

The Effect of Project-Based Learning on First-Year Undergraduate Students in English for Specific Purposes (ESP) Courses

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Abstract

Project-Based Learning is an approach that is significantly different from the conventional English Language Teaching method. PBL has been advocated as an effective instruction that promotes the simultaneous acquisition of language, content, and 21st-century skills to EFL (English as a foreign language) and ESL context. In this study researcher's attempt is to integrate PBL (Project-Based Learning) approach, which incorporates authentic, learning by doing, problem-solving, critical thinking and team working skills with ESP (English for specific purposes) courses. The study aimed to investigate whether the PBL projects assist EFL learners in acquiring department related literature and information in the English language and the effect of project work on learners' ESP course academic achievement. The study was conducted at Tishk International University, formerly known as Ishik University, in Iraq-Kurdistan Region with 2 Engineering (Architectural and Civil engineering) and Business and Management departments' students. A mixed-method approach was designed to make the authentic interpretation of gained results. Quantitative and Qualitative instruments were utilized to probe the effect of PBL in the ESP course of undergraduate Iraqi EFL learners. The findings of this study reveal that PBL had a significant positive effect on acquiring department-related vocabulary and information in English as well as learners' ESP course academic achievement showed statistically significant increment.

Keywords: English language learning, EFL (English as a Foreign Language) learners, English for Specific Purposes (ESP), Project-Based Learning (PBL)

1. Introduction

To keep up and follow a rapidly developing and changing technologic and globalized world step by step and not to fall behind, the importance of the English Language is indisputable. It is an international Language (McKay, 2002; Pennycook, 2017), Language of Science (Ammon, 2001; Pennycook, 2017), Language of the Internet (Crystal, 2012; Korpela, 2003; Zazulak, 2015) and Technology (Björkman, 2013; Kirkpatrick & Sussex, 2012; Rehm & Uszkoreit, 2012). Therefore, for all level learners and especially for Undergraduate students having a good command of English facilitate the way to success; and assist the academic achievement process.

On the other hand, solely English language skills are not sufficient for undergraduate students to be able to cope with challenging 21st-century demands, professional competencies and diverse abilities become a necessity. To address the needs of the learners and to gear towards skills identified in The Future Work Skills Report 2020 (Tyagi & Kannan, 2013)—“*sense-making, social intelligence, novel, and adaptive thinking, cross-cultural competency, computational thinking, new-media literacy, transdisciplinarity, design mindset, virtual collaboration*”, Project-Based Learning is one of the learning approaches that enables learners to acquire some above mentioned progressing era abilities.

As the researcher is an English Language lecturer in one of the private Universities in Iraq, she has observed through whole her teaching experience in this region, students long for being able to speak English fluently, comprehend English written material and speak comfortably, and have a good or in other words the perfect level of English. At this point, the question ‘Why?’ arises—because as in all Gulf countries in Iraq also having good commands of English accepted prestigious. Employers give preference to the applicant with a better English level. Mostly in all private universities and public universities (in departments with high entrance scores—such as Faculty of Medicine, Faculty of Dentistry, Engineering and Science departments), and especially in

private-high, secondary and primary schools, English is a Medium of Instruction. On the other hand, although English is the most desirable language to be acquired, still at post-school at the tertiary level—more particularly First Grade Level Students neither can speak nor understand the English written material, except a few private schools, graduated students. Another big handicap faced with University students is the Education and examination system, even mandatory exams, based on rote learning, which blunt learners' creativity, critical thinking, analyzing, synthesizing, making inferences skills and hinders the improvement of students' distinctive ideas. Characteristics described above are usually encountered university first-grade students' profile. However, the 21st-century high-competitive, original idea hunting and multi-skills or talented employees seeking environments and the significance of such factors in students' post-graduate life cannot be neglected and ignored by educators. Real-life and employment area requirements boost educators to be active followers of innovation, latest, and potential developments. Methodically rearrange, recheck, and redesign the education system concerning 21st rapidly-developing age standards. It's going without saying actualizing necessary amendments are not sufficient. The education system with applied methods and approaches should be assessed to identify the strengths and weaknesses of the system and to make the step towards getting better and synchronizing with the real-life setting. Thus, in this study researcher's attempt is integration of the PBL (Project-Based Learning) approach, which incorporates authentic, learning by doing, problem-solving, critical thinking and team working skills with ESP (English for specific purposes) courses. This assemblage one of the ways that activate learners, put them in the center of the learning process and assist educators in taking out learners from a close rote memorization circuit.

