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Project-based learning and young EFL learners: Assessing vocabulary gains and perceptions

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Abstract: Although project-based learning (PBL) has been widely studied in educational settings—particularly for its emphasis on collaboration, autonomy, and other 21st-century skills—its impact on English as a Foreign Language (EFL) learning and specific linguistic components such as vocabulary, remains underexplored. This quasi-experimental study examined the effects of a PBL approach on vocabulary learning and retention among 90 young EFL learners, as well as their perceptions of the methodology. Participants were assigned to either an experimental group, which engaged in a seven-week PBL intervention, or a control group that received traditional coursebook instruction. Vocabulary gains were assessed using immediate and delayed post-tests targeting ten specific words. Results revealed that learners who received PBL instruction made significantly more vocabulary gains in the post-tests than those in the control group, a trend that was sustained in the delayed measures. Additionally, learners in the PBL group displayed positive perceptions of the approach across four dimensions: motivation, organisation, interaction/collaboration, and learning. Findings are discussed in relation to 21st-century skill development, the involvement load hypothesis, and pedagogical implications.

Keywords: *project-based learning, vocabulary learning, PBL perceptions, EFL language learningy.*

Aprendizaje basado en proyectos y aprendientes de inglés como lengua extranjera: evaluación de vocabulario y percepciones

Resumen: Aunque el aprendizaje basado en proyectos (ABP) ha sido ampliamente estudiado en contextos educativos —particularmente por su énfasis en la colaboración, la autonomía y otras competencias del siglo XXI—, su impacto en el aprendizaje de inglés como lengua extranjera (ILE) y en componentes lingüísticos específicos, como el vocabulario, sigue siendo insuficientemente explorado. Este estudio cuasiexperimental examinó los efectos de un enfoque ABP en el aprendizaje y la retención de vocabulario en 90 estudiantes de ILE, así como sus percepciones sobre esta metodología. Los participantes fueron asignados a un grupo experimental que completó una intervención ABP de siete semanas de duración, o a un grupo de control que recibió instrucción tradicional basada en libro de texto. El aprendizaje de vocabulario se evaluó mediante pruebas inmediatas y diferidas centradas en diez palabras específicas. Los resultados revelaron que los estudiantes que recibieron instrucción mediante ABP obtuvieron ganancias de vocabulario significativamente mayores en comparación con el grupo de control, tendencia que se mantuvo en las mediciones diferidas. Asimismo, los estudiantes del grupo ABP manifestaron percepciones positivas sobre el enfoque en cuatro dimensiones: motivación, organización, interacción/colaboración y aprendizaje. Los hallazgos se relacionaron con el desarrollo de competencias del siglo XXI, la hipótesis de "involvement load", e implicancias pedagógicas.

Palabras clave: *aprendizaje basado en proyectos, aprendizaje de vocabulario, percepciones sobre el ABP, aprendizaje del inglés como lengua extranjera .*

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1. Introduction

Over the last 20 years, the academic goals of learners have been reframed to meet evolving needs. The advent of 21st-century skills—e.g., creativity, collaboration, problem-solving, self-direction, autonomy, critical thinking strategies, social and communication skills, and digital literacy—has been found to successfully address the challenges of the globalised world (Boss & Krauss, 2022; Boss & Larmer, 2018). In line with this, project-based learning (PBL) was introduced in educational settings as a collaborative learning approach that prompts groups of learners to cooperate towards reaching a shared goal and allows them to experience their learning process as both active and reflective agents (Helle et al., 2006). As Dooly (2013) stated, "project-based learning is founded on contextualised, learner-centred outcomes and social practices that emerge as the participants collaboratively move toward shared goals and output" (p. 78). Therefore, the teacher does not assume a central role in the learning process and thus can focus on providing support and guidance regarding emerging questions or problems presented by the project, while students are exposed to authentic resources in a targeted content area (Boss & Larmer, 2018). In English as a Foreign Language (EFL) settings, PBL is a methodology that prompts students to engage with constant input as they work on a product that encourages them to use the L2. Since PBL is regarded as "a versatile vehicle for fully integrated language and content learning" (Stoller, 1997, p. 2), L2 vocabulary learning emerges as a feature that can benefit from the approach. In EFL classrooms, the coursebook provides content and practice activities for linguistic skills at specific levels. However, Nunan (2017) argued that "language learning aptitude is not a unitary construct" (p. 76), which implies that children differ cognitively from one another and present a diverse set of learning skills. A PBL approach is well equipped to cater to diverse learning styles and nurture a variety of learning skills. Moreover, research in EFL contexts suggests that learners who are exposed to PBL activities develop 21st-century skills that help them improve their linguistic skills and outperform learners who are taught through traditional teaching methodologies (Artini et al., 2018; Torres & Rodríguez, 2017).

