants who were interviewed, nineteen participants agreed that their speaking abilities was improved through the PBL lessons while only one participant considered that the speaking abilities is not improved. This participant stated: "*I*

don't think that my speaking is improved. I was too lazy; therefore other team members accomplished most of the work." However, contrasting with the only one negative feedback, other nineteen participants agreed that their speaking abilities have been improved.

The approaches the students used to improve their speaking ability will be presented below.

1) Self-practicing

Some students reported that they often practice reading the information of their project and other materials in order to practice their speaking before presenting the project. Therefore, the comments of the students in using self-practicing are shown as follows:

Student 1: *"In PBL, every project we had to discuss and speak a lot and I needed to say something. Thus I practiced several times when I try to speak, I had thought about the grammar and the word. If I didn't know the word, I looked up in the dictionary and I read after it."*

Student 3: *" ...For each project I tried to practice reading and reciting the prepared material, and I love to read the drama transcript. I found that reading some drama transcripts and stories is more interesting than some boring articles. Sometimes I read some short stores in the English newspaper too..."*

2) Learning from different printed material

A number of students reported that they used different printed material to improve their English and speaking, such as learning from the textbook, movie transcript, vocabulary book and newspaper. The relevant comments of this approach are stated as follows:

Student 2: *"...I think the content of the textbook was enough for me and it was helpful for our CET-4. Therefore, I read the articles and learned the grammar in the textbook..."*

Student 4: *"...I thought that my speaking was poor because my vocabulary was limited. Therefore, I bought a vocabulary book, and everyday I recited some new words..."*

3) Use of technology

Another effective way of improving students' speaking as the participants reported was to use the technology approach to learn English, such as using the Internet to search information, watching movies, utilizing the E-dictionary, and learning online. The extracts of how to use this approach are presented below:

Student 6: *"...If I did't know the word in the daily conversation or in the project, I checked it with the dictionary in my smart phone and I used the translator to translate the sentence that I want to say. ...."*

Student 10: *"... I took the teacher's suggestion to watch the movie on Youku[1] and read the transcript. My pronunciation was more standard, and I had learned a lot of daily phrases..."*

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[1] Youku: is a video website like Youtube.

4) Group learning

Apart from the above methods, a few students mentioned that their speaking was improved through learning in a group. In the group learning, members provided help to one another so the learning pressure was reduced. The comments from participants can be concluded as follows:

> Student 12: "…*Because our team leader was quite strict, she asked us to try to discuss in English in the evening class. Therefore, my speaking was improved a little…*"

> Student 19: …*I spoke very simple word before, for example, good. In our group, I learned from some members whose speaking is good. They helped me correct the pronunciation and grammar. Now, I try to speak a complete sentence, like, your shirt is good…*

In conclusion, question 1 deals with the quantitative data from speaking tests and the qualitative data from semi-structure interviews. The results revealed that PBL had positive effects on speaking abilities. However, the students improved their speaking abilities via various means, such as self-practicing, learning from different printed material, use of technology and group learning. Moreover, in order to explore the students' perspectives of PBL, the students' opinions were analyzed and will be discussed in the next section.

3.2 Answering research question 2

3.2.1 The results of the questionnaire

The five-point rating scale questionnaire was administrated to 40 participants to provide their opinions on PBL. The questionnaire was divided into three main parts: the first part (item 1-6), items of speaking abilities; the second part (item 7-11), issues of PBL; and the third part (item 12 -21), other outcomes of PBL.