2. Theoretical Background

2.1 Project-Based Learning

In this article, the researcher is investigating the effect of PBL on the ESP platform. Hence in the literature review section, she tried to provide brief to the point and clear view of PBL. We should recognize that it can be hard to extract all the benefits of PBL and its integration into the EFL context in the article format.

When the researcher scrutinizes literature, it can be argued that PBL has the potential to generate more memorable, more powerful, real-life connected and on purpose learning experience for learners. The previously mentioned characteristics of PBL were practically tested and proved by Boss and Krauss (2014) in several school networks that are good examples of PBL implementation. Project-Based Learning is an educational system where learners face with meaningful real-world problems and cases, learners determined how to deal with them and then collaboratively try to find problems' solutions (Barell, 2006; Bender, 2012), meanwhile students pass through natural English Language practice and department related English language terminology acquisition.

Project-Based Learning based on constructivist, social-constructivist and other contemporary instructional theories' principals (Agustina, 2009; Bruner & Anglin, 1973; Gülbahar & Tinmaz, 2006; Helle, Tynjälä, & Olkinuora, 2006; Sidman-Taveau, 2005; Sidman-Taveau & Milner-Bolotin, 2001; Simpson, 2011; Welsh, 2006). Concerning constructivist schools of thought, knowledge is not only transmitted or taught, but learners themselves should also be active in the process of understanding and knowledge acquisition (Benson, 2013; Kavlu, 2015; Yam & Rossini, 2010). The learning process actualizes when learners able to link newly acquired information with their background knowledge, as new ideas and concepts arise learners restructure their existing knowledge (Bransford, Brown, & Cocking, 1999; Mascolo, 2009; Reigeluth, 1999). This constructivist aspect of Project-Based Learning enables learners to shift from traditional Iraqi teacher-centered, stereotyped and spoon-fed teaching style to dynamic learning atmosphere, where they learn by doing (conducting interviews and surveys, field trips, investigations, data collecting, analyzing, make inferences and present them).

Fried-Booth (1986) was one of the forerunners who introduced the term 'project' to the EFL context. Doing PBL's projects is an inherent integration and synchronization of English Language to real-life settings. Gathering data and information through reading, listening, watching, interviewing, collaborative discussion about the assigned topic, the deliberation, and analysis of the obtained data in the target language within the group, writing reports and the texts of posters or presentations, these all are the natural integration of target language with academic and real-life skills. Hedge (2000) asserted that projects are wide-broad tasks that enable learners to reunite language skills with multifarious authentic activities.

Several empirical studies reported the effectiveness of Project-Based Learning in the EFL context.

Bas (2011), in his study with 60 ninth Grade urban area (Turkey) High School students, investigated the effects of Project-Based Learning on learners' academic achievement and their attitudes towards English lessons. Bas experimental study's findings were also supported by other studies carried out both in Turkey and other countries with students in different grades and field of education (Baş & Beyhan, 2010; Meyer, Turner, & Spencer, 1997;

Sylvester, 2007; Yalcin, Turgut, & Buyukkasap, 2009). The findings of studies revealed that PBL had a positive contribution to the development of learners' academic achievement levels (enhance students' sense of responsibility, equipped them with motivation to learn). Furthermore, the experimental group (PBL implemented group) performed significantly better and had more positive attitudes towards English lessons.

Kavlu (2016), a long-term doctoral thesis study in one of the private universities in the Kurdistan Region of Iraq examined the effect of Project-Based Learning on EFL undergraduate students' reading skills. The study quantitatively (statistically) and qualitatively proved the significant increase and enhancement of freshman students' English Language Reading skills, accordingly, their English Language comprehension ability improved.

