



Project-Based Learning (PBL) and English as a Foreign Language (EFL): A Perfect Alliance to Foster Employability

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Abstract

Although the relevance of PBL to enhance both cognitive and social aspects in the learning process is unanimously stated in the literature, it has been hardly used in language teaching. Recent methods such as Communicative Language Teaching have failed, as Task-Based Learning did too, because they lack practice time or autonomy, among other problems. Consequently, there is a clear process of demotivation that results in students not achieving their learning goals and being reluctant to carry on with their learning. This is the case in Spain where students start learning English already in primary education and carry on until they finish their secondary education. However, when starting at university, a high number cannot manage in English and what is worse, they hate learning it because of the evident unsuccessful outcome. The objective of this paper is to present a case in our institution in which the use of PBL has significantly improved Engineering students' learning goals: they must develop a compulsory interdisciplinary project in which all the subjects are involved and share 25% of their assessment. The challenge has been to develop a perfect coordination among all the teachers to establish the project goal together so that students can understand the rationale behind it and what is expected from them (the design of a prototype robotic arm). Concerning EFL, engineering degrees have Technical English in their curriculum and its role in the project has been to simulate the presentation of their innovation project in a real robotic international fair. In order to do that, they had to create their company, make a deep analysis on the international fair, create the promotional material and make an oral presentation. In other words, they learned how to search for specific information in English, read technical material, acquired the required vocabulary to describe their project, and used their oral skills to present it to a simulated audience of potential investors. The outcomes were very successful: firstly, students improved their language skills significantly; and secondly, they were extremely motivated as they could see the actual application of their learning.

Keywords: *PBL, students' motivation, skills improvement, employability.*

1. Introduction

On the *European Day of Languages* 2018, EUROSTAT [1] released a report on foreign language knowledge referring to data from 2016. Whereas Luxembourg, Finland, and Slovenia show high levels of multilingualism (50%, 45%, and 38%, respectively), the situation in Spain is extremely worrying: 46% do not speak a foreign language and 54% claim to speak only one (34.8%), two (14.3%) or even three (5.2%). However, this data should be taken with caution as interviewees tend to lie concerning their competencies. In conclusion, Spain remains last in Europe in this respect just before Bulgaria (50%), Hungary (42%), Romania (36%), and United Kingdom (35%).

A number of factors feature the problem of language learning in Spain: a lack of innovation in teaching methodologies, since memorization and repetition are the key tools in the learning process; no importance is given to critical thinking and hence, the learner can hardly grasp the rationale behind the foreign language learning process; the mother tongue is used in the classroom; teamwork is hardly used, because teachers regard it as a waste of time in many cases due to the time needed and certainly, because learners end up speaking in Spanish; in many cases, teachers in primary and secondary education lack appropriate qualification; and the focus is only placed on achieving the so-called prestigious language certificates as for example, Cambridge or TOEFL. However, they fail sometimes because they are based on algorithms and do not reveal learners' competencies. What is more important, employers are losing their interest in these certificates. Instead, they are opting for interviews with candidates in an attempt to analyse to what extent they can generate discourse. Therefore, learning to think in a foreign language is a must.

According to a report by IESE in which 53 big companies were interviewed in 2018, 72% employers have problems to cover their vacancies, which clearly indicates a talent mismatch. In Spain, 33% workers are affected, as reported by OECD; and the *Global Skills Index* report by Hays confirms that talent mismatch rates 10 out of 10. Digitalization has forced companies to change the profiles they need, i.e. professionals with the ability to undertake the digital transformation process that the



business community is going through now. However, the Spanish education system and training offer do not progress at the same pace as companies' needs, and it is evident that they have not adapted to the new scenario arising from the past economic crisis. In conclusion, the high level of youth unemployment in Spain (11.3% in 2018, the highest in the European Union with only 6.3% [2]) derives mainly from a lack of certain knowledge and skills. Concerning foreign languages, in a joint report on the Spanish labour market by *Infoempleo* and *Adecco*, figures show that 34.7% job offers in 2018 required at least one foreign language and the figure is on the rise; in this respect, English is the most widely demanded foreign language (92.3%) and German comes second (7.4%). Furthermore, the higher the professional rank, the higher the demand on foreign languages, ranging from 23.3% in office work to 54.4% for senior managers.

