

Implementing Problem-based Learning Approach to Enhance Speaking Skill in a Vocational English Class: An Investigative Study

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ABSTRACT

This study aimed to 1) investigate the effect of problem-based learning approach on enhancing students' English speaking skill, and 2) find the level of satisfaction of students in the study. The experiment was conducted at Hefei Technical College in the first semester of the 2019 Academic Year from August to January 2020. There were 2,503 first year students that were divided into 86 classes. The researcher used purposive sampling to get one group of 40 students from Accounting Major. Research instruments to collect data were achievement tests, the 5 Likert scale satisfaction questionnaire and semi-structured interviews. The findings from t-test showed that the mean score after the treatment was 6.05, which significantly improved from the pre-test mean score 4.95. The results from analysis of responses to questionnaire showed that students were highly satisfied with 'teaching professionalism' ($\bar{X}=4.75$), followed by 'course design' ($x=4.73$), and 'classroom equipment' ($x=4.53$). The analysis of the semi-structured interviews about problem based learning approach showed that students improved writing skills that helped them improve their speaking skills the most, as well as improvement of the necessary twenty-first century skills.

Keywords: Problem-based learning, Speaking skills, Vocational students, Using PBL in English class

1. Research Problem's Significance

English is playing a very significant role in China. Firstly, China has joined the World Trade Organization (WTO) since the year 2000. This great movement made China become more international. According to the Ministry of Chinese Education official website's data (2018) shows that many foreign students come to China to study Mandarin (492,185 persons). At the same time, a large number Chinese students go to other countries to further their studies (662,100 persons). At present, English is in every Chinese school as a compulsory course. Lin (2010) states that English becomes an international language in China.

There are several problems for Chinese students learning the English language. Zhou (2004) shows that Chinese students are good at reading and writing, but they cannot speak and talk in English well enough. There is a misunderstanding when Chinese learners study English in China, the greater scores they have in TOEFL, GRE or GEMT, the greater English abilities they have. Once Chinese learners arrive in other countries, they discover the English which they have learned in China is far from being sufficient, particularly for interacting with other native English speakers. Secondly, Dunsmore (2018) indicated that it would be incorrect

to assume that the achievement of Chinese learners learning English depends on the attempts of a student alone, even with guidance from a foreign teacher. Unfortunately, one of the issues in China is that they are motivated to compromise because of the huge demand for skilled English teachers. More often than not, universities and linguistic training centers employ inexperienced foreign educators who do not meet a decent educational standard. Lastly, Chinese English lesson classroom activities, perhaps focusing on grammatical practice (Rao, 2002). According to these portrayals, English Language educators are in the front of the classroom transmitting information by reading texts phrase by phrase, explaining grammar and language points in detail, while learners take down some notes, doing grammar exercises of multiple choices, and translating passages. There are few meaningful interactions between teachers and students (Zhang 2011).

As a result, new English Curriculum Standards for Chinese higher technical colleges suggest that the main course objectives of English teaching are passing on the basic English knowledge and cultivating practical language applications. It enhances the five skills in English:- listening, speaking, reading, writing and translating. Students should be able to talk in daily English and write easy information

(NECS, 2018: p.1). The outcomes expected for speaking skill are listed below;

Speaking skill:

- Level A: Students can use English to interact with teacher in class as well as speak daily English fluently. Meanwhile, they speak English in business activities

- Level B: Students can speak English in class and use English in daily life.

The higher technical college where the research was conducted is located in Hefei, Anhui province, China. This college is a public comprehensive higher technical college which was founded in 1956. It is a high reputation technical college recognized by the Ministry of China. This college is an innovative college admitted by Anhui higher education institute. Its official website (2018) indicated that the college has two campuses and it covers the area of about 1260 acres. The total building squares are 50 square meters. Total investments are about 230 million Chinese Yuan. Total employees are about 539. There are 10281 full time students and 1835 part time students in this college. It has 9 faculties, 44 majors and 2 joint majors with an American high level technical college until May, 2019.