Table 5. The results of the questionnaire

Statement	N	Mean	Std. Deviation
1. I can speak more fluently after PBL lessons.	40	3.65	0.5335
2. My pronunciation is better after PBL lessons.	40	3.625	0.6675
3. My grammar in speaking is better after PBL lessons.	40	3.75	0.6699
4. I use words more appropriately in speaking after PBL lessons.	40	3.6	0.6718
5. I can speak longer sentences after PBL lessons.	40	3.725	0.64
6. My speaking is more coherent after PBL lessons.	40	3.85	0.6222
7. Doing projects was challenging.	40	4.275	0.64
8. I encountered a lot of problems while doing projects.	40	4.475	0.5986
9. I like project-based learning	40	3.575	0.813
10. The amount of work in doing projects can be handled.	40	3.475	0.8161
11. I gained a lot of new knowledge while doing projects.	40	3.975	0.7334
12. I am more willing to speak English after this class.	40	4.05	0.6775
13. I want more opportunities to practice my speaking	40	3.75	0.7425
14. I am more confident to speak in front of the class.	40	3.525	0.5541
15. I spent more time for learning English after the class	40	3.925	0.7299
16. I can solve most of the problems in learning by myself.	40	3.35	0.6222

17. I can plan my study better after this class.	40	3.6	0.7442
18. I can work well with others.	40	3.625	0.7403
19. I am more open to others' opinions after this class.	40	4	0.3922
20. Learning through PBL develops my discipline e.g. punctuality, responsibility, etc.	40	4.025	0.4797
21. Besides speaking skills, my other skills (information searching skill, data collecting skill and technology skill) are improved.	40	3.975	0.4797

For the first part, speaking abilities, the mean scores are more than 3.49. It could be interpreted that the students agreed that their speaking abilities were improved in general, which is consistent with the results of the speaking tests. With regard to the second part, issues of PBL, the results revealed that the students thought that PBL was challenging and they encountered many problems in PBL. Nevertheless, they like PBL. This could be because they gained a lot of new knowledge through PBL and they hoped that more opportunities like in PBL could be provided for them to speak English. Additionally, the result of item 7 showed that the students might have some arguments about the amount of work of PBL. Moreover, the mean score of item 8 is 4.475 implying that the students agreed that they had encounter a lot of problems while doing projects, which might be the response to item 7. The problems they encountered, will be discussed in the later section. With respect to the third part, other outcomes of PBL, the results demonstrated that the participants generally agreed that their confidence was increased, the ability of self-learning and cooperative work was improved, but the result showed that the students considered that they cannot solve most problems in learning and may need the teacher's help. Finally, the finding revealed that the students agreed that PBL developed the students' technology skills and social skills.

In sum, from the results of the questionnaire, most students had the positive attitude towards the PBL lessons. However, in order to conclude more accurately and balanced views of the participants, the result of the semi-structured interview is reported in the next section.

3.2.2 The results of the semi-structured interview

3.2.2.1 Students' opinions on PBL

The findings revealing the students' opinions are classified into the learning environment, the activities in PBL and the outcomes of the PBL lessons.

a) The learning environment

First of all, the students expressed their positive attitude towards incorporating PBL into the English class because they were provided with a new and attractive learning model and a non-threatened classroom with a harmony atmosphere. The responses of the informants are illustrated below.

- *New and attractive learning model*

The participants figured out that PBL was new for them and different from the

traditional classroom but it motivated them in their learning. Their statements about this are:

> Student 1: *"...The model was new and attractive for me and totally different from the class I had before. PBL could motivate my learning. We had learned not only English, but also the skills of doing PowerPoint. It improved my speaking ability and I am more confident now..."*

> Student 9: *"…Comparing with the traditional teaching method, PBL was new and attractive. I prefered learning through PBL..."*

● *Non-threatening class*

Apart from the new and attractive learning model, some participants mentioned that they were involved in a non-threatening class while they were doing the tasks.

> Student 3: *"…I felt that I was not so stressful because I didn't do everything by myself. I obtained more knowledge. Our group solved problems together and shared learning pressure..."*

> Student 6: *"...I like group learning, because I felt less nervous when our group work together. I could say more in the group learning than in the individual talk..."*

● *Enjoyable learning atmosphere*

Finally, a few students indicated that PBL provided them with an enjoyable learning atmosphere, which inspired the learning.

> Student 7: *"...We worked together. When my pronunciation was not correct, other members could correct me. I like the way that we help each other. The happy and positive learning atmosphere inspired me…"*

> Student 17: *"…..I didn't know much about my classmates. However, in PBL class, we worked together and I saw their strengths. Most of us were very patient. Therefore, the learning in our group was nice and we got closer to each other…"*

b) The activities in PBL

In the present study, in order to stimulate the speaking outcome as much as possible, the researcher designed three mini projects. The students provided their positive opinions towards these activities because the learning process inspired the students' ideas, practiced their courage and kept them learning new skills and knowing new information.