Therefore, getting closer to companies and their needs is a must and reinforcing the practical side of acquiring knowledge is fundamental. Developing soft skills is crucial: critical thinking, decision-making, teamwork, and communication in a foreign language, among others. And bearing in mind the dramatic levels of foreign language skills in Spain, teaching learners how to develop those soft skills in a foreign language would mean the difference between either getting access to the labour market in a competitive way or being left behind with the resulting consequences deriving from this. Certainly, project-based learning (PBL) is an invaluable asset to guide learners towards this ideal – and needed – scenario.

This paper will review the literature first on the importance of joining PBL and EFL in order to achieve motivation and successful outcomes and then, an example of best practice will be used to illustrate this hypothesis.

2. PBL and EFL review

PBL has been used since the late 1960s, particularly owing to its successful application in medical education in North America in 1970s and because of its many benefits for learners [3] [4] [5] [6] [7]. As there is a focus on actual issues, interactions are more authentic and also, learners become more autonomous in their learning process so that the skills acquired in the classroom are later transferred to their careers. As a result, learners' motivation is increased and communication is stimulated, therefore they become more cooperative and gain confidence in learning. What is more important, there is a rise in the level of critical thinking, a focus on communicative and argumentative skills, and a shift towards using English to learn instead of learning to use English. However, in language education PBL usage began less than two decades ago despite its significant effects on communicative skills, since learners must make use of the four language skills while understanding and analysing the problem in question [8] [9]. Nevertheless, PBL also presents some challenges that make teachers reluctant to use it, since there is a shift towards depth of curriculum, higher-order thinking, or long-term effects rather than immediate learning outcomes [10]. On the other hand, learners may also feel reluctant to work under this methodology because it is costly in terms of hard work and very time-consuming [11].

In a research on language learning in Pakistan [12], the outcomes reveal a similar situation to the one in Spain: although English has become vital for the social and economic development of an individual, learners are less motivated towards learning it because of the ineffective teaching and learning environment, on the one hand; and on the other, because learners have scarce opportunities to practice English in the real world. Certainly, the same research concludes that the use of PBL in acquiring a second language has turned out to be fundamental in gaining the foreign language skills by improving learners' attitudes towards the learning process and also, by bringing out their self-confidence and thus, self-esteem.

PBL in EFL has been used in primary and secondary education. An example is *Learning English in Action*, a programme brought out by Stanford University in 2010, which proved to be very successful for both teachers and learners: the former were organized in interdisciplinary teams and the latter became active agents in their own learning process. This initiative was tested in International High Schools through intermediate level courses and the outcome was significant: dropout rates were very low. There are successful examples in undergraduate programmes too: in the USA an analysis was undertaken on the integration of PBL in an ESP programme into an undergraduate biological engineering curriculum [13]. The objective was to prepare students for an engineering career that requires job-specific foreign language skills as well as to prepare students for the subsequent professional internship. Another analysis was developed in Chile in an English Pedagogy undergraduate programme [14]. The results were satisfactory, as PBL entailed a positive contribution towards learning and very significant, most students stated that PBL contributed to fostering personal growth.



PBL surely prepares students for academic, personal, and career success probably because teachers make learning come alive for students and bring authenticity into the classroom. Indeed, students develop deep content knowledge as well as critical thinking, creativity, and communication skills. Furthermore, they learn to work as a team, which is indispensable in a professional career nowadays. The project or problem they work on becomes the vehicle for teaching them in an autonomous way, and the teacher simply becomes a facilitator in the learning process.

3. PBL & EFL in action in Engineering programmes

The present case takes place in an institution whose cornerstone is learning by doing and hence, PBL was the logical consequence aiming to foster employability. This methodology was first adopted in the academic year 2010-2011 in all its undergraduate programmes. All the modules participate in an interdisciplinary project that runs through the three study years and also, all the subjects are involved allocating 25% assessment for the assignments under the project. Therefore, it is compulsory for all students. A close coordination among the various lecturers is a must to establish the project to be undertaken and the tasks to accomplish it. Furthermore, students work in teams that are created at the beginning of the academic year.

