



The Effect of Problem-Based Learning on Iranian Intermediate EFL Learners' English Vocabulary Learning and Use

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ABSTRACT

The aim of this study was to examine the effect of using Problem-Based Learning (PBL) approach on Iranian intermediate EFL learners' vocabulary learning and speaking skill and also to investigate the feelings and notions of learners and their teacher with regard to the application of PBL approach in English classes. 26 EFL learners which formed two intact classes in a language institute participated in this study. The placement test which was administered in both groups indicated that the students of both groups were homogeneous and that they were in intermediate level. Experimental group was comprised of 14 female learners while the control group included 12 male learners. At the beginning of the study a vocabulary and a speaking test was administered in both classes as the pre-test. Learners in the control group were taught with the prevalent traditional lecture-based, teacher-centered teaching approach while students in the experimental group enjoyed being taught with PBL approach according to which learners were given problems which required learners to think, search about the problem and debate with their classmates. After a semester, learners in both groups were asked to take the vocabulary and speaking tests as the post-test. Result of the data analysis disclosed that learners in the experimental group outperformed their counterparts in the control group, both in vocabulary and speaking tests, which indicated that PBL approach can improve learners' vocabulary learning and speaking ability compared to traditional methods. Moreover, the data gathered through learners' self-report and interview with the teacher represented the general positive view of learners and teacher toward PBL approach. More elaborate description and report of the issue in this respect is provided in the discussion.

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1. Introduction

Problem based learning is an approach that challenges students to confront problems from real world contexts that are vague and often ill-structured. It is a motivating, challenging, and enjoyable learning approach (Norman & Schmidt, 2000) that has resulted from the process of working towards understanding or resolving a problem. In the literature, PBL put the emphasis on social interaction, considering it rudimentary to knowledge construction, acquisition, and application. This approach can also encourage active involvement in knowledge construction (Bridges, 1992; Evensen, 2000; Hmelo, 1998). Problem-based learning involves students in fascinating, real and pertinent intellectual inquiry and enables them to learn from these life situations (Barell, 2007). Harland (2002) asserts that PBL gives the advantage of learning new skills and new ways of thinking to students. Williams, Macdermid and Wessel (2003) argue that students think highly of the active participation in the PBL process. Thus doing an experiment that takes into the account PBL as an innovative approach which is also challenging, and enjoyable for learners (Norman & Schmidt, 2000) is felt in the field. Vocabulary learning constitutes an integral part of second language learning (Schmitt, 2008).

Vocabulary knowledge is considered as the base of some language abilities such as proficiency and reading (Grabe & Stoller, 2002; Schmitt, Jiang & Grabe, 2011). In addition, vocabulary serves as the cornerstone of real-life communication. In spite of learning a wide range of vocabulary domain, a large number of them are not able to implement this knowledge appropriately in the situations in which they need to communicate, read, or write in English (Atay & Kurt, 2006). There is a great deal of EFL learners who consider vocabulary learning as the main barrier (Gordani, 2013). An approved explanation for this phenomenon is the teacher-centered explicit lecture approach in vocabulary instruction.

Kayi (2010) considered speaking as the main part of second language learning teaching. However, as a fact today, most of teachers do not think of having good or appropriate method in solving students' speaking problem. They prefer to use the simple way instead of taking more time in teaching. Vocabulary, on the other hand serves as the foundation of real-life communication. There is a great deal of EFL learners who consider vocabulary learning as the main barrier (Gordani, 2013).

While PBL has been used in different discipline-related academic surveys, such as architecture, business, engineering,

law, and science in universities (Alcazar & Fitzgerald, 2005; Boud & Feletti, 2003), it has not been widely explored in the EFL context. As a result, some controversies exist whether a PBL approach can lead to better learning outcomes or not.

In the light of what was stated above, the present study is an attempt to bridge the gap between PBL as a learner-centered approach and vocabulary learning and speaking. In other words, this study compares traditional lecture-based teaching approach which was teacher-centered with PBL as a form of learner-centered approach of teaching.