Sadeghi, Biniiaz, and Soleimani (2016) research with 36 Iranian male students at Language Institute showed that the learners who were educated by Project-Based Learning outperformed in comparison and contrast paragraph writing skills in English than the students who were educated by instruction based on students' textbook.

The doctoral thesis of Simpson (2011) is an empirical study that provided an in-depth examination of the effects of PBL integration in English language Tourism classes of third-year students of Thai University. These research study's findings indicated that there were highly statistically significant differences between pre and post-tests of speaking skills regardless of participants' level (low, medium and high achievers). In other words, this means that Project-Based Learning had a significant positive influence on learners' English language speaking skills.

Put in a nutshell, through the researches which tried to investigate the effects of PBL in EFL context it can be observed that Project-Based Learning maintains its positive effects on the active development of learners' language skills, intellectual improvement in learning, academic achievement and positive attitudes towards learning process itself as well as in science, math and other branches of education.

2.2 Project-Based Learning in ESP Context

PBL and ESP blossoming in the EFL context almost commenced in the same decades. The end of the Second World War (Huthchinson & Water, 1996), the 20th-century industrial revolution and the United States' post-war economic power enhanced the importance of English as an international language. Moreover, in the 1970s, The Oil Crisis caused the flow of Western knowledge and money to oil-rich countries. English was the language of this transmission (Gatehouse, 2001).

When LSP—Language for Specific Purpose applies to the English Language it becomes ESP—English for Specific Purposes. However, what is appropriate and specific in one part of the world it may not be elsewhere. Therefore, it is not easy to generate a worldwide accepted definition of ESP. Concerning Jarvis's (2004) definition, ESP comprises study skills with language competencies to equip non-native speakers for academic thriving.

In ESP, the acquisition of English Language actualizes through a domain that is already known and relevant to the students (Hans & Hans, 2015). When considered from this point of view, PBL and ESP remarkably can assist and support one another, because as constructivism one of the theoretical basis of PBL, the learners should activate and link their existing knowledge with the new information to procure knowledge formation. This means that PBL integration to ESP courses enables learners to apply their knowledge and abilities and the English they know to learn not only more English and major-related English but also to enhance their studies relevant knowledge in a collaborative, investigative and authentic way.

Another contribution of PBL to ESP course, it provides learners with the opportunity to demonstrate mastery of their study's field by generating and presenting the projects which are research-based and carried out consonantly with learners' interests what makes possible for learners to work within similar parameters like real researchers (Klein et al., 2009) as well as have natural acquisition and practice of department-related English. These characteristics play a substantial role to gradually adapt students with rote—type education system backgrounds to inquiry-based academic life, in-depth and analytical thinking and make students competent in the 21st high-competitive century's demands.

According to Gatehouse (2001), ESP meets the specific needs of the learners. The undergraduate language learners Specific needs are English language skills to perpetuate academic life—be able to understand and write in English at an academic level, to express themselves and communicate in English and use English to expertise in their departments (fields). Considered from this aspect, PBL concerning Jiménez Raya (1994) cites in Díaz Ramírez (2014) definition, project work is an improvement of experience-based and centered on learners and their environments, it is one of instruction that facilitates and accelerates ESP implementation. Furthermore, working on in-depth projects in ESP courses gives learners the opportunity to get a wide range of information on

the topic under investigation, “exportable knowledge” —what means learners can transmit explored information to real knowledge, transfer or "export" it into dialogue with others (Klein et al., 2009), and simultaneously enhance and practice their English language skills. In addition to these generally, students learn more than they present in their final product-presentations.

In ESP courses, objectives often are to improve learners’ language required for academic or occupational settings and focuses more on language in context than on grammar and language structure (Hans & Hans, 2015). The focal point of ESP is that English is not taught as a separate discipline from students’ real-world and major’s needs, instead, ESP is a combination of subject matter and English language teaching. At this point, we observe the intersection of ESP and PBL in terms of Content-Based Instruction (CBI), as the researcher generated and showed below in Figure 1. Empirical researches of Kavaliauskiene (2004) and Ngan (2011) aver that CBI enables ESP course learners to practice English language skills and acquire subjects knowledge simultaneously, and Project-Based Learning is the fructiferous platform for integration of content learning and English language skills in authentic settings in ESP course.