The focus of this paper will be placed on the degrees in Mechanical Engineering and Industrial Electronic Engineering & Automation, particularly first-year students. The general objective of the interdisciplinary project is the design of a robotic arm and the specific objective to be implemented in the Technical English subject is the creation of a SME and the simulated presentation of the robotic arm innovation project in an actual robotic international fair aiming to search for potential investors to develop their project. The course level should be B1, although the actual level ranges from A1 to C1, which is the typical case in a Spanish classroom. Consequently, developing such a project is a challenge both for the teacher and the students, but teamwork plays a key role here.

The teacher becomes a facilitator to guide students through their Internet search and implementation of the various tasks; however, they are never given a clear answer to their questions, because being an open project, more than one option can be acceptable. They are only provided with two useful tools: information on how to design a PowerPoint presentation in a non-academic setting and how to make an oral presentation, with the right structure and key phrases and expressions to help them. Working as a team, students help each other in searching for information and in writing the various assignments and final report. Therefore, they learn to learn in English and become autonomous in searching for those useful tools that may provide them with the right vocabulary and sentence structure. This is particularly relevant when students must present their findings to an academic panel at the end of the first semester (through a PowerPoint document), and to a mixed academic-business panel at the end of the academic year (through a poster and a prototype of the robot). Students must be able to communicate effectively when describing their work and during the demonstration through the prototype. They must also anticipate what kind of questions/comments may arise and be ready to answer them in a satisfactory manner.

For the first-year students, the outcomes are very satisfactory: they are highly motivated and pleased with their own work; they get actively involved in their project; they believe in the authenticity of what they are doing and become very innovative and creative; they do not realize how much English they acquire until they make their presentation and reply to all the questions from the audience; and they acquire invaluable skills that will ease their access to the labour market further on.

For the whole engineering degree students, the outcomes are also excellent because they become aware of the actual application of the specialized content they learn in the classroom and of the integration of all the disciplines in order to come out with a successful product. Besides, the project enables them to develop their critical thinking, problem-solving and decision-making skills. Moreover, they become aware of the importance of communicating effectively both in Spanish and in English in a professional setting.

During the last academic year, student must carry out an internship. This is the first stage where students must prove the skills they have acquired, and the institution must analyse where PBL enhances employability. Therefore, the companies have been requested to fill in questionnaires from the academic year 2014-2015, which represents the first graduates from the PBL methodology, to 2017-2018. Companies are asked for their opinions on several factors: 1. general issues on developing the professional task; 2. students' capacities; 3. students' autonomy; and 4. overall assessment. Nevertheless, only those items which are related to the present paper will be shown. Table 1 below presents the average figures for the 4 years in a scale of 1 to 5, being 1 very unsatisfied and 5 very satisfied:



Tasks accomplishment	4.75
Proactivity	4.75
Motivation	4.7
Capacity for teamwork	4
Capacity for initiative, innovation and creativity	4.3
Capacity for effective communication	4
Capacity for problem-solving	4.1
Capacity for foreign language communication	4.3
Capacity for working under pressure	4.3
Capacity for implementing presentations, reports, etc.	4.3
Autonomy	4.3
Overall assessment	4.6

Table 1. Company assessment on students' skills

Besides the above successful figures, it is worth noting that both the capacities for effective communication and for foreign language communication together with the implementation of presentation, reports and the like, are on the rise year after year. This proves the ongoing work carried out by the involved teachers in ensuring good results by reviewing and, if needed, amending all the processes at the end of every academic year.

4. Conclusions

As a rule, language teachers cannot develop scientific and technological training on their own, and engineering teachers most likely cannot instruct in the target foreign language, at least in Spain. Therefore, a close collaboration between the two areas can be achieved through PBL and EFL. This approach enables students to become independent thinkers, assess a problem and discover by themselves the resources they can use in its solution, both from the technical/scientific and language perspectives. They learn the target language by using it.

Certainly, PBL has a considerable impact on communicative skills because it implies teamwork and written and oral presentations both to an academic audience and a professional one. Since authenticity is crucial, students keep motivated all the way through the project and as a result, they become deeply engaged in the task on the one hand and improve – and become more confident in – their English skills on the other.

It can be concluded that PBL and its immersion in English is a major asset in undergraduate programmes in an attempt to improve students' foreign language skills so that they can come out with effective discourse and also, to help them develop certain capacities that companies consider a must nowadays. As a result, they can get access to the labour market in a very competitive way.

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