2. Literature review

2.1 Problem-Based Learning (PBL)

Different definitions have been offered by scholars in different timespans, some of which are provided here: Barrows (1996) describes PBL as a learning approach which involves student-centered learning in small groups directed by a tutor or "expert", rather than traditional lecture teaching. Savery (2006) defines it as, "an instructional (and curricular) learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a viable solution to a defined problem". Diversity of definitions and understandings of PBL conveys the fact that it ranges from pure PBL to various models of it. Regardless of some discrepancies, nearly all of the experts in the field agree that the central idea of PBL is that students learn in teams in the context of authentic problems.

It is the weight given to learning through solving real, open-ended problems to which there are no sole solutions (Ertmer, Lehman, Park, Cramer, & Grove, 2003) that distinguishes PBL as a unique and exclusive approach. Lists some features of Problem Based Learning which are expected to be used in the classroom. First, it highly promotes self-learning (self-directed learning). Second, the problems used cannot be well-structured. Third, it needs to be amalgamated with a wide range of disciplines. Fourth, it is employed to help the students develop collaborative learning and solve the problem in the real world. Fifth, it can stimulate the students to cooperate and work in groups and make a presentation.

Some advantages have been mentioned for PBL. Edens (2000) expresses that the PBL approach trains students how to think and it persuades them to do research. PBL stimulates students to work in collaborative groups and share their thoughts and ideas among group members (Tatar & Oktay, 2011; Droha, Mauffette, & Allard, 2012). Being in contact with different viewpoints help students to understand their own assumptions, as well as to learn to think logically by using multiple perspectives which consequently leads to forming mental structures that is required for critical thinking (Abrami *et al.*, 2008). "PBL creates a supportive learning community and sustained interaction that explicitly scaffolds learners to learn within social constructivist paradigms, both for the teacher and the student" (Cochrane, 2012, p. 125). Tseng, Chiang and Hsu, (2008) report that in PBL, students learn skills of transferring the knowledge, taking responsibility for their own learning and life-long learning, besides learning the subject. It has been shown that PBL plays a positive role in enhancing students' affective characteristics, such as attitude toward courses, desire and motivation, making knowledge permanent, and acquiring skills like problem solving, gathering knowledge, and doing research. Steinemann (2003) believes that students' interest is aroused by being exposed to real-world problems that are related to their personal or societal experiences.

Bell (2010) state that there are many benefits of implementing PBL in teaching English as Foreign Language.

- 1.PBL gives contextual and meaningful learning for students
- 2.PBL can create optimal environment to practice speaking English.
- 3.PBL can also make students actively engage in project learning
- 4.PBL enhances the students' interest, motivation, engagement, and enjoyment.
- 5.PBL promotes social learning that can enhance collaborative skills
- 6.PBL can give an optimal opportunity to improve students' language skill

2.2 Vocabulary

Berne and Blachowicz (2008) points out that interest in vocabulary has been varied over time. At times it was in spotlight and at other times neglected. Despite the fact that, there has been an "ebb and flow of concern for vocabulary" (Manzo, Manzo, & Thomas, 2006, p. 612), educators have emphasized the value of vocabulary development from the early years of 20th century. Learning vocabulary is not as superficial as simply memorizing definitions of words. But instead "it involves seeing, hearing, and using words in meaningful contexts" (Daniels & Zemelman, 2004, p. 13).

According to Celce-Murcia (2001), knowledge can be gained and represented either implicitly or explicitly and both are helpful to language learning.

Schmitt (2000) distinguish two general approaches related to vocabulary teaching: implicit and explicit. Sokmen (1997) introduced implicit instruction as an approach which is featured with teaching the importance of guiding L2 students to discern clues in context and recommended the use of monolingual rather than bilingual dictionaries to define words or glossing texts. This approach facilitates incidental vocabulary learning, i.e., inferring word meaning from context.

2.3 Speaking

Speaking is an interactive process of forming meaning that includes producing, receiving and processing information (Brown, 1994; Burns & Joyce, 1997). Speaking makes it possible for students to get information from people via their conversation, after which there is a necessity to perceive the information and respond to it. Richards and Renandya (2002) declares that successful oral communication demands the ability to employ the language appropriately in social interactions that needs the verbal communication along with the paralinguistic elements of speech such as pitch, stress, and intonation.