English teaching in this college begins from the first-year to third-year. The

instructors of English are all Chinese teachers except for two joint majors. English teachers' degrees in this college are a master's degree and a doctoral degree. Traditional teaching style and grammar translation methods are used as English teaching methods. English language and Chinese language are both used as the means of instruction.

The problem of this college's students in English is that students are lack of the opportunity to speak English with one another in class because the time of teaching is limited. Meanwhile, students are embarrassed and unwilling to speak English since they are afraid of speaking Chinglish (Gao, 2010). Students do not have awareness of cooperating and teamwork skills as all the teachers used the lecture-based teaching and grammar translation teaching methods (Rands, 2017). According to the record, all the first year students participated in the speaking test of Chinese College Examination before they entered the college. The scores of the test were not very high. In 2018 (Hefei Technical College, 2018), some students in Accounting major participated in a speech competition in Anhui province. The result showed that students did not speak English well. Of all the skills, speaking seems to be the least covered in teaching in Chinese higher technical school. Problem-based Learning is a method believed to improve

the students' abilities to talk, share information with one another in order to solve a task together. Their speaking ability will be improved. According to Rusydiyah (2014), PBL promotes students working together in small groups. It offers a lot of chances to discuss issues. It is an innovative teaching and learning approach. The researcher, therefore, adopted PBL in this study in order to find out whether PBL could enhance students' speaking skill.

2. Research Objectives

1) To investigate the effect of problem-based learning approach on enhancing students' speaking skill

2) To find the level of satisfaction of the students towards problem-based learning approach in the study

3. Literature Review

Problem-based Learning

Problem-based learning approach is not only used in the science field but also in other disciplines although it started at a medical school. Levin (2001) states that several disciplines in colleges and universities have applied PBL (Bridges, 1992; Camp, 1996), Problem-based learning (PBL) has spread to other professions because it has been found to foster growth in many areas such as critical and analytical thinking, problem solving skills, expertise in using information resources,

ability to work cooperatively in groups and skills to communicate and in written form. This is because problem-based learning is modeled after a scientific experiment. First, students will get a problem and they have to work together in small groups to determine what this problem is all about before they try to look for the explanation to this phenomenon and come up with a good solution to it. PBL "offers an attractive to traditional education by shifting the focus of education from what faculty teach to what students learn" (White, 2001, p. 131). The instructor's role shifts from giving a lecture to guide the learners through their own discovery without teaching them in the traditional sense" (Dogan, 2017). Ultimately, when students are provided opportunities to learn concepts in this way PBL Facilitators must believe that students are not empty thinkers to be filled with knowledge (Butler, 1999). Because students learn to solve problems on their own, they become better equipped to enter the professional community (Frederiksen, 1999). One primary reason PBL is considered effective is that it fosters high levels of student interactive engagement. Research suggests that classrooms that promote interactive engagement result in significantly higher levels of content comprehension and retention (Ahlfeldt, 2005).

According to Watkins (1993), effective learning occurs when learners drive

the agenda, support one another and are not afraid of making mistakes (Allen, 2016). In addition, when the teacher is invisible, students learn better (Bastable, 2017). Also, the teacher should not follow the plan blindly (Board, 2018). Students should learn actively without fear of making mistakes or failures. This is along the line of Problem-based learning (PBL) because in PBL, a problem is used as a trigger, encouraging students to explore the issues related to it. And finally, they have got to decide what to do in this case. The teacher take the role of a 'facilitator', being present to offer some guidance if necessary. He or she should not 'teach'.

Problem based learning reflects the three major theories: 1):Constructivism learning theory puts emphasis on student-centered idea, while teachers transform from the imparter and indoctrinator of knowledge into conductors who promote students to learn knowledge construction (Zhang, 2013): Student-centered Learning is a learning and teaching approach with the instruction delivered to students in the classroom (Hirumi, 2002); 3):Active learning is some activities in which the student participates or interacts with the learning process, as opposed to passively taking in the information (Settles, 2019).