A focus on vocabulary learning is warranted in EFL settings. Vocabulary is "the basic building block of language, the units of meaning from which larger structures such as sentences, paragraphs and whole texts are formed" (Read, 2000, p. 1). When children are exposed to books, they make an effort to increase their vocabulary, which is key to achieving communication (Webb & Nation, 2017). In line with this, Nation (2002) regards vocabulary as an indispensable component for language learning that is as crucial as the four skills of English (speaking, reading, writing, and listening), since the lack of vocabulary knowledge greatly hinders either proper communication or comprehensive understanding. Thus, it becomes relevant to seek teaching methodologies that can enhance young learners' L2 lexical processing. In this respect, a PBL approach with a focus on lexical development is supported by theoretical foundations. The involvement load hypothesis (Hulstijn, 2013; Laufer & Hulstijn, 2001) identifies three components, namely, "need", "search", and "evaluation", that can increase or decrease vocabulary learning depending on the extent of their presence

in an instructional task (Wang, 2020). The motivational component of "Need" is high when learners require knowledge of a word to complete a task. "Search" is a cognitive factor that is heightened when learners search for a word or ask a teacher for its meaning (as opposed to being given the translation in a text). Finally, the cognitive component of "Evaluation" is high when learners complete activities prompting them to discriminate between lexical items (e.g., fill-in-the-blank activities). The involvement load hypothesis has received support from the literature, with meta-analyses finding that learners make more vocabulary gains when the activities they complete have higher involvement load profiles (Yanagisawa & Webb, 2021). In line with this, when learners in a PBL approach seek to collaboratively access the meanings of specific vocabulary items to successfully complete a project, they activate deeper word processing that can promote lexical learning. Although PBL has been firmly established as a collaborative, learner-centred methodology in educational settings, studies addressing the impact of the approach on specific linguistic components such as L2 vocabulary in EFL settings are scarce in young EFL learning contexts. Research addressing young learners' vocabulary gains and their perceptions of the approach can shed light on these learners' lexical gains and attitudes towards PBL and can contribute to research providing theoretical reasoning when linking PBL and L2 vocabulary development. Such an approach gains further relevance in EFL contexts such as Chile, where much of the interaction that students typically have with the L2 occurs within the confines of the classroom (Cancino & Panes, 2021), and where the benefits of project-based interaction can further boost language learning. Therefore, this study sought to compare the vocabulary learning and retention of primary EFL learners assigned to either a PBL group or a group receiving regular coursebook instruction, as well as to assess the PBL group's perceptions of the learning approach. The study addressed the following research questions:

> RQ1: Do primary EFL learners learn and retain more words when exposed to a PBL approach than when exposed to coursebook-based lessons?
>
> RQ2: What are primary EFL learners' perceptions of the PBL approach?

2. Literature review

2.1 Project-based learning: Key aspects

Project-based learning (PBL) can be defined as "an inquiry-based instructional method that engages learners in knowledge construction by having them accomplish meaningful projects and develop real-world products" (Guo et al., 2020, p. 2). Thomas (2000) regarded projects as "complex tasks, based on challenging questions or problems, that involve students in design, problem-solving, decision making, or investigative activities" (p. 1). Some PBL projects are closely supervised by the teacher, while in some cases, decisions are made jointly by students and teachers. In contrast, certain projects are highly unstructured, with students having the freedom to decide on project objectives (Stoller, 2006). A project typically starts with a driving question that seeks to address a challenging problem. Driving questions organise and contextualise the learning goals in a project while awakening curiosity in learners (Boss & Larmer, 2018; Krajcik & Mamlok-

Naaman, 2006). Even when the teacher proposes the driving question, students should formulate their own questions at the beginning of the project, which will be answered as they complete the activities. Boss and Larmer (2018) highlight the importance of learner-generated questions and state that enough time needs to be allocated for learners to ask questions and think critically about how they can answer the driving question. Authenticity is pivotal in the process because a project should address a real-world context or be connected to students' personal lives in some manner. This aspect makes a project unique, boosts motivation, and enhances the feeling of achievement, as students know they are attempting to solve a real-life problem (Larmer et al., 2015). Similarly, a teacher-guided reflective stage is crucial in the PBL methodology, as it allows students to address emerging issues critically, find possible solutions, and evaluate whether the strategies used to solve an issue are appropriate (Larmer et al., 2015). Furthermore, PBL encourages learners to develop techniques to critically evaluate themselves and their peers, and to receive feedback from experts and teachers (Boss & Larmer, 2018; Stoller & Myers, 2019). Thus, PBL is intentionally carried out in groups to "harness the social power of learning" (Boss & Larmer, 2018, p. 82) and promote cultural diversity. The final product can "range from a physical artefact to an event or performance to the presentation of a solution to a problem" (Larmer et al., 2015, p. 86). Under ideal circumstances, the product should be shared with a community to reach people beyond the classroom and further reinforce its authenticity (Boss & Larmer, 2018).