Acquiring the language paved the way for the emergence of two approaches in the realm of teaching speaking skill namely direct approach and indirect approach (Lojová, 2005). Brown (2001) talks about the high value of micro skills (16 oral micro skills) in teaching oral communication. Which implies the significance of paying attention to both the forms of language and the functions of the language.

2.4 Empirical Studies

Saeed and Roustia (2013) studied the effect of problem-based learning on critical thinking ability of Iranian EFL learners. After sixteen sessions of problem-based instruction, the researcher concluded that doing problem-based activities improved critical thinking ability of the subjects.

Ansarian, Adlipour, Saber, and Shafiei (2016) explored the influence of problem-based learning through cognition-

based tasks on speaking proficiency of Iranian intermediate EFL learners in comparison to the effect of objective-based tasks. At the end of study, they came to the conclusion that not only does implementation of problem-based learning improved intermediate learners' speaking proficiency, but also it had more positive effect when compared to their counterparts' speaking proficiency in the controlled group.

In a meta-analysis study, Demirel and Dağyar (2016) reviewed the research findings of 47 studies to explore the effects of problem-based learning on students' attitudes as compared to traditional teaching. They concluded that problem-based learning had a low positive effect on students' attitudes which implies that problem-based learning is effective in helping students obtain a positive attitude toward course, even not significantly.

In an attempt to describe the implementation of *problem based learning* in learning English, Apriliadewi (2017) tried to gather data from an English teacher and 32 students of class through three different research methods namely observation, interview and questionnaire. The findings of the data analysis indicated that both teacher and students experienced some challenges while implementing the PBL. As for the teacher, it was noticed that, managing the learning time, determining the problem which was related to students' characteristics and insufficient amount of time to check all of the students' work were among the problems reported. The major problem faced by the students was that they could not improve in collaborative learning in solving the problem. However, the students generally gave a positive response using problem based learning in their class.

Adri and Adnan (2013) conducted a study to investigate the influence of problem based learning on students' speaking ability. After data analysis, they observed that experimental group taught by the problem based learning methods showed better ability than control group. They concluded that problem based learning can enhance students' speaking ability in expressing description about people, things and places.

Lin (2015) investigated the impact of problem-based learning on Chinese-speaking elementary school students' English vocabulary learning and use. Data analysis indicated that there were no significant differences between the two groups. However, students in the PBL used a significantly higher proportion of vocabulary beyond the 2000-word level, wrote significantly longer compositions than their counterparts, and outperformed the non-PBL group in using the Off-List level of vocabulary in the writing task. Self-

reports of students in the experimental group also indicated that PBL provided enough English conversation practice; which can facilitate elementary school students' ability to learn and use vocabulary in context.

Research questions

Since the range of findings for PBL differed in the literature, the following questions were addressed in the present studies:

- 1) Are there any significant differences between PBL instructional mode and non-PBL instructional in the vocabulary knowledge tests (pretest and posttest)?
- 2) Are there significant differences between PBL instructional mode and non-PBL instructional in speaking in real-life contexts?
- 3) What are the participants' and teacher's perceptions of teaching techniques and activities employed in the two instructional modes?

3. Methodology

3.1 Participants

Participants of the present study were 26 Iranian EFL learners in intermediate level which formed two intact classes of different genders. Class A consisted 14 female language learner while Class B was consisted of 12 males. The age of majority of them ranged from 16 to 24. The researcher also administered Cambridge placement test to determine the homogeneity of the groups. As the following tables indicate, it was found that no significant difference existed between experimental group and control group regarding their proficiency level.

3.2 Design

Since pure randomization was not possible in the study, researcher made use of two intact classes. One class (class A) was used as the experimental and other (class B) as the control group. So the design of the present study was quasi-experimental with two groups assigned randomly as experimental and control group.