English Speaking Skill

Definitions have been given by a number of experts. Wilson (2005) found that speaking is development of the relationship between the speaker and the listener; Ladousse (cited in Nunan, 1995) illustrated that speaking is the ability to express oneself in the situation, or the activity to report acts, or situation in precise words or fluently. At the same time, Cameron (2001, 40) pointed out that speaking is making people understand the speaker's feeling and ideas and Thornbury (2005) speaking is a real-life activity to carry out the speaker's idea to interact with his/her listeners. Furthermore, Kayi (2006) demonstrated that speaking is the process of building and sharing meaning through the use of verbal and non-verbal in a variety of contexts. In addition, Bygate (2015) illustrated that the speaking skill is the ability in using oral language to explore ideas, intentions, thoughts and feelings to other people as a way to make the message clearly delivered and well understood by the listener. Finally, Boonkit (2009) showed that speaking is one of the four macro skills to be developed as a means of effective communication in both first and second language learning contexts.

From the viewpoints of the different experts, it is clear that they all believe that speaking is an important skill that is used to convey meaning between the lis-

tener and the speaker, the topics of which are related to real life situations.

4. Research Methodology

This study employed a mixed-method approach. Mixed method is the type of research that combines the principal approaches of qualitative and quantitative research (Guise, 2017). The aims of this study are to collect both types of data: one is the Pre/Post test scores and the scores from the satisfaction survey. Qualitative data came from the semi-structured interviews. Three experts were invited to validate each research instrument. The IOC scores of each research instrument were 0.85, 0.9 and 1 respectively.

4.1 Basic Assumptions

- Students could not respond without noticeable pauses and may speak slowly while they were speaking English.
- Students were able to talk about familiar topics but could only convey

Conceptual Framework of the Study

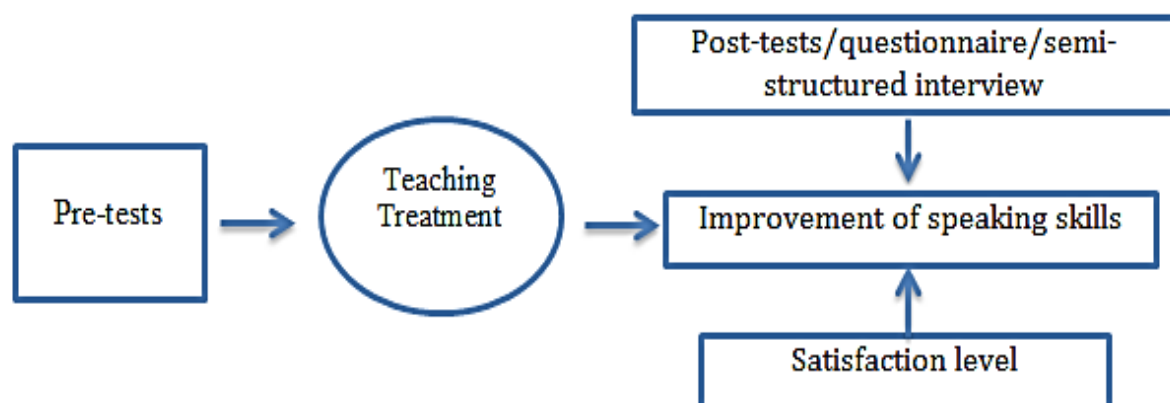


Figure 1. Conceptual Framework of the Study

basic meaning on unfamiliar topics and made frequent errors in word choice.

- Students' grammatical errors were frequent and might lead to misunderstanding.
- Students' mispronunciation were frequent and caused some difficulty for the listener.

4.2 Scope of the Study

Location and Sample

The research was conducted in one of the public Chinese technical colleges in Hefei, China. The population in this study comes from Hefei Technical College. There are 86 classes in the first year level, The total number is 2,503 students whose ages range between 18-19 years old with mixed gender and mixed abilities. The sample of the study is one of the 86 classes. Only one class of the first year level was selected as a sample group. Therefore, a purposive sampling technique was used to get 1 class which is 40 students in accounting major from a large population.