2.2 PBL applications in educational settings

PBL has been adopted in most educational contexts and subject areas of the curriculum (Bender, 2012). It has been extensively applied in Science, Technology, Engineering, and Mathematics (STEM) subjects, where a hands-on approach is commonly preferred (Erdogan & Bozeman, 2015). There is ample research addressing the impact of PBL in these contexts, with results reporting that learners increase academic achievement when constructing their own learning and adapt their learning behaviours to accomplish project goals (Hsu et al., 2014; Kaldi et al., 2011; Karaçalli & Korur, 2014). Moreover, STEM learners have displayed positive perceptions and behavioural intentions towards PBL (Lou et al., 2011; Wurdinger et al., 2007). In second/foreign language learning settings, PBL appeared as a more communicative approach to English language teaching in the mid-seventies, where concepts such as teaching in a learner-centred environment and the importance of fostering learners' autonomy caught the eye of educators. Beckett and Slater (2005) indicated that it is crucial for teachers to foster students' awareness on how a second/foreign language is learnt through PBL. The four language skills are improved when using PBL since learners acquire and use language functionally (Stoller, 2006). Additionally, PBL provides students with opportunities to use the L2 in real-world environments as written and spoken output (Beckett & Slater, 2005; Slater & Beckett, 2019). Thus, Stoller and Myers (2019) created a framework based on five stages derived from earlier models that introduced PBL in language classrooms (Papandreou, 1994; Sheppard & Stoller, 1995; Stoller, 1997). The adapted steps included preparation, information gathering, information

processing, information display, and reflections. This framework considers the interactive and collaborative essence of PBL, the scaffolding instructions students need, the skill and planning needs at each stage, and the types of reflective/evaluative project feedback at the end of the project. The PBL stages also encourage autonomy, but language development is at the centre of the learning process so that teachers do not disregard linguistic components while implementing project content (Stoller & Myers, 2019).

2.3 Empirical studies on PBL and EFL learning

Evidence of the impact of PBL on learning has been reported in EFL settings. Artini et al. (2018) sought to assess the effect that PBL had on Indonesian high school EFL learners' productive skills and their attitudes towards PBL. The authors carried out a mixed-methods study with 36 junior high school students, including interviews with teachers and learners, a questionnaire, classroom observation, and productive skill assessment in a pre- and post-test design. Results showed that PBL significantly improved students' speaking and writing performance, while class observation and interview data showed that students were highly motivated when engaging in PBL activities. The researchers concluded that when students are engaged in PBL activities that allow them to connect resources to the real world, they display increased performance and positive perceptions towards the PBL methodology. Similarly, Torres and Rodríguez (2017) conducted an action research study with 30 ninth grade students in a Colombian public school located in a low-income area, aiming to assess the extent to which PBL could foster oral production. The authors presented three projects for the students to choose from, which were related to their community and portrayed a real-life problem to be solved, such as improving students' relationships to avoid hostile situations in class (e.g., peer ridicule over pronunciation), making proposals to improve school problems, and generating involvement in the neighbourhood. The authors collected data through field notes, transcriptions of students' oral production, and student interviews. Results revealed that PBL encouraged learners to increase their oral production through vocabulary learning, and that the collaborative aspect of PBL was key to increasing learning and engagement since the participants helped each other with L2 vocabulary to create interviews for the projects. Also with a focus on speaking, Benlaghrissi and Ouahidi (2024) implemented a mobile-assisted PBL approach with 91 Moroccan secondary school students. Speaking test results showed that the experimental group, which received PBL instruction through mobile-assisted projects, outperformed the group taught using only PBL and the group receiving traditional instruction. Interestingly, the group that received only PBL instruction also outperformed the group receiving traditional instruction, confirming PBL's potential to enhance speaking performance, as documented in the literature (Shi et al., 2024). Turning to writing outcomes, meta-analyses on the impact of PBL on writing have reported positive effects of the approach. For example, Cahyono et al. (2024) argued that better learning outcomes can occur when learners work on projects that are relevant to their interests, as they increase engagement and direct greater effort into their writing activities (Aubrey, 2022). In line with this, Alemneh & Gebrie (2023) found that the writing and sub-writing abilities (i.e., content, organisation of

ideas, word choice) of tenth-grade L2 learners improved after a three-month exposure to a PBL approach. The authors conclude that the impact of the PBL approach should consider the level of proficiency of the participants, as lower proficiency learners may not fully take advantage of PBL for writing development.