● *Inspiring more ideas*

A number of participants expressed the idea that working and discussing with classmates could boost their ideas and their comments are shown below.

Student 11: *"...in the group working, our group had brainstormed together. Every member gave ideas, thus we could get to know more thoughts and extended our own idea....."*

Student 15: *"… our group worked and discussed together. It was very helpful to get the best idea because we learn from each other…."*

- ● *Keeping learning new skills and knowing new information*

As two students reported, in the learning process, they got in touch with new things, such as PowerPoint; therefore, it forced them to learn the new skills. Moreover, they had received new information in their learning. Their comments are:

Student 6*: "...I had to do something new for me, for instance PowerPoint. Therefore, we had to learn many new skills to complete our work. Additionally, I have learnt some information that is beyond my former understanding and it surprised me after we analyzing the data…"*

Student 13: *"…. We had faced a lot of challenges all the way. Therefore, every time when we encountered a task, in order to solve the problems we had to learn new knowledge and new methods. It was helpful for our learning…."*

- ● *Practicing the courage*

The idea that the three projects practiced the students' courage was proposed by some students. Since the students had to deal with the issue of communicating with strangers and preforming in front of the class, they encouraged themselves to do it. The comments are presented below.

Student 9: *"...Performing could practice our courage, and I gained a lot of knowledge of grammar and some expressions in the drama transcript…."*

Student 5: *"…it practiced my reaction ability and courage. We interviewed a lot of strangers. It is very interesting. Although I think it was the most difficult one among the three projects, but it was very meaningful for me…"*
Apart from the above comments of the projects, some students expressed that the teacher and peers' feedbacks had the positive effects on their learning and the comments are as follows:

Student 1: *"…I like the evaluation step, the teacher and classmates' comment after we presented PowerPoint. We got some suggestions from the teacher and classmates, which was different from our own understanding and could improve our future work".*

Student 5: *"… From the teacher and classmates' comments, we could see what were not good in our project and what were good in other groups' project, and then we can learn from one another…"*

c) *The positive outcomes of the PBL lessons*

Besides the speaking abilities, other positive outcomes were mentioned by the students in the semi-structured interview and they were enhancing confidence, increasing the sense of responsibility, improving other language skills, developing the technology skills, and developing social skills. The responses are presented below.

● *Enhancing confidence*

A number of students considered that PBL enhanced their confidence. They were more willing to express their ideas in the class and the comments are as follows:

> Student 16: *".… I am more confident in speaking English now. I was not confident before because I thought that someone would laugh at me. In PBL, everyone tried to express his or her feeling, even some students whose English was not good..."*

> Student 5: *"…I felt more confident when I spoke on the stage because if I didn't know, my teammates would help..."*

● *Increasing the sense of responsibility*

The sense of increasing responsibility was reported by some students. The statements are demonstrated as follows:

> Student 2: *"…I am more responsible because we worked cooperatively rather than individually, and our work was related to the score of the whole team..."*

> Student 12: *"...I am more responsible. I had never done the work of a group leader before. In this class, I was the team leader and I tried to organize our work well in order to cooperate everyone's schedule in our team..."*

● *Improving other language skills*

Besides improving students speaking abilities, it was reported that PBL improved the listening and writing skill.

> Student 19: *"…The reading skill was improved since we had to read a lot of information for preparing material for the project. It was surprised me because I focused on speaking. So it would be helpful in CET-4..."*

> Student 20: *"…My writing skill was improved. After wrote the PowerPoint and my story, I spent more time on writing. My writing skill was improved..."*

● *Developing the technology skills*

A lot of students reported that their technology skills were improved as well, such as PowerPoint skill, and information searching skills.