From the conceptual design, the students first participated in the pre-test. Then, the researcher implemented PBL approach in class teaching throughout the course. At the end of the course, the students took the post-test. From the test results, the analysis was carried out to check whether the speaking skills of the experimental group improved. Also, students' satisfaction survey and semi-structure interview were conducted

4.3 Instruments

Three instruments were used in this study. The Pre-post tests (rubric) were to identify whether students' speaking skill improve or not. The questionnaires and the semi-structured interviews were to find out the level of students' satisfaction towards PBL approach. The instruments for this study were discussed below.

1) The Pre-post Tests

In this study, the researcher used the pre-test and post-test for oral communication developed by researcher as the main instrument. The first section of the pre-post test was answering the several personal questions in English. The other section was asking questions about certain topic, which is appropriate for 18-19 year old Chinese college students. The topics cover daily life, nature, habit, science and recreation. The topic is based on the book *The Practical English book 1*, Chinese higher education press. All student's points

came from IELTS Speaking rubric (British council, IDP: IELTS Australia and Cambridge English Language Assessment). Rubric ranges from point 3 to point 9 with description for each band. There are four parts to the IELTS marks scheme: 1. Fluency and Coherence, 2. Lexical Resource, 3. Grammatical Range and Accuracy, 4. Pronunciation

According to Cambridge assessment, the rubric for IELTS speaking is divided into 4 items, 1: Fluency & Coherence; 2: Lexical Resource; 3: Grammatical Range and Accuracy; 4: Pronunciation. The bands range from 3 to 9, according to students speaking abilities. Firstly, Fluency & Coherence, Low-scoring responses in fluency and coherence are characterized by slowness formulating sentences. In a lot of cases, this happens because the student has to put a lot of effort towards making grammar and vocabulary choices. High-scoring responses in fluency and coherence are characterized by their use of a "normal" speed. Secondly, Lexical Resource, this scoring category measures vocabulary. Students are going to be assessed on their ability to choose words appropriately (in the right context) and accurately (with the correct meaning). IELTS Speaking rewards test-takers with large vocabularies indirectly in Fluency & Coherence—but it rewards them directly in Lexical Resource. Thirdly, Grammatical Range and

Accuracy, grammar will also be assessed on the Speaking exam. Students can reach a very high Speaking band score if they can demonstrate that they have mastered complex sentence structures, verb tenses, and other advanced grammatical features. Finally, Pronunciation, For most students, this is a very difficult category in which to make improvements, especially if students only have a short time to prepare before the exam. Pronunciation here means 'how do students use spoken stress and rhythm in English' (Foote, Holtby& Derwing, 2020).

2) The Questionnaire

The questionnaire created by researcher was administered to find out whether students were satisfied with teacher's teaching using PBL. It had 10 statements using five-point 'Likert Scale' ranging from 'Strongly agree' to 'Strongly disagree'. The 1-5 Likert scale. Value 5= Strongly Agree, 4= Agree, 3= Neutral, 2= Disagree, and 1= Strongly Disagree. On the other hand, the respondents' rating categories were as follows: very low=1.00-1.49, low= 1.50-2.49, medium= 2.50-3.49, high= 3.50-4.49, very high= 4.50- 5.00 (Best, 1981). The 10 statements used in questionnaire were based on Butt' s study on 'A study examining the students satisfaction in higher education' (2010). The category of statements in the instrument was divided into: 1) school's facility, 2)

teachers expertise and role, 3) teaching methodology, 4) teaching material. The questionnaire for this study was designed into 3 sections of the main factors affecting the students' satisfaction. They were 1) course design, 2) teaching professionalism, 3) Classroom equipment.