Focusing on vocabulary learning as a linguistic component, Shafaei and Rahim (2015) conducted a quasi-experimental study to evaluate the impact of a five-week PBL approach on the vocabulary learning and retention of 40 Iranian EFL private school learners whose ages ranged between 16 and 18 years old. Students were randomly separated into two groups of 20 students. One group was taught by means of a PBL methodology involving group work with four or five students, presentations, and activities involving magazines, newspapers, videos, and journals, while the other group received traditional, coursebook based lessons. Participants' vocabulary gains were assessed through 30 lexical items in an EFL coursebook. Post-test results indicated that the treatment group outperformed the control group in both recall and retention rates, although scores were somewhat reduced in both groups for the latter, perhaps due to the eleven weeks that elapsed between immediate and delayed post-tests. No effect size was reported, which would have been helpful to evaluate the impact of the vocabulary gains considering the somewhat reduced number of participants in each group. Addressing the impact of a PBL methodology that included digital storytelling, Nami and Asadnia (2024) assessed the vocabulary learning of 146 non-major English students. By means of vocabulary tests, reflective journals, and interviews, the authors found that learners who processed the words through collaborative digital storytelling outperformed learners who only used flashcards to learn target lexical items. Also focusing on PBL through digital storytelling, Kristiawan et al. (2022) employed a qualitative approach to assess vocabulary gains. Analysis of focus group interview data, reflective journals, and classroom interactions showed that digital storytelling embedded in a PBL methodology prompted learners to express their cultural identity, increased their motivation, and helped develop a bridge between familiar and unknown EFL vocabulary. Finally, Gómez-Ortiz et al. (2023) implemented a PBL methodology based on Instagram to explore the perceptions of 75 undergraduate learners regarding English for specific purposes vocabulary gains. Survey results revealed that learners displayed positive perceptions of technical vocabulary learning through their Instagram accounts. However, a more quantitative treatment of concrete vocabulary learning would have contributed further to validating the survey results.

Research has explored students' perceptions about PBL with respect to critical thinking, motivation, learning, and 21st century skills. Song et al. (2025) reported that college EFL learners significantly increased their critical thinking after being exposed to an 11-week online PBL course with critical thinking components. The authors also found that EFL teachers may face challenges in assessment and implementation when employing the approach. García-Varcálcel and Basilotta (2017) administered a survey assessing motivation, organisation, interaction/collaboration, and learning in relation to PBL projects with 364 learners in fifth and sixth grade in a Spanish primary school. Their results suggested that students highly valued the PBL methodology in the four dimensions identified by the

authors, particularly in the interaction/collaboration and motivation components. Similar results were reported by Yamada's (2021) study with 73 EFL high-school students. The author found that after participating in a seven-month project involving EFL and home economics (world food production), students valued the collaborative learning environment the most during the project. They also valued 21st-century skills (e.g., decision-making, analytical, and problem-solving skills) along with their motivation to learn English. Yamada concluded that PBL triggers the embracing of more active EFL learning methodologies because "team learning encourages even passive students who are accustomed to traditional one-way lectures to actively engage in PBL" (p. 14). To sum up, PBL has been positively regarded in EFL settings regarding motivation, interaction, collaboration, and 21st century skills. PBL is perceived as a methodology that nurtures a student-centred environment and prompts student collaboration and engagement. The empirical data reviewed suggest that PBL may help EFL learners improve their oral production and support learning, but research assessing the impact of PBL on vocabulary learning along with several dimensions of PBL perceptions in younger EFL learners is scarce. Most of the findings on PBL in EFL settings address perceptions of EFL learners, which calls for quasi-experimental studies that can assess specific linguistic outcomes.

3. Methodology

3.1 Research design

The present study applied a quasi-experimental design with four intact classrooms divided into an experimental group ($n = 47$) that was exposed to a PBL approach and a control group ($n = 43$) that received traditional coursebook instruction. Convenience sampling was used to select the sample, as the researchers were granted access to the educational institution. The treatment (PBL) group received instruction through a PBL methodology for seven weeks, while the control group received regular coursebook instruction for the same duration. Both the PBL and control groups were exposed to ten previously unknown target words that were later assessed by means of immediate and delayed vocabulary tests.