3.3 Teaching Procedures in Classrooms

Although students in both groups studied the same teaching materials and content, the two groups differed in the teaching way they were exposed to. Students in the control group were taught through usual prevalent traditional teaching in which the class time is mainly allocated to teacher talk and lectures, while students in the control group were taught in line with the principles of problem-based learning, i.e. learners were given time to think, analyze and

Table 1. Group Statistics.

	Group	N	Mean	Std. Deviation	Std. Error Mean
PlacementTest	Experimental	14	9.000	3.4641	.9258
	Control	12	8.250	2.2613	.6528

Table 2. Independent Samples Test.

Placement Test		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Placement Test	Equal variances assumed	.070	.791	-.718	118	.474	-.498	.693	-1.870	.875
	Equal variances not assumed			-.715	106.03	.476	-.498	.696	-1.878	.883

make guesses and hypothesis when learning the new materials and simultaneously were guided by teacher.

The treatment for experimental group is the procedures for implementing PBL in English classes offered by Mathews-Aydinli (2007, pp. 1-5), who assumes 5 stages and explain the process that students and teachers have to follow in each of them:

1) Pre-teach. As the first stage, the author reckons that it is important to assure that students perceive the advantages and goals of PBL for language learning. He also highlights the significance of using English in the activities.

2) Introducing problem and vocabulary. At the second stage when students encounter the problem, teachers have the responsibility of introducing students to the problem by using videos, texts and vocabulary which are related to the problem. Teacher asks students about their former personal experience with the problem. In addition, teacher can give students pre-reading exercises related to it.

3) Grouping students and providing resources. During the third stage teacher should assure that students comprehend the problem, remind students that there is no single answer or solution, and that they should be ready to give the most realistic and reasonable solution along with the logic behind choosing it. Moreover, students should have access to different resources; be divided into groups of students with various language backgrounds and proficiency levels.

4) Observing and supporting. At the fourth stage, teachers should observe students and support them when necessary without trying to direct their efforts or control their activity to get the problem solved; take notes, and give feedback on students' participation as well as the language that students use during the activity.

5) Follow up and assess progress. At the fifth stage of PBL implementation, teacher makes opportunities for students so as to represent and share the outcomes of their work and sets follow-up activities according to his/her observations (e.g., form-focused instruction on grammar, pronunciation, or pragmatic issues). Additionally, teacher has to evaluate students' participation and success in the activity.

3.4 Instruments

3.4.1 Topnotch course books

Three units from topnotch course books (level 3) were covered during this study as the regular material of language learners in language institute.

3.4.2 Speaking Test

Speaking test was based on the topics and materials that were covered during the semester in language institute. Researcher made use of Cambridge Assessing Speaking Performance Scale - level B1 which is developed for assessing the speaking ability of English learners at intermediate level. This scale assesses students' speaking ability using the four elements of grammar and vocabulary, discourse management, pronunciation and interactive communication. Each of these elements are scored from zero to five, all of which are summed to make the total score from twenty.

3.4.3 Vocabulary Knowledge (VK) Test

A VK test taken from Paribakht and Wesche (1997) was used to evaluate the learners' receptive and productive knowledge. Wesche and Paribakht's (1996) reported a high level of consistency and reliability for this scale. The scoring scale of Paribakht and Wesche (1997, cited in Read, 2000, p. 133) was used.

The vocabularies were selected from the units that were covered in the two groups during the present study. Since the

two groups studied the same units and covered the same content, these vocabularies were the same for all the participants in both groups.

3.4.4 Self-reports

At the end of semester, students in the experimental group were asked to write self-reports about the application of problem-based learning approach in their class. In this self-report students were asked to write freely about the application of recently-applied teaching procedure in the class, write about its positive and negative points and express their feeling and attitudes in this regard. To supplement language learners' attitudes regarding the use of problem-based learning in language classroom, the teacher who taught in both groups was accepted to have an interview with researcher to give his ideas and points of views regarding its use.

3.4.5 Cambridge Placement Test

This test was comprised of 25 multiple choice items (MCI) which is used to evaluate and estimate the approximate level of English language proficiency.