3) The Semi-Structured Interviews

To supplement the quantitative questionnaire, semi-structured interviews were conducted as a means of collecting qualitative data. The researcher designed three open-ended questions to interview. Six volunteered students from 40 students participated in this interview. Each interview took 10-20 minutes. The questions for Semi-Structured Interviews were: Q1: How do you feel about the class?. Q2 : What area do you think you have improved in your English speaking?' Q3: What other skills do you think you have improved besides English?

4) PBL Classroom Treatment

Students studied a total of 15 lessons during the four-month experimental period. The 15 lessons were taught in 15 weeks. Each lesson lasted for 150 minutes. The course title is *English for Communication 2019*. The PBL format used in this study is a 7-step approach which comes from Maastricht University: Identify unfamiliar terms, Problem definition, Brainstorming, Analyzing the problem, Formu-

lating issues, Self-study and Reporting. There were 6 problems for students. Three problems were designed by the researcher and the other 3 problems were from *English for Applications 2015* at Walailak

University. Each problem lasted 2 weeks. All the themes in this course were based on *The Practical English Book 1*, Chinese Higher Education Press. Table 1 showed the details of the teaching plan.

Table 1 The Details of Teaching Plan

Month	Date	Activity
		Pretest
1	3/Sept/2019	<u>Introduce PBL steps</u> Lecture 1: Introduce PBL 7 steps
	10/Sept/2019	Problem1: When Food Becomes Enemy!
	17/Sept/2019	<u>Reporting</u> : Problem1: When Food Becomes Enemy! Homework 1: Reflection
	22/Oct/2019	Problem2: Punished by Nature?
2	29/Oct/2019	<u>Reporting</u> : Problem2: Punished by Nature? Homework 2: Reflection
	5/Nov/2019	Problem3: Anything for Beauty?
	12/Nov/2019	<u>Reporting</u> : Problem3: Anything for Beauty? Homework 3: Reflection
	19/Nov/2019	Problem4: Lost in airport?
3	26/Nov /2019	<u>Reporting</u> : Problem4: Lost in airport? Homework 4: Reflection
	3/Dec/2019	Problem5: Is that poisonous Butterfly?
	10/Dec/2019	<u>Reporting</u> : Problem5: Is that poisonous Butterfly? Homework 5: Reflection
	17/Dec/2019	Problem6: Yoko's Holiday
4	24/Dec/2019	<u>Reporting</u> : Problem6: Yoko's Holiday? Homework 6: Reflection
	7/Jan/2020	<u>Seminar on PBL</u> Lecture 2: Summary & Reflection on PBL
	14/Jan/2020	Post-test

First, students had to go to small groups randomly to find out the solutions to the problem. Teacher introduced PBL approach to all the students in the first lecture. The teacher acted as an observer of the students' small group activities. Presentations and written reports were expected at the end as the product of the group work. The final step of PBL was presenting their ideas to a group, defending and revising them when needed. After finishing every problem, students wrote the reflections about what they have learnt in the PBL classroom.

5. Findings and Discussion

This section demonstrated the research findings. There were 3 findings based on 2 objectives from 3 different instruments.

The first finding based on Objective 1 was from the pre-post test results. The pre-test and the post-test scores of the group were analyzed using mean and standard deviation. Table 2 below showed the result of the pre-test and post-test comparison in terms of mean, standard deviation, t test, significance and value (p). Table 2 showed the Paired samples T-test of the pre-test and the post-test results within the sample group.

Table 2 Comparison of the pre-test and post-test results

Paired Sample T-test							
		Mean	Student Number	Std. Deviation	t	df	Sig (1 tailed)
Pair	Pretest	4.95	40	1.011	-14.470	39	0.0005
	Posttest	6.05	40	0.816			

Significance value (p) : < 0.05—Significant

Based on Table 2, the result showed that the mean score in the pre-test was 4.95 and the standard deviation was 1.01. In the post-test, the mean score was 6.05 and the standard deviation was 0.816. The mean difference was 1.55 higher in the post-test

than the pre-test. The result of t-test significance value (p) 0.01 indicated that there was a statistically significant increase in the scores of the Accounting students in the post-test after the treatment of the problem-based learning approach. The

finding of the experiment implementing the problem-based learning approach was consistent with Azman.&Shin (2012) who demonstrated that problem-based learning developed students' speaking skill by studying from the problem. The finding was also similar to Khotimah (2016) views that the use of problem-based learning can help students develop their speaking skills. Major (2018) stated that problem-based learning which mainly focused on learning

with the problem supported many opportunities to student to develop their speaking skill when learning with the problem.