3.2 Participants and context

The participants in this study were 90 students (47 females and 43 males) in fourth grade (9-10 years old) at a private Catholic school in Chile. The school is a private institution but welcomes learners from lower socioeconomic levels and offers scholarships and flexible payment schemes. The school provides kindergarten, primary and secondary education along with EFL instruction starting in kindergarten. From first to sixth grade, students attend five hours of English a week including one hour in a computer laboratory. Students in all levels use traditional coursebooks portraying activities that are to be completed individually. Although the school adheres to government guidelines to teach EFL with a focus on providing learners with reading and listening activities, it began implementing PBL in 2017, when a six-year plan to include the approach in the institutional project was introduced. The SARS-CoV-2 pandemic prevented participants in the study to

engage with PBL projects in previous years, so they were not familiarised with such approaches. Nonetheless, the school requires its EFL teachers to hold CEFR (Common European Framework of Reference for Languages) Level C1, which suggests that these students have had opportunities to develop accurate linguistic knowledge during their classroom interactions. Furthermore, their teachers reported high levels of participation and engagement with the target language, which was confirmed by the learners' previous grades. The baseline proficiency of the participants was controlled by means of the reading and writing section of the Cambridge English (n.d.) Pre-A1 Starters test. The test was administered to 144 students, and those whose scores fell within one standard deviation of the mean (M = 18.93; SD = 4.31) were selected for inclusion in the study (n = 90).

3.3 Instruments

3.3.1 Baseline target word test

The lexical items selected for this study were ten words taken from unit five "I'm at the canteen" of the coursebook *Learn with Us 4* (Oxford University Press, 2019). Lee and Pulido's (2017) translation production test was first modified to be used as a baseline target word test with 24 coursebook words from unit five. Participants read an L2 word and were asked to circle the word "yes" and provide an L1 (Spanish) translation or explanation if the word was known, or circle "no" if the word was unknown. Words that were correctly translated or explained received one point, while incorrect guesses received no points. The scoring was carried out by both researchers, and any disagreement was discussed and resolved before calculating scores. The instrument was presented with instructions in the learners' L1 to reduce comprehension issues. A sample item is provided below:

1.-	*Healthy*
Yes	No
Translation or explanation in Spanish:	

Prior to its administration, the baseline target word test was piloted with 35 fifth grade students from the same school population. The pilot feedback focused on modifying item format to facilitate responses, and the replacement of the word "dine", which was very similar to the noun "dinner" included in the example item. No other comprehension issues were reported by the pilot participants. Baseline results revealed that the ten target words for which learners showed no prior knowledge were *nuts*, *raisins*, *grapes*, *butter*, *seeds*, *puddings*, *biscuits*, *sweetcorn*, *dairy*, and *healthy*.

The selected target words included eight nouns and two adjectives. The list contains three one-syllabled words, and seven two-syllabled words. According to Nation's (2012) BNC/COCA corpora of most frequent word families, two words ("healthy", "sweetcorn") are found in the 1000 most frequent word families, five words ("biscuits", "butter", "nuts", "puddings", "seeds") in the 2000 most frequent word families, two words ("dairy", "grapes") in the 5000 most frequent word families, and one word ("raisins") in the 8000 most frequent word families. Comparability was ensured, given that the target words were the same for

both groups and the baseline proficiency of learners in both groups was similar. Moreover, ecological validity was considered in the study, as the target words belonged to the unit that the participants had to review in the semester as part of the coursebook syllabus.

3.3.2 Translation production post-test

Lee and Pulido's (2017) translation production instrument was also adapted as a post-test to assess immediate learning of the ten target words (two hours after the treatment was completed) and delayed retention (two weeks after the immediate post-test). The instructions and procedures of the instrument were identical to the ones used in the baseline target word test, where learners were asked to provide an L1 translation or explanation of the word. Immediate and delayed post-tests only included the ten target words identified for the study.