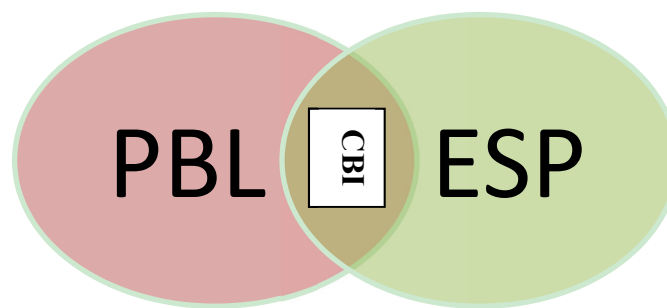


Figure 1. The intersection of PBL and ESP (Source: Generated by Researcher)

Furthermore, some implementations of integrating learners’ pen and pencil based (Sheppard & Stoller, 1995; Stoller, 1997) and computer-assisted projects (Mamakou, 2009; Sidman-Taveau, 2005) into ESP courses have already been published.

3. Purpose of the Study

The study aims to seek the effect of PBL—Project-Based Learning in ESP courses of First-Year undergraduate EFL learners of Tishk International University, formerly known as Ishik University.

3.1 Research Questions

The present study attempts to investigate the answers to the following questions:

- 1) What are students’ English Language backgrounds in Architecture Engineering, Civil Engineering, and Business and Management Department of Tishk International University Sulaimaniyah, formerly known as Ishik University?
- 2) What is the contribution of projects to students’ field related English?
- 3) What are student’s opinions about how Project-Based Learning enhances their English language skills?

3.2 Research Hypotheses

The current study examined and verified the validity of the following hypothesis.

Hypothesis 1—The implementation of PBL in ESP courses has a statistically significant impact on EFL learners’ ESP course academic achievement.

4. Research Methodology

4.1 Research Design

A mixed-method approach was designed to enable the researcher to make the authentic interpretation of gained results. Quantitative and Qualitative instruments were utilized to probe the effect of PBL in the ESP course of undergraduate Iraqi EFL learners. This study’s methodology is based on some researches which were applied without a control group such as;

Simpson's (2011) doctoral dissertation "Integrating Project-Based Learning in an English Language Tourism classroom in a Thai University" is an empirical study with third-year English major students in English for Tourism Course. This study provided an in-depth examination of PBL integration into the EFL context and quantitatively and qualitatively proved the significant effect of PBL not only on students' English Language skills but also PBL assists students in learning skills and strategies improvement. TOEFL—Reading IBT, Listening, Speaking and Writing were quantitative instruments, where derived data proved the statistically significant effect of PBL.

Students' surveys, diaries, open-ended questionnaires, field notes and work in progress discussion were employed as qualitative research instruments which revealed that the PBL approach fostered learners to gradually enhance their confidence in the use of English language skills and give learners opportunity to discover new knowledge through logical thinking and reasoning.

Rousová (2008), diploma work is a multi-layered long-term Project-Based Learning project with a wide range of activities for the intermediate level learners shows that PBL comprises all the contributions of conventional EFL techniques together with contemporary progressive teaching approaches and ideas.

Furthermore, there are numbers of small and large scale researches that proved the positive and statistically significant effects of Project-Based Learning in EFL/ESL/ESP context by carrying out studies with control and experimental groups (Baş, 2011; Beckett, 1999; Chu, Tse, Loh, & Chow, 2011; Kavlu, 2016; Ke, 2010; Nassir, 2014). Therefore, in this study Researcher's purpose was to apply Project-Based Learning to all groups and do not leave any group without treatment—PBL implementation. It's going without saying the traditional teaching method is already the system that students get used to and it would pose no problems to continue the traditional education system with control group/groups. However, the researcher did not set sight on obtaining the desired result and proved determined hypothesis under any circumstances, on the contrary, the researcher's intent as an educator is to introduce Project-Based Learning method, which success, authenticity, and 21st-century compatibility have been proven, to all departments' students and allow them to be in and enjoy the positive and collaborative environment of PBL. As students get ESP courses only in the First Year of University and research was carried through 2 semesters—whole academic year to get more reliable results, what means that the control group would not have a chance pass through PBL experience.