3.5. The Procedure

At the beginning of the study, learners were asked to take the Cambridge placement test to ensure their homogeneity. Having taken this test language learner were asked to take vocabulary knowledge test as well as the speaking test which were considered as the pre-test. Next, language learners were exposed to their specific pedagogical intervention, i.e. experimental group was taught by problem-based approach while the control group was taught through teacher-dominant traditional lecture-based approach of teaching. Then, language learners in both groups were asked to take the second vocabulary knowledge and speaking test as the post-test, making it feasible to make comparison between the two groups in this respect. As the final stage, language learners in the experimental group wrote the self-report papers, to give their ideas and points of view about employing the new teaching approach. To give the language learners more freedom and confidence they were not asked to write their names on these papers. This could lead to a wider panorama of the issue on the part of researcher, helping him to give a better and complete description about the use of problem-based approach. In spite of students, the teacher also participated in the interview to give his idea with regard to the application of PBL, supplementing their views.

4. Results and discussion

Data Analysis Addressing the First Research Question

First research question of the present study aimed at disclosing if employing PBL instructional approach leads to better outcomes with regard to students' vocabulary learning in comparison to traditional lecture-based teaching. To this aim, researcher attempted to compare the students' scores in post-test vocabulary knowledge test while considering their score differences in vocabulary knowledge test at the beginning of the study (pretest). To meet the requirements explained above, researcher applied ANCOVA as the technique for analyzing the data. As mentioned Pallant (2013), this technique can be applied when there is a two-group pre-test/post-test design.

A one-way between-groups analysis of covariance was conducted to compare the effectiveness of two different instructional approach to vocabulary learning in this study, i.e. PBL and traditional lecture-based teaching. The independent variable was the exclusive teaching approach that each group was exposed to, the dependent variable was their performance in vocabulary knowledge test after the

Table 3. Tests of Between-Subjects Effects.

Dependent Variable: VKT2						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	705.91 ^a	2	352.95	8.05	.002	.412
Intercept	151.69	1	151.69	3.46	.076	.131
VKT1	576.45	1	576.45	13.15	.001	.364
Group	275.47	1	275.47	6.28	.020	.215
Error	1007.92	23	43.82			
Total	31906.00	26				
Corrected Total	1713.84	25				

a. R Squared = .412 (Adjusted R Squared = .361)

semester (post-test), and students' performance at the pretest which represented their performance in vocabulary knowledge test before the study was considered as the covariate in this analysis.

Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate. As the tables 1,2,3 and 4 suggests, after adjusting for the pretest scores, it was found that students in the experimental group ($M=37.17$, $SD=1.79$) significantly outperformed [$F(1, 23) = 275.47$, $p=.020$, partial eta squared=.215] the students in the control group ($M=30.46$, $SD=1.94$) in the posttest that measured their vocabulary knowledge of the units that were taught during the semester.

This conclusion can be logical on the ground that as stated in the literature, PBL provides different advantages for language learners. As problems are in ways similar to situations in the real context, it is more enjoyable and simultaneously motivating and challenging for learners to challenge with (Norman & Schmidt, 2000). While trying to solve the given problems, students have to make repetitive use their vocabulary knowledge. More repetition and use of a vocabulary in a real context for meaningful purposes can promote learning new vocabulary (Butler et.al 2010) and it would be wise to expect outperformance of students in the experimental group compared to their counterparts in the control group. On the other hand, Min and Hsu (2008) point out that learning new English vocabulary through rote memorization often results in boredom. So it is natural to anticipate a weaker performance form the control group in terms of learning new vocabularies. As approved by many scholars in the field (ex. Atay & Kurt, 2006; Barrow, Nakanishi, & Ishino, 1999; Hunt & Beglar, 2005), In spite of learning a wide range of vocabulary domain, a large number of learners are not able to implement this knowledge appropriately in the situations in which they need to communicate, read, or write in English. PBL, however, tackles this problem and helps learners have a good mastery and a profound understanding (Biggs, 2003) of recently learnt vocabularies by involving them in solving problems similar to those of real life which requires abundant meaningful use of