3.3.3 Receptive knowledge of meaning and form (RKMF) post-test

A more sensitive vocabulary measure was also administered as a post-test. The receptive knowledge of meaning and form test (Webb, 2007) was adapted following Laufer and Goldstein (2004) and Lee and Pulido (2017) to evaluate passive word recognition. In the instrument, the target word is provided as the L2 prompt in a multiple-choice format with five L1 options. The distractors for the multiple-choice items fulfilled various aspects. They belonged to the same part of speech as the target word so that participants could activate partial knowledge of a word to select the correct answer (Webb, 2007). Lee and Pulido (2017) posited certain criteria for the distractors, along with the correct answer and a fifth option, "I don't know," which helps reduce guessing. An example item is provided below for the word "grapes":

a) frutillas	A distractor contextually proximate to the target word ("strawberries")
b) uvas	Correct answer
c) grados	A distractor phonologically or orthographically close to the TW either in the L1 or L2 ("grades")
d) puertas	A distractor not sharing any semantic or phonological relation to the target word ("doors")
c) no sé	(I don't know)

3.3.4 PBL perceptions survey

A survey assessing perceptions towards PBL (García-Varcálcel & Basilotta, 2017) was adapted for the study. The instrument explores participants' perceptions of PBL in four distinct dimensions: Motivation (how engaging the project was for students; items 1, 4, 8, and 10), Organisation (the organisation of the different tasks they achieved in the project; items 2, 12, 16, and 18), Interaction/Collaboration (the interaction and cooperation among the students and between students and teachers; items 11, 13, 14, 15, 17, and 19), and Learning (how meaningful the learning achieved in the project was for students; items 3, 5, 6, 7, and 9). The survey employs a semantic differential scale that uses pairs of opposite statements on a scale from 1 (most negative statement) to 7 (most positive statement). Some changes were made to the instrument to improve comprehension. Certain verb

tenses were modified to fit Chilean Spanish, and an item assessing reading ("I read a little/I read a lot") was removed since reading was not a skill that was explicitly encouraged by the teacher for the type of project selected. Thus, the questionnaire administered to the PBL group included 19 items in total (see appendix A). The reported Cronbach's alpha for the instrument in García-Varcálcel and Basilotta (2017) was .91, similar to the .89 value reported for the participants in the present study, which indicates high reliability.

3.4 Procedures

3.4.1 Treatment group activities

A description of the activities and exposure to the target words in each group can be found in appendix B. The activities for the treatment group can be summarised as follows. The project used in the treatment (PBL) group was "Food on wheels", which was adapted from a website providing teaching resources (Teachers Pay Teachers, n.d.). The original project was created for Maths students from fourth to sixth grade, so it was modified to suit the proficiency level and goals of EFL learners and to include the ten unknown target words identified. Based on the resources from the website, 17 modules were created together with a 16-page booklet that was handed to the participants so they could follow the steps required to complete the project. The group worked with a PBL methodology in 21 hours over the course of seven weeks (three hours per week, with classes twice a week). The participants were divided into groups of four students, with each student fulfilling a distinct role to facilitate project completion. Thus, the "supply manager" was in charge of organising all the material needed for the project; the "spokesperson" was in charge of addressing the group's questions to the teacher; the "project manager" coordinated what the group needed to accomplish; and the "timekeeper" organised how much time the group had to complete each activity. The timekeeper used a "Kanban board", which displayed a table with three columns ("to do", "doing", and "done") to organise project tasks. Before role selection, a video was shown to the students detailing the responsibilities and tasks for each role. In order to ensure that learners fulfilled their roles in their groups, the teacher explained the importance of the roles in the project and asked students to wear role tags that were handed out every week by the supply manager. Students chose the roles themselves and kept them throughout the duration of the treatment, which increased their autonomy and agency as decision makers while encouraging collaboration within the group. Role selection was also done in consideration of their young age and to ensure project completion.

At the beginning of every class, students got together in their groups, were given a folder containing the booklet, and received the instructions for the module. The activities the participants completed were focused on a food truck fair as a final product, where students would present a miniature food truck, food made of plasticine, and a menu of their own creation to an audience of students from other classes in the school. In the lessons, students were first asked to watch a video about real food trucks and were prompted to check real restaurant menus and reflect on their own personal experiences. The driving questions (How can we create a successful food truck? How possible is it to

eat fast and healthy food? Why is it important to eat healthy meals?) presented by the teacher were discussed in the groups and then with the whole class to encourage peer feedback. Students were invited to ask more questions about the topic and write them on Post-it notes, which they would stick to a wall. During the course of the project, these questions were read aloud by the teacher and students in the groups tried to answer them with their newly acquired knowledge about food trucks. In the following classes, students brainstormed ideas for their food truck and decided on the type of food they would serve. Students delivered brief presentations of their work as the project progressed so that they could appraise each other's work and provide feedback. Students also practised how to express the value of Chilean money in the L2, as the audience would be buying food from the miniature food trucks using printed play money. Since the proficiency of these young EFL learners prevented them from using the L2 exclusively to interact, using the L1 in the classroom was allowed to discuss the project, but the activities were presented in the L2.