To reveal students' English background and evaluate the effect of PBL on students' English language skills, the researcher employed a quantitative research instrument—questionnaire. Quantitative data was collected mainly through questionnaires. In the role of teacher-researcher, the Researcher was directly involved in all aspects of research; planning, designing, implementation, and evaluation process. This may have caused some subjectivity, to eliminate the researcher bias, various methods of data collection were employed. Additionally, the bias can be encountered during data interpretation; therefore, the researcher attempted to minimize the bias by employing and taking into account the independent observation and evaluation of the Researcher's lectures by the Head of related departments.

4.2 Participants

The present study was carried out in one of the private universities in Sulaimania—KRG (Kurdistan Regional Government) Iraq. The participants of this study consisted of First-Year Students of the Architectural Engineering Department, Civil Engineering Department, and the Business and Management Department.

Table 1. Distribution of students in the departments in terms of number, gender, and nationality

Name of Departments	Gender		Nationality		Total
	Female	Male	Kurdish	Arab	
Architectural Engineering	15	6	21		21
Civil Engineering	3	13	16		16
Business and Management	11	13	21	3	24
Total	29	32			61

Books that were used during PBL implementation—Business and Management Department Course Book was—*Market Leader*—Business English Course Book (Cotton, Falvey, & Kent, 2012). Architecture and Civil Engineering Course Book was—*Cambridge English for Engineering*—Cambridge professional English (Ibbotson, 2008). The content of the projects was determined in parallel with the topics in the book.

Table 2. Type of projects and requirements

Type of Projects	Requirements
1st Project	✓ Their Careers' Move, Works, Plan
3 Famous Architects in Iraq / KRG and the world	✓ Give examples of their outstanding works which made them famous
3 Famous Civil Engineers in Iraq / KRG and the world	✓ People Comments and Opinions about them
3 Famous Business Leaders (business lady/men) in Iraq / KRG and the world	✓ Conduct Questionnaire at least to 15 people to find out the ways, strategies, and skills how to be a successful architect/civil engineer/business leader
	✓ Evaluate, analyze and present your conclusions
2nd Project	Which types of materials are used generally in Building Constructions (or any other construction that you decided to investigate it) in Suleymania.
Materials used in Constructions of Suleymania (Civil Engineering Department's project)	In which parts of constructions these materials are used, and Why? Interview with 5 contractors or apply a questionnaire to them to prove your information effectively. Present 2 research articles that will prove your information scientifically.
3rd Project	What are the strong points of your great idea?
The new attraction in your area/country (Iraq, Kurdistan, Sulaimania)	What kind of experience will your attraction offer visitors? How will it make money for the local community? How can you attract tourists? What are your plans for marketing and promoting the attraction? What corporate sponsorships will you try to obtain?
An international competition will encourage great ideas for a new visitor attraction (Business and Management Department's project)	

4.3 Instruments and Data Collection

The following instruments were employed to collect data in this study:

4.4 Quantitative Instrument and Qualitative Instrument

The purpose of this study was to examine the effect of Project-Based Learning on First-Year Undergraduate EFL students' ESP course achievement. Quantitative data collection was utilized to assess learners' achievement in English language skills in ESP courses across the groups (departments) at the beginning and the end of the study (pre and post-tests). Statistical Package for Social Sciences (SPSS-22) was utilized to collect data and Paired - Sample T-tests were run to analyze the data.

The survey was arranged and carried out to reveal students' English Language learning background, students' previous (pre-university) project experiences, the contribution of projects to students' field related English (ESP), and students' opinions about PBL's effect on their English language skills and other academic skills.

A questionnaire was composed with 8 Yes/No questions, students rate the degree of agreement on each statement with a five-point Likert Scale ration criterion ranging from 1 (strongly disagree) to 5 (strongly agree). Codes 4 and 5 (agree and strongly agree) and codes 1 and 2 (disagree and strongly disagree) were tallied together. These parts of the questionnaire were analyzed by SPSS-22. The questionnaire items were first written in English, and then students were provided with translations in their native language to prevent language difficulty and to better comprehension, and in the process of application, written instructions were verbally explained.