new words as well as reviewing and using the old ones. Daniels and Zemelman (2004) assert that learning vocabulary is not as superficial as simply memorizing definitions of words. But instead "it involves seeing, hearing, and using words in meaningful contexts" (p. 13). Considering this point, one would expect a better vocabulary learning for students who have experienced PBL vocabulary teaching approach than students taught by traditional lecture-based teaching where vocabulary is mainly defined by teacher and later memorized by students. Teacher in the experimental group applied both implicit and explicit ways during his teaching. Researchers suggest that a more effective approach to L2 vocabulary learning can be integrating incidental L2 vocabulary instruction into explicit L2 vocabulary learning (Hulstijn, 1992; Sokmen, 1997). So it would yield better result than control group which was mainly taught explicitly.

Considering the fact that PBL prioritizes language learning in a meaningful context, finding of study affirms Allen's (1999) belief who considers comprehensible and meaningful contexts as the path to learn words at a high rate regardless of where this learning experience takes place, i.e. in school or out of it. This finding also confirms Butler et.al (2010) conclusion which implies vocabulary learning is effective when it entails active engagement that goes beyond definitional knowledge. In PBL students should go beyond just simply defining the words, they have to use it in groups to solve problems with meaningful purposes.

Finding for the first research question is partly in contrast with the finding by Lu-Fang Lin (2015) who investigated the impact of problem-based learning on Chinese-speaking elementary school students' English vocabulary learning and use. Two classes, each comprised of 28 students, were randomly exposed to PBL instruction and traditional teaching technique. After data analysis it was found that there were no significant differences between the two groups. In the present study, however, it was found that employing PBL in the teaching process had a significantly positive effect on vocabulary learning of the students.

Data Analysis Addressing the second Research Question

The second research question aimed at making a comparison between the effect of PBL instructional approach and traditional lecture-based teaching on speaking skill of

Table 4. Tests of Between-Subjects Effects.

Dependent Variable: SpeakingTest2						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	118.38 ^a	2	59.19	67.82	.00	.85
Intercept	12.49	1	12.49	14.32	.00	.38
SpeakingTest1	117.39	1	117.39	134.50	.00	.85
Group	4.90	1	4.90	5.61	.02	.19
Error	20.07	23	.87			
Total	4176.00	26				
Corrected Total	138.46	25				

a. R Squared = .855 (Adjusted R Squared = .842)

students in real life context. Using ANCOVA technique, researcher can make comparison about two groups, using the post-test scores of the speaking while controlling for the differences they might have at the beginning of study in pre-test scores. As Ary, Jacobs, Sorensen and Walker (2013) state, ANCOVA is a statistical technique used to control for the effect of an extraneous variable known to be correlated with the dependent variable.

A one-way between-groups analysis of covariance was conducted to compare the effectiveness of two different instructional approach on speaking skill of the students of the present study. Preliminary checks were conducted to ensure that there was no violation of the assumptions of normality, linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurement of the covariate. After adjusting for the pretest scores, it was found that students in the experimental group ($M=12.86$, $SD=.25$) significantly outperformed [$F(1, 23) = 5.61$, $p=.020$, partial eta squared=.19] the students in the control group ($M=11.99$, $SD=.27$) in the posttest that measured their speaking performance at the end of the study.

This can be justified by the fact that PBL involves students with problems which are similar to situations in real life context. Being engaged with problems related to real life can lead to learning (Barell, 2007) on the part of the learners. Since students have more attempt to solve problems which simulate real life meaningful context, they can have better performance than students who have not used language in meaningful ways and are suddenly forced to show their performance in exam situations with tests which characterizes real life context. Variety of advantages mentioned for using PBL can also justify this conclusion. Being motivating, challenging, and enjoyable learning approach (Norman & Schmidt, 2000), PBL can lead to better outcomes in language learning than traditional methods which are usually boring for learners. Brown (2007) considers the social contact in interactive language functions a highly valued factor in oral communication. Working in groups when solving problems, students in the experimental group have a high social contact with each other which can assure a better oral communication than students in the control group. Moreover, when students are working in groups to solve problems, PBL guarantees most of what is mentions by Nunan (1989) as successful oral communication skills such as taking turns, management of interaction, and negotiation of meaning, etc., all lead to a better performance than students taught by traditional approaches. PBL shares a key feature with indirect approach to teaching speaking skill: it encourages learners to use language by involving them in communicative activities (Goh & Burns, 2012). Learners' communication with each other is believed to result in the acquisition of speaking skills (see also Thornbury & Slade, 2006) and consequently the ability to transfer those skills to real-life situations (Goh & Burns, 2012). Considering these explanations the findings of the second research question of the present study seems legitimate and logical.