> Student 10: *"...Skills of producing PowerPoint were developed. I knew nothing about making PowerPoint before this class. However, in our group, everyone had to make a part of PowerPoint for presentation. Therefore, I had to learn to complete my part..."*

Student 14: *"...I had no experience on making PowerPoint before. In order to make the PowerPoint, I learned from the teacher, classmates and the videos. Now I could do it all by myself..."*

- ***Developing social skills***

Another benefit reported by the students is that the social skills were developed. Students knew how to work and communicate with others better, the comment are below.

Student 11: *"...PBL provided lots of opportunities for student's communication. It improved students' social communication abilities. I know how to work with others and I am more open for other different opinions..."*

Student 18: *"...The ability of cooperatively working was improved. After working with others, now I am more inclusive and open for different views..."*

The comments that have been presented above showed the students' positive attitude toward PBL. However, in the 20 informants, 2 students expressed their negative opinions on PBL. The following comments were given by these 2 students.

Student 4: *"...We had a lot of daily homework. With PBL, I didn't have much free time. I don't prefer this method..."*

Student 8: *"...I don't like PBL because it took too much of time. We had too much major work already. I prefer working by myself and I can do what I want..."*

In sum, it can be concluded that most of the participants had the positive attitude towards PBL and only two students expressed their negative feeling on PBL. In general, most students were satisfied with learning through PBL. Therefore, it can be seen that PBL created the positive effects on not only the students' speaking abilities, but also the sense of responsibility, technology skills and other language skills. However, in the process of completing three projects, the students encountered several problems. Thus, the problems will be revealed in the next section.

3.2.2.2 Problems encountered and solutions

PBL provided students with numerous benefits, but the challenges still exited. After the interview, the problems that the students encountered could be divided into three main categories 1) designing the research, 2) translating information and 3) lacking skills of making PowerPoint. The details of each category will be presented as follows:

- ***Designing the research***

Some students reported that they had problem in designing the research because they did not have any experience before.

Student 14: *"... Designing the research was difficult because we had no experience before. Therefore, we searched information online and ask the teacher..."*

> Student 18: *"…Designing research quite bothered us. We always didn't know what we should do next. Therefore, we always consulted the teacher…"*

According to this problem, the students' solution was to consult the teacher or search information online, which they considered as the experienced person or reliable database.

- ### *Translating information*

Translating information was considered a problem in PBL for a number of students because in PBL the students searched the information in Chinese most of the time. Afterwards, they needed to translate it into English.

> Student 10: *"…when I translated the information into English, some information we didn't know how to express it. Normally, we used the online translator and consulted the teacher…"*

> Student 15: *"…When we made the PowerPoint, we needed to translate the information. However, we still had a lot of problem in translation. Therefore, we asked the English major students for help…"*

For this problem, most students chose to use the online translator or consult the teacher. It is interesting to note that as some students responded, they went to ask for help from the English major students, which could be a possible way to improve their social ability.

- ### *Lacking skills of making PowerPoint*

Another challenge reported by the students was lacking skills of making PowerPoint. Most of them did not have the experience of making PowerPoint. Even a few students did not even have computer skills.

> Student 12: *"…In our group, everyone had to present his or her part of information in PowerPoint. It was a big challenge for me because I did not even have any experience of computer. Therefore, I asked my roommate to teach me…".*

> Student 17: *"…I didn't have experience of making PowerPoint before because in high school we didn't need to do it. Therefore, I learned from videos and asked my classmates…".*

With respect to the above problem, the solution of most students was to learn from other classmates and few students learned through videos.

In summary, to answer question 2 the quantitative data and qualitative data obtained through the questionnaire and the semi-structured interview were analyzed. The results indicated that most of students expressed their positive attitude towards PBL lessons. Only two students had the negative feeling on PBL lessons. Therefore, it could be

concluded that PBL had the positive effects on students' abilities and opinions.

4 Conclusion, Discussion and Implications

The conclusion and discussion will be based on the research questions and the following issues will be further discussed: the effects of PBL on non-English major students' speaking abilities and the factors that influence students' positive opinion of PBL lessons.