The second finding based on Objective 2 was from the questionnaire data. The 10 survey items of the questionnaire using the five point Likert scale were prepared and administered to the sample group at the end of the study. The level of satisfaction of the students in the study was presented in Table 3.

Table 3 Students' satisfaction level

Factors	Mean	SD	Interpretation
Opinion on teaching professionalism	4.75	0.647	Highest
Opinion on course design	4.73	0.656	Highest
Opinion on classroom equipment	4.53	0.744	Highest

The analysis showed the mean and SD of each questionnaire statement. The highest factor was the opinion on teaching professionalism with (\bar{x}) 4.75 (SD=0.647), while the lowest factor was the opinion on classroom equipments with the (\bar{x}) 4.53 (SD=0.744). The students were also satisfied with the course design with the (\bar{x}) 4.73 (SD=0.656). The two lowest items in the questionnaire were. 1) the teacher used a variety of methods and instructional materials to enhance student learning, with (\bar{x}) 4.30 (SD=0.683); 2) classroom equipment was in good condition, with (\bar{x}) 4.03 (SD=0.689).The findings also showed that

students were most satisfied with teacher's teaching professionalism. Teacher's personality and character were very important to students. Teacher should be kind and fair to all (Boud & Feletti, 1991). Panich (Bangkok Dhurakij Newspaper, 15 January 2016) emphasized that "professionalism is not enough. They must do more. First, love for students, Second, find ways to support them." Most importantly, developing positive relationships between a teacher and students was a fundamental aspect of quality teaching and student learning.(Chayanuvat, Han& Sun, 2019).

The third finding, also based on Objective 2 was from the semi-structure

interview data. This section displayed the analysis of semi structured interviews, which was divided into 3 questions.

To the first question ‘How do you feel about the class?’, there were five themes in order of significance as fol-

lows:1) Learning with happiness, 2) The good quality of lessons , 3) The good characteristics of teacher, 5) Classroom’s limitation, 6) Boredom. The result was shown in the table below.

Table 4 Themes and frequency of semi-structured interview of the first question

No.	Themes	Frequencies
1	Learning with happiness	5
2	The good quality of the lesson	5
3	The good characteristic of the lecturer	3
4	Classroom’s limitation	2
5	Slightly boring	1

Table 4 showed that the ‘learning with happiness’ item was the most favorable item that students talked about most in the interview. The weakest theme was ‘slightly boring’. Some students commented that the course was taught by the only one teaching approach which was problem-based learning. They preferred more variety. The following data showed some of students’ responses to Question 1.

- *This course is useful for me and the teaching way is very unique. This teacher’s teaching way is totally differ from the other English teacher I have met.(Student 6)*

- *The teacher is very humorous, kind and innovative. I have never ever experienced this way of learning. (Student 3)*

- *I experienced the different atmosphere than my previous English classroom. I have learned a lot from it. (Student 1)*

- *In the beginning, I’m very confused . But after a topic, I totally realized I have learnt many things from the problem. (Student 4)*

- *The course is meaningful to me, but anyway it always used one teaching method. It revealed that it was slightly boring. (Student 2)*

- *The bad thing is the formulation of the classroom; sometimes, it limited*

our communication. And the school internet is very slow. (Student 3)

The second question of the semi-structured interview was ‘What area do

you think you have improved in your English?’ The following table demonstrated themes and frequency of this question.

Table 5 Themes and frequencies of semi-structured interview’s the second question.