Findings of the present study is in line with what Ansarian, et.al (2016) found. They found that using PBL improved intermediate learners' speaking proficiency. Findings for the second research question also confirms the study conducted by Maulany (2013) who examined the effect of PBL on elementary students' speaking skill and also tried to find out what speaking aspects (comprehension, vocabulary, grammar, fluency, and pronunciation) were improved through PBL. Both studies indicate that PBL can improve the students' speaking skill.

This finding also approve the finding by Rohim (2014) who examined improving students' speaking skill through problem-based learning. 46 tenth year students (20 male and 26 female students) were evaluated by the means of four instruments (observation checklist, field note, questionnaire, and test). The findings revealed that the speaking skill improved in the experimental group. Both studies are also similar in that they have included both genders.

Finding for the second research question also corroborates the study by Adri and Adnan (2013) who conducted a study to investigate the influence of problem based learning on students' speaking ability and concluded that problem based learning can enhance students' speaking ability in expressing description about people, things and places.

Data Analysis Addressing the third Research Question

To answer the third research question which explored learners' and teachers' perception about the application of PBL in English classes, students and teachers were asked freely to talk about the questions provided beforehand in the semi-structured interview and also write about their ideas and achievements in the self-reports. While the range of comments differed among students, there was a general consensus on the positive and effective role of employing PBL approach in EFL classes.

Some of the students in the control group expressed that they have to work hard, make guesses, discuss with friends to urge them that their solution to the problem can be justified. It was also reported that unlike the previous semesters, they were given more freedom and time to talk to each other during the class time: "that I can talk to my friends in a group is really good because the class doesn't get very boring, it is more interesting. Previously I had to check the dictionary to get the meaning of words and I was ashamed to ask a lot of questions from my teacher, but now I can ask my classmate about the meaning of sentences. We can also have fun when giving our ideas and don't have much stress when talking in English with my friend" said one of the students. This ideas given by students in description of PBL supports Norman & Schmidt's (2000) belief who consider PBL motivating, enjoyable and challenging. Similar to their ideas, Anthony and Kadir, (2012) stated that students embraced this approach since it is interesting, rewarding and enjoyable. Steinemann (2003) also believed that students' interest is aroused by being exposed to real-world problems that are related to their personal or societal experiences. Working in groups and doing group work that was repetitively mentioned by students in the experimental group is also mentioned by the scholars in the field. PBL stimulate students to work in collaborative groups and share their thoughts and ideas among group members (Tatar & Oktay, 2011; Droha *et al.*, 2012). Students also reported that when solving problems they should think about different factors about it and consider it from different perspectives, sometimes be criticized for their ideas and try to justify our ideas and views towards a problem which in turn make them think in a better and more meticulous way and do not be hasty. These reports in turn support Edens (2000) who expresses that the PBL approach trains students how to think and it persuade them to do research. The ideas given by students are in some other ways reflected by the points of view uttered by scholars in the field. PBL stimulate students to work in collaborative groups and share their thoughts and ideas among group members (Tatar & Oktay, 2011; Droha *et al.*, 2012). Being in contact with different viewpoints help students to understand their own assumptions, as well as to learn to think logically by using multiple perspectives which

consequently leads to forming mental structures that is required for critical thinking (Abrami *et al.*, 2008). Some students commented that using the new teaching approach in their class reminded them that if they think about problems and put their effort into practice, they can solve problems partly if not fully, and that most of the time there are alternative ways to solve a problem which requires not confining oneself with one's thought and beliefs which means to be ready to accept other ideas and thoughts despite of the possibility that they might be different and even in contrast with their thoughts. This means that making use of problem-based learning could change the beliefs that some of the students hold towards the process of learning and thinking and gave them a wider panorama. Similarly, Kaptan and Korkmaz (2001) have focused on the influence of PBL on attitudes, such as learning interests and curiosity. It has been shown that PBL plays a positive role in enhancing students' affective characteristics, such as attitude toward courses, desire and motivation, making knowledge permanent, and acquiring skills like problem solving, gathering knowledge, and doing research (Apriliadewi, 2017).