4.1 The effect of PBL on students' speaking abilities

The results showed that before the PBL intervention there was no significant difference (p-value is 0.508, > 0.05) in the speaking abilities between the control and the experimental group. After the PBL lessons, the speaking abilities of the experimental group were significantly improved and were different from the control group (p-value is 0.013, < 0.05).

Firstly, PBL integrates the real-life tasks and projects which are related and meaningful to the students and the curriculum. In the study, at the beginning, each group had chosen the project theme based on the topic of each unit in the textbook and it was related to their daily life as well. Therefore, while the students learned the knowledge from the textbook, they were equipped with the basic concepts and grammar knowledge. As Herringtion & Oliver (2000) suggested, the best gain of usable knowledge emerges in the learning environment which provides authentic contexts, authentic activities, and authentic assessments that can reflect the knowledge on real-world use. Hence, the gained knowledge expanded the students' vocabulary items, phrases and grammar knowledge, which could provide the students' with useful resources and could probably avoid the situation that the students had nothing to say for their project.

Secondly, the students in the research study had to be independent to take responsibility for their own learning, including, designing the research, scheduling their study and completing the project. In Joshi's study, it was found that the students attempted to control their own learning via several means. They frequently reported using technology means and tools to learn English, which could make their learning more convenient and effective. As McLaughlin and Harrington (1989) said, second language learning is a cognitive process which involves knowledge about the language and procedures for using that knowledge to guide performance.

Thirdly, in this study, as revealed in the interview, the students reflected that the group members helped one another in correcting pronunciation and grammar problems. While they encountered some problems. Wei (1997b) who pointed out that cooperative learning is considered a suitable instructional format for the enhancement of learners' communicative competence.

To summarize, based on the above findings, it can be claimed that PBL can enhance non-English major students' speaking ability. PBL provided students with the authentic learning environment; required the students to be autonomous to foster the meaningful learning and prepared the students with the basic knowledge and skills before they

speak. Afterward, the students were engaged in the group learning to apply their gained theory and knowledge into practice. In this study, it was found that PBL not only improves the speaking ability, but also the reading and writing skills as the students revealed in the interview.

4.2 Factors influencing students' positive opinions of PBL

According to the interview data, only 2 students provided the negative opinion on PBL. However, 18 out of 20 informants expressed their positive opinions towards the PBL implementation. Factors that influenced the students' positive opinions are discussed and summarized below.

4.2.1 Enjoyable and low pressure learning environment

In the PBL lessons, group members helped one another with enjoyment and they shared responsibility, which made their learning becoming more effective and productive. Through working cooperatively the atmosphere of traditional competitive classroom disappeared. Therefore, the students were more willing to provide help to their classmates. Levine(2004), Deci & Moller (2005) also pointed out that PBL ensured that project work results in the enjoyment and the sense of self-esteem.

Besides the enjoyable learning atmosphere, sharing the responsibility and learning pressure among group members was another reason of the students' positive feedback. In the research study, several students worked on a project, and the workload was less for each student. Therefore, the students felt that they were not alone and felt less pressure to ask for help. As summarized from Slavin (1990) and Roger and Johnson (1988), one benefit of cooperative learning is that the students have more positive feeling towards one another because they do not need to compete. Moreover, according to the characteristics of PBL, the PBL lessons were designed to share the workload and responsibility; thus, the learning atmosphere was more enjoyable and the learning was more effective.

4.2.2 Active learning process

In the PBL lessons, the students had an active learning process, which inspired their ideas, practiced their courage and encouraged them to learn new skills and know new information.

In the current study, the students learned cooperatively. They were more positive to one another because they did not compete. Therefore, they were more willing to share their ideas and thoughts. Meanwhile, they received more information as well, which would give them more inspiration than think when they had to think alone. This is in the same line with Osborn (1957) who claimed that the number of ideas coming up in brainstorming of the cooperative learning group work was two times as much as in an individual brainstorming. Additionally, the students reported that the learning process fostered their courage because the student got used to the group discussion,

communicated with others, performed and gave presentations in front of the class. Therefore, they gradually were more confident to speak.