No.	Themes	Frequencies
1	English speaking skill	6
2	English writing skill	3
3	English listening skill	2
4	English reading skill	1
5	English vocabulary	1
6	Motivation	1

This section showed how the responses were categorized into the six themes. This table shown the ‘English speaking skill’ factor was the strongest factor that was talked about most in the interview. Because students delivered a presentation in every lesson, they were accustomed to making a speech. The following data showed some of the students’ responses to Question 2.

- *My listening skill has also been improved I listened to different perspectives while watching presentation. (Student 3)*

- *I also think my reading skill has been improved, I searched different*

article resources on the Internet, and picked up the most important one. (Student 3)

- *We produced many writing papers of the presentations. I think my writing skill has been also improved. (Student 1)*

- *I have improved my speaking skills, I say very confidently that I can make a public speech in anyplace anytime. (Student 6)*

- *In my four skills, I found that my speaking skills was going to be strongly improved. (Student 2)*

- *After this course, I found that my vocabulary range has been expanded.(Student 5)*

- *I am very glad that my interest of learning English has been activated, as saying goes, interest is the best teacher. If my learning motivation has*

been improved, after that my English four skills are going to be improved. (Student 3)

The third question of the semi-structured interview was ‘What other skills do you think you have improved besides English?’ The following table demonstrated themes and frequency of this question.

Table 6 Themes and frequencies of semi-structured interview’s the question 3

No.	Themes	Frequencies
1	Microsoft skill	5
2	Cooperative skill	3
3	Communicative skill	3
4	Critical thinking	2
5	Research skill	2

This section showed how the responses were categorized into the five themes. This table showed the ‘Microsoft skill’ factor was the strongest factor that students talked about most in the interview. The following data showed that students’ responses to question 3;

- *It improved my Microsoft skills. (Students 1, 3, 4, 5)*
- *It also developed my critical thinking and communication skill in the analyzing problem’s part. (Student 5)*

- *This course totally improved my communicative skills, I think that I can get along with my peer, I can arrange the learning meeting, at the same time, I also hosted the presentation in the classroom.(Student 2)*

- *The teacher taught us how to decide a paper according to different topics, I searched a lot articles online and cited them into my paper to support my learning as well as consolidate my learning process.(Student 6)*

- *I study how to research. My research skill was totally improved. (student 3)*

- *Now I can cooperate with all my partners as well as communicate well with all the classmates. (Student 4)*

The semi-structured interviews revealed that students improved five skills which are not related to English skills which are Microsoft skill, critical thinking, communicative skill, cooperative skill and research skill. Hu (2019) stated that the combination of the flipped classroom and PBL teaching approach could be a better option over the traditional lecture-based classroom in teaching and learning. Similarly, Ansarian (2019) demonstrated that the effect of combining team-based learning and problem-based learning upon the students' perception toward problem based learning was more positive. It is a successful and interesting educational approach. Problem-based learning supported a student-centered learning, to make students study in cooperation and communication with other. (Schmidt, 2009). In the process of PBL, there was a vigorous and joyful learning atmosphere in the course. Furthermore, students were fond of working together, which made them develop the abilities in making presentations, Mi-

crosoft skills, critical thinking, finding the resources, research skills, communication, cooperation and so on.

6. Conclusion

Problem-based learning improved students' English speaking skills from different aspects, such as fluency and coherence, lexical resource, pronunciation. However, the finding also showed that problem-based learning cannot improve students' grammatical usage and accuracy very effectively. PBL also enhanced other English skills such as reading skills, listening skills, writing skills and vocabulary and twenty-first century skills such as Microsoft skills, research skills, communication skills, cooperative skills and critical thinking. A positive learning environment was that learner felt a sense of belonging, trust others as well as feel encouraged to solve the problems, take risks and face the challenges (Bucholz & Sheffler, 2009). Future research should be conducted on problem-based learning to teach students in various subjects. Future research should implement problem-based learning in combination with other approach to teach a large number of students and come up with other applications of PBL approach to be used in other classroom settings.

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