To get more in-depth information, a qualitative instrument semi-structured interview was conducted. The semi-structured interview was used not to limit and to allow respondents (interviewee) her/him to discuss issues that the researcher may not consider in the questionnaire, and for triangulation with the result of the questionnaire.

5. Findings and Discussions

The length of this study was one semester for the Architectural Department and 2 semesters for Civil Engineering and Business and Management departments. The gathered data was sufficient to answer the research questions.

Based on the answers delineated from the questionnaire, 100% (all students) used Sunrise book in the High School as an English Course Book. However Sofi-Karim (2015), in his Master thesis analyzed the book and remarked that Sunrise fails to meet the need of Kurdish English learners, fails to fulfill objectives to raise students' communicative competence, fails to address the global topics, inappropriate culturally and

pedagogically for students, and indicated numbers of inadequacies of this coursebook.

15% percent of students did traditional style projects (copy and pasting), and 85% of students did not do any type of project in English class in High school. Only 1 student (1.6%, from a private school) did the project that required research and 98% of students never did any research-based projects. This shows that English lessons in the schools are not the lessons that required researches, it is the lesson where course book information memorized and students asked to pass the exams by rote memorization.

Before doing the first project 67.2% of students did not have any information about assigned project’s topic, 89% of students did not know any famous person (architect, civil engineer, business leader) related to their department, 11% of students got information about assigned people not because of their research, but because they met this information somehow in everyday life.

97% of students stated that the project making process made them acquire department related knowledge.

Table 3. Table PBL’s effect on students’ English language skills

	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
To find required information for the project I read a lot of texts	3%	1.6%	3%	31%	61%
PBL (Project-Based Learning)’ projects improve my English language reading skills because to accomplish the projects I read more than once time	1.6%		8%	34%	56%
I looked up the meaning of the words that help me understand the reading text better	3%	3%	7%	26%	66%
I try to write the text of presentations correctly				43%	57%
I write a summary to the part that I have to explain		14%	11%	46%	29%
I learn new vocabulary related to my department			3%	37%	59%
While listening to my friends’ presentations, I obtain new information	3%	8%	11%	49%	29%
I repeat my part several times to my group members before the real presentation		5%	3%	62%	30%

In reference to Table 3, 92% (Agree 31%+ Strongly Agree 61%) of students do a lot of reading to find out the necessary information in the process of doing the project. Learners naturally practice and apply skimming skills (read or look to get a general idea of the contents) and scanning skills (looking at a text to search and find some particular information), do plenty of department-related as well as English language reading. However, 4.6% disagree and 3% are not sure about this issue. 90% of students agreed that reading more than once when doing project improve their English Language reading skills, while 8% is not sure and 1.6% disagreed. Doing PBL’s projects also assists learner’s department related English language vocabulary formation, 92% (66% + 26%) look up the dictionary to a better comprehension of the reading material, while 7% is not sure and 6% of students do not look up the dictionary. Besides, 57%-Strongly agree and 43%-Agree—almost all students show great care to write their presentation’s texts correctly. This enables learners to practice mistake-free writing of words and build up the grammatically correct structure. 75% of students prepare writing notes for their oral presentation what means students practice summarizing skills to be able to prepare their notes, while 25% of them do not feel the need to short notes. Almost all students 96% acquire department-related new vocabulary during the project making process. 88% of students listen to their peers and obtains new information from these presentations, while 11% of students state that they do not get new information from their course mates’ project presentations. Almost all students 92% rehearse their presenting part before the actual presentation, and this enhances students’ public speaking skills.