Seemingly a few number of students of the experimental group on the other hand were confused with PBL, stating that they didn't exactly know what they are supposed to do in groups. They asserted that by using this approach some of the active students took most of the time allocated for solving the problems in groups, causing other members not fully give their ideas.

Positive and negative points of the third research question

Teacher who taught in both groups of the present study also provided insightful comments with regard to the use of PBL approach in English classes. He had M.A degree in the field of teaching English as foreign language (TEFL) and was well informed the theories and current trends in English teaching. He mentioned both positive and negative points with regard to the use of PBL in English classes to highlight its advantages and disadvantages. As for the advantages he told that PBL makes students think, and unlike traditional classroom, thinking is not just limited active students in the class. But rather all the students in the group were thinking and offering their suggestions and tried to justify other members too. Similar to what most of the students thought, teacher also believed that the application of PBL makes the class and teaching/learning process more exciting: "most of the students used to ask about the time in last semester where traditional teaching was used were, waiting for the class to end and seemingly tired of the class, but that's not so in this semester, as they get involved in solving the problem in groups with their friends and do not notice the passage of time" said the teacher regarding the students in the experimental group. Describing PBL as a motivating and exciting approach has already been given by the scholars such as Norman and Schmidt's (2000) and Steinemann (2003). He also declared that unlike traditional methods, students were more willing to participate in the discussions in groups. He expressed that even those students that tried to elude the discussions or refused to be active in teaching/learning process, became more active within the groups and were eager to talk to their classmates. This statement also supports Tatar and Oktay (2011) and Droha *et al.*, (2012) findings which claim PBL stimulate students to work in collaborative groups and share their thoughts and ideas among group members.

He also attributed some negative points regarding the use of PBL in classes. He said that although students are more active in groups, their errors are not corrected during their

speaking and this can cause the process of fossilization. In his idea, unlike what most people might think, putting PBL into practice was more burdensome on the part of teachers and demands a great deal of knowledge, creativity and experience to implement it successfully, otherwise it would fail to have the anticipated success and achievement. Similarly Jonassen (2011) states that adopting PBL "requires a substantial commitment to innovation that many teachers and professors are unwilling to take" (p. 180).

Moreover teacher asserted that compared to traditional teaching approaches, implementing PBL in English classed requires more time, and this adds to the difficulties : "even if the teacher is knowledgeable and experienced enough to implement PBL, it would not be feasible to do so, because its application needs more time than what is considered for covering the units during a semester. Moreover it takes some time for students to get used to the new method, as some students were confused about it at the early time of its implementation, persisting to change the teaching way to the previous one, but gradually they changed their mind". To tackle the challenge that he mentioned, he suggested that PBL approach can be integrated within courses of traditional teaching, i.e. to allocate some of the class time to PBL to have the maximum achievement.

All in all, while students and their teacher mentioned both positive and negative points with regard to the application of PBL in EFL classes, they all agreed that the use of this approach can provide more advantages than disadvantages in the process of teaching and learning.

5. Conclusion

It can be concluded that application of PBL approach in EFL classes can significantly improve students' speaking skill, facilitate students' vocabulary learning compared to the prevalent traditional lecture-based teaching. While both students and their teacher believe that PBL has some advantages and disadvantages. However, there is a general consensus that advantages outweigh its disadvantages. It was also notified that PBL Approach creates an environment which promotes collaborative learning and learning from peers as well as peers assessment. Finally, it can be concluded that using PBL approach can positively affect students' interests and attitudes towards the course.

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