Regarding exposure to the target words, when students started working on the menu for the food truck fair (module 8), they were first exposed to them through a PowerPoint presentation, along with lexical items that were related to the project (e.g., "appetizer", "chopsticks"). Students were asked to include the lexical items throughout the activities as follows. They heard the target words as the teacher presented them together with their corresponding image on the board. Students were asked about the type of food that they were going to offer, and they included the target words in a draft menu where they wrote the words and drew the food items. The teacher monitored whether the students were including the target words in their menus. Students practised the target words when they had to make the food items with plasticine and when they discussed them in the groups and with the teacher. Finally, during the food truck presentation the attendees were given question prompts focused on the ingredients so that the students could provide oral responses that included the target words. All the modules created for the project allowed students to ask for input including the target words in both written and spoken form, in their groups and with the teacher. Although students' projects were evaluated by means of rubrics, students were not assessed on the target words as part of class activities.

3.4.2 Control group activities

The control group was exposed to the same target words, but all the activities were based on the coursebook *Learn with Us 4* (Oxford University Press, 2019), which is part of a six-level English language coursebook series designed for young learners and pre-teens. The coursebook included seven units that were divided into various lessons covering the vocabulary of the unit, grammar points, cross-curricular activities, a story, and a culture and communication section. The unit selected for the control group was "I'm at the Canteen", which was divided into seven lessons. The control group worked on this unit for the same number of hours as the PBL group. A lesson would typically present the vocabulary items and grammar structures of the unit, which were taught through reading and listening activities, repetition, dialogues, songs, and guessing games using grammatical forms (e.g., *Have you got…?*) and tasks included in the workbook. All the

lessons in the control group included oral activities conducted in pairs or groups along with student coursebook practice. The target words were presented to these students along with other related lexical items (e.g., "appliances", "spoon") as they appeared in the coursebook unit lessons and through the different activities completed. For example, students watched videos and completed reading exercises about a canteen in the UK that contained the target words and reviewed cross-curricular content related to healthy eating. They also completed grammar (e.g., countable/uncountable nouns, quantifiers) and vocabulary activities such as crossword puzzles with images and the creation of questions and songs with food-related vocabulary that included the target words. No special focus was placed on the target words by means of summative tests, which helped maintain a similar exposure in both groups.

3.4.3 Data collection and analysis procedures

First, the Pre-A1 Starters test was administered to a larger group of fourth graders ($n = 144$) to control for general baseline proficiency. The participants sharing a similar proficiency level ($n = 90$) were administered the baseline target word test to identify the ten target words in the study. Then, both groups completed the seven weeks of PBL and coursebook instruction, respectively. Once this was achieved, the immediate translation production and immediate receptive knowledge of meaning and form (RKMF) post-tests were administered two hours after the treatment was completed. The PBL group was also administered the PBL perceptions survey. Finally, delayed translation production and RKMF post-tests were administered two weeks later to assess vocabulary retention. From a methodological perspective, the type of learning being assessed was regarded as incidental, as learners were not told in advance that they would be completing vocabulary tests (Laufer & Hulstijn, 2001; Lindstromberg, 2019). Figure 1 displays a summary of the experimental procedures conducted in the study.

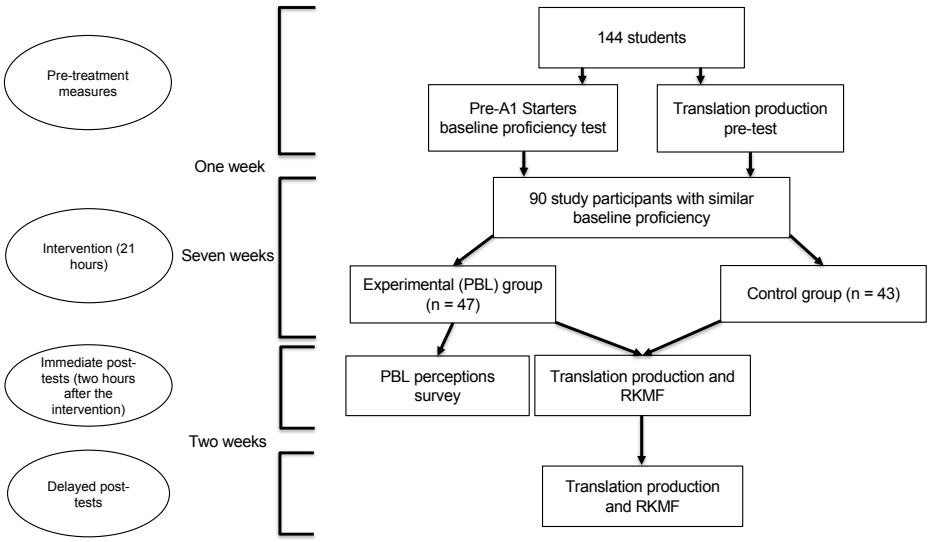


Figure 1. Summary of the experimental procedures.