Table 4. Students’ perception of the project work

	Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree
Doing projects is interesting	3%	7%	12%	32%	46%
Doing projects is hard work	7%	7%	22%	32%	32%

In reference to Table 4, 78% of learners find out the project work interesting meanwhile, 64% of students believed that doing a project is hard work. However, 10% of students think that project work is not interesting. Besides that, for 22% of students project work is not hard, but it is not easy either, and only 14% of learners

don't think that doing a project is hard. It means that doing projects attracted learners' interests, but it was not the style of assignments that they were got accustomed to (filling the gaps, memorizing, and copy-pasting). It was also manifested and understood from the interviews with members of groups and students' statements during project completion guidance process with the lecturer (researcher), learners previously had not done any research-based project especially in non-math courses such an English language class, they did not know research techniques—how to collect data, how to interpret obtained information, draw conclusions and make their deduction. These inadequacies appeared to be the factors that students had difficulty in dealing with. Nonetheless, students expressed that doing projects is not easy, 78% of learners believed that doing projects stimulate their interest and raise their curiosity.

The most common responses to the interview and open-ended questions of collected data were summarized below: What have you learned by doing PBL projects?

We should never give up and be able to take the work we started up to the end. I have learned many new different words related to my department.

I have learned how to work with the group and help each other and I have to work hard to achieve the goals I have set.

I have learned how I can get information from the internet, how to filter and evaluate it and how we should behave while presenting our projects (how to behave, how to speak, what to wear).

I have learned the importance of teamwork and how properly state your personal opinion. The English language is not only Present Simple and Present Continuous—learning language it is not just about learning Grammar.

Although doing projects were a completely new style of learning, this learning way is very exciting.

While doing projects, the information that I have learned is related to both language learning and department related knowledge.

Doing projects was a great opportunity to break down stereotyped language and general learning rules.

Doing projects was a good experience to learn how to generate unique and innovative ideas.

By summarizing learners' feedbacks, it can be said that doing PBL based projects allow students to acquire not only English Language related but also department related knowledge and vocabulary. Doing projects in the ESP course shifts learners from a conventional teaching platform to a more path-breaking learning environment where they can produce and propound more seminal works.

A quantitative method of data analysis was utilized for the evaluation of the obtained pre- and post-experimental data.

Table 5. Paired samples statistics of Architecture Engineering, Civil Engineering and Business and Management students' achievement in ESP course pre and posttests results

	Mean	N	Std. Deviation	Std. Error Mean
Arch. Eng. Group Pre-Test	53.7143	21	19.53751	4.26343
Arch. Eng. Group Post-Test	80.2857	21	13.68263	2.98579
Civil Eng. Group Pre-Test 1. Semester	39.6875	16	20.98164	5.24541
Civil Eng. Group Post-Test 1. Semester	70.3750	16	14.57795	3.64449
Civil Eng. Group Post-Test 2. Semester	89.1250	16	8.10658	2.02665
Business Group Pre-Test 1. Semester	42.6250	24	17.63843	3.60043
Business Group Post-Test 1. Semester	67.0417	24	15.49608	3.16312
Business Group Post-Test 2. Semester	82.9583	24	10.17875	2.07773

Based on the results delineated from Table 5 before the implementation of PBL the means of groups were as in Table 6.

Table 6. All groups pretest and posttest mean

	Architecture Eng.	Civil Eng.	Bus. & Mang.
Pre-test Means	53.7143	39.6875	42.6250
Post-test Means	80.2857	89.1250	82.9583

As each group was assessed statistically within itself, not with each other, therefore being worse or better than other groups at pretest was not a principal focal point. On the other hand, the Architecture Engineering Department students outperformed in pretest one of the reasons is – the majority of these students had better English Language school background.

Table 7. Paired sample t-test, pretest and post-test mean compare Architecture Engineering students' achievement

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pre-test – post-test	-26.5714	8.70386	1.89934	-30.5333	-22.6094	-13.990	20	.000

To prove whether there is a statistically significant difference between the mean scores of the pre-tests and post-tests of Groups Paired Sample t-tests were run.

Table 7 displays the computation of t —the value of the Architecture Engineering Department. Results showed that the t -value with its 20 degrees of freedom (df) was .000. Since the t observed (.000), which is smaller than 0.05 the level of significance it can be inferred that the difference between pre and posttest was statistically significant. It confirmed that PBL implementation even in the short term (1- academic semester) had a positive effect on Architecture Department students' ESP course achievement. Doing PBL's projects increased mean scores from 53.71 to 80.29 ($80.29 - 53.71 = 26.57$). The Paired Sample test proved the statistical significance of this uptrend.