Another factor influencing the students' positive attitude was that the students kept learning new skills and knowing new information. In the current study, the students encountered a number of tasks, which needed them to learn the new skills or new knowledge to finish their tasks, for example, writing interview questions. Therefore, they learned how to write interview questions through the Internet or the book.

4.2.3 Unexpected positive outcomes

After the process of PBL, a number of students found that some other unexpected skills were developed, such as reading skill, technology, and social skill, which surprised the students and they strongly believed it benefited their future learning and career. This is the same as the research reported by Stoller (2002) claimed that projects lead to the authentic integration of skills. Although the current study focused on the development of speaking ability, the students needed to prepare material via reading information or watching videos before they speak. Therefore, their other skills were enhanced simultaneously but they might not notice.

Additionally, the students found that their social skill was improved as well because they were more open for different views and knew how to work with others in a proper way. As Caroseli (1998) stated, applied cooperative learning properly can socialize the students and prepare them for their future career better. PBL equipped the students with the social ability and student may feel that this skill would help them live and work better in the real society

In sum, the PBL lessons provided the students with an enjoyable and low-pressure learning environment. Moreover, it inspired student's ideas, practiced their courage and allowed them to develop new useful skills for their learning and future career.

4.3 Pedagogical implications

According to the results and discussion of the current study, the principal implications can be summarized as follows:

Firstly, the student-centered classroom is beneficial for the students' speaking ability and learner autonomous. The normal English class in China is teacher-centered and students do not have many opportunities to give their opinions. Moreover, the students rely overly on their teacher. Therefore, PBL as a student-centered instructional approach should be implemented because it is feasible to address this problem.

Secondly, in order ensure the effectiveness of the learning process, the essential skills, such as designing the research and PowerPoint making skills are necessary to be instructed before starting PBL. According to the responses of the interview, designing the research and making PowerPoint are main challenges frequently reported by the students because the students do not have the prior experience. In this situation, the

teacher as the helper and consultant should provide the essential help for the students to reduce the learning pressure and the time of spending on other skills but focuses on speaking.

Thirdly, the teacher should plan the time well and be flexible in dealing with the problems that the students may encounter in the learning process. PBL is not like the lectured-based instruction that has the complete and fixed content. In PBL, a concise timetable can help the students identify what they would do next and plan their own learning. Moreover, the teacher needs to try to clarify the tasks that the students may encounter and should be flexible in dealing with unexpected problems.

References

Hou, X, N. (2010). Problems of speaking proficiency among university students in China. *The Border Economy and Culture*, *84*(12), 160-162.

Huang, B., & Wu, Y. (2004). Problems exist in Chinese university students' speaking and solutions. *Journal of Shenyang Medical College*, *4*(6), 251-252.

Hu, G. (2002). Potential cultural resistance to pedagogical imports: The case of communicative language teaching in China. *Language Culture and Curriculum*, *15*(2), 93-105.

Legarreta, D. (1977). Language choice in bilingual classrooms. *Tesol Quarterly*, *11*(1), 9-16.

Li, K. (2010). Project-based College English: An Approach to Teaching Non-English Majors. *Chinese Journal of Applied Linguistics: Foreign Language Teaching & Research Press*, *33*(4). 22-32

Li, Y. (2001). Communicative language teaching in China: Progress and resistance. *TESOL Quarterly*, *35*(1), 194-198.

Ng, C., & Tang, E. (1997). Teachers' needs in the process of EFL reform in China: A report from Shanghai. *Perspectives: Working Papers, 9*(1), 63-85.

O'Connor, H., & Gibson, N. (2003). A step-by-step guide to qualitative data analysis. *Pimatisiwin: A Journal of Indigenous and Aboriginal Community Health*, *1*(1), 63-90.

Stoller, F. L. (1997). Project Work: A Means to Promote Language Content. *Forum, 35*(4), 4-24.

Sun, S. (2011). *Research on project-based learning in college English practical teaching* (Unpublished master thesis). Jilin University, Jilin, China。

Wu, G. Y. (2011). *An exploratory study of English majors' learner agency in project-*

based Chinese EFL learning context (Doctoral dissertation, Nankai University, Tianjin, China.). Retrieved from http://www.cnki.net/