Descriptive statistics were run with the translation production post-test, the RKMF post-test, and the PBL perceptions survey data. Two mixed 2×2 (treatment × time) ANOVAs were performed to assess the effect of the PBL treatment on the mean gain scores in the translation production post-test and the RKMF post-test across group and time measures.

4. Results

4.1 Descriptive statistics for the translation production and the RKMF post-tests

Table 1 displays descriptive statistics for the gain scores in the translation production and the RKMF post-tests across group and time measures. Results revealed that the treatment (PBL) group consistently outperformed the control group on both the immediate and delayed post-tests. The immediate RKMF post-test data yielded somewhat higher means, which may be due to the multiple-choice format being more receptive in nature when compared to the translation production post-test, which required learners to produce an L1 translation or explanation.

Table 1. Descriptive statistics for vocabulary post-test gain score data across groups and time measures.

Measure	Group	Statistic*	
Immediate translation production post-test	Treatment	Mean	4.36
		SD	2.36
	Control	Mean	2.74
		SD	2.29
Delayed translation production post-test	Treatment	Mean	5.43
		SD	2.34
	Control	Mean	3.93
		SD	2.43
Immediate RKMF post-test	Treatment	Mean	7.70
		SD	1.61
	Control	Mean	6.53
		SD	2.4
Delayed RKMF post-test	Treatment	Mean	7.89
		SD	1.59
	Control	Mean	6.67
		SD	1.95

*The minimum and maximum possible mean scores are 0 and 10, respectively.

4.2 Mixed 2×2 ANOVA for the translation production vocabulary post-test

The mixed 2×2 (treatment × time) ANOVA on translation production gain scores revealed simple main effects for treatment, $F(1, 88) = 11.072$, $p < .005$, $\eta_p^2 = .11$ (medium-large effect) and time $F(1, 88) = 44.394$, $p < .001$, $\eta_p^2 = .34$ (large effect), indicating that learners made significantly greater vocabulary gains in the treatment group ($M = 4.36$) than in the control group ($M = 2.74$). This difference was maintained in the delayed translation production post-test for the treatment ($M = 5.43$) and control ($M = 3.93$) groups. Significant group differences still held in the delayed post-test across treatment measures. Figure 2 displays the mean gain scores across treatment and time measures.

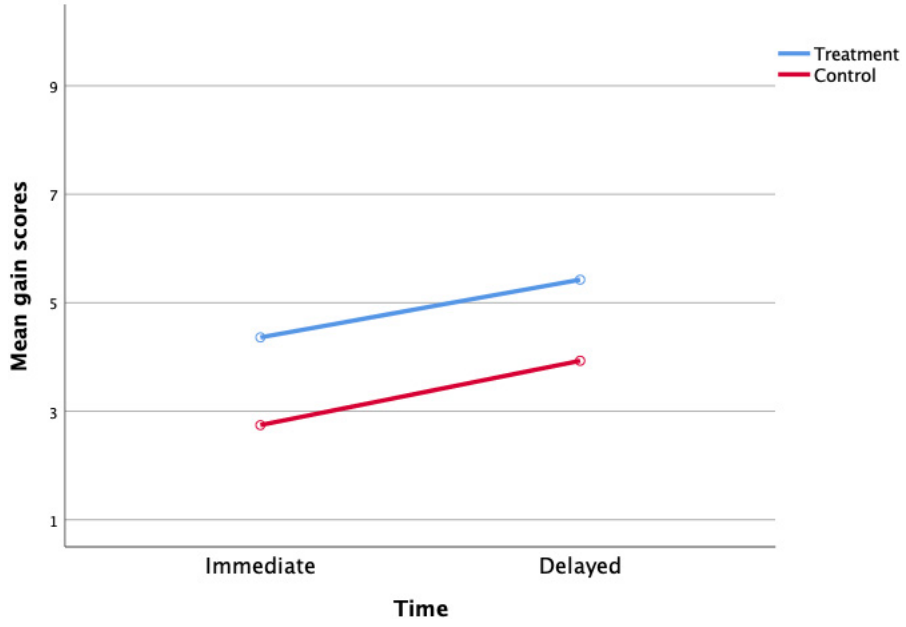


Figure 2. Gain scores for the translation production post-test data across treatment and time measures.

4.3 Mixed 2×2 ANOVA for the RKMF test

The