Table 8. Paired sample t-test, pretest and post-test mean compare of Civil Engineering students' achievement

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pretest – posttest 1	-30.6875	12.68447	3.17112	-37.4465	-23.9284	-9.677	15	.000
Pair 2 posttest 1 – posttest 2	-18.75000	8.62168	2.15542	-23.34417	14.15583	-8.699	15	.000

As Table 8 depicts, the t – value with is 15 degrees of freedom was (-9.677) - for Pair 1 and (-8.699) - for Pair 2, and the value of Sig. (2 tailed) is .000 at .05 level of significance ($p < .05$). It means the implementation of the PBL approach has a significant effect on Civil Engineering students' ESP course achievement. In the first semester students' scores increased from 39.687 to 70.375 ($70.375 - 39.687 = 30.6875$) and in the second semester from 70.375 to 89.1250 ($89.1250 - 70.375 = 18.750$). The Second term achievement score growth is lower than in the first term. However, both increments are statistically significant.

Table 9. Paired sample t-test, pretest and post-test mean compare of Business and Management students' achievement

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 pretest – posttest 1	-24.4166	8.30357	1.69496	27.92296	-20.9103	-14.405	23	.000
Pair 2 posttest 1 – posttest 2	-15.9166	11.22852	2.29201	-20.6580	-11.1752	-6.944	23	.000

In reference to Table 9, since the value of two-tailed significance is .000 and (pair 1 $t = -14.405$ and pair 2 $t = -6.944$) with 23 degrees' o freedom and it is lower than α (.05). Therefore, the significance of differences between pre and post-tests was statistically proved. That means Business and Management Department students gradually outperformed from pretest to the 1st posttest and then to the 2nd posttest.

Based on the data shown in Tables 7, 8 and 9, since the p -value of two-tailed significance is .000 and it's lower than α (.05), the results of Paired Sample tests can be used to reject the null (H_0) hypothesis. The implementation of PBL in ESP courses has a statistically significant impact on EFL learners' ESP course academic achievement.

6. Conclusions

Based on Discussion and Findings, it can be concluded that the Project-Based Learning approach can be one of the effective methods in the ESP course. The findings reveal that the majority of students come from rote memorization teaching background, did not do any projects and researches before the implementation of PBL's project in the ESP course. 92% of students did plenty of department information related as well as English Language reading. The finds also indicated that while preparing project presentation texts, almost all students practiced grammatically correct and mistake-free writing. 96% of students acquired department related to new vocabulary, and presenting projects improve students' public speaking skills. Moreover, according to students' statements doing projects enables them to experience innovative, exciting, path-breaking learning methods. Furthermore, concerning qualitative and quantitative data findings, PBL implementation significantly contributes to increasing undergraduate students' ESP course achievement. All group participants' students were provided with self, peer, and lecturer assessment rubrics, which develop the formation of the ability to provide constructive and academic feedback. PBL instruction maintains a learner-centered environment, the integration of PBL to ESP course gain students with self-learning and self-developing abilities. Besides, findings also proved the short- and long-term positive contribution of PBL to ESP course achievement. BPL implementation in the ESP course allows students to put into practice their theoretical knowledge. One of the main problems that students have, is that they face difficulties while doing teamwork in the project completion process. However, solving problems and overcoming difficulties enhance students learning capabilities and bring them new competency.

7. Limitations

Several limitations were also worth considering. The study was run in the Kurdistan Region of Iraq with First-Year students. It is hard to determine, whether the findings obtained from the research can be generalized fully.

Another limitation of the study is the number of students and research was applied to one private University. The study can be implemented in public universities to obtain wide-scale results. These limitations will open a new room for further study to explore the effect of PBL more comprehensively.

8. Future Study

The qualitative and quantitative findings of this study can also provide the basis for further researches on exploring more benefits of PBL implementation on the ESP course of undergraduate students. Research in the future can further investigate topics such as; "Extracurricular activities in Project-Based Learning and their effects on undergraduate EFL learners", "The effect of PBL on ESP course undergraduate students' pragmatic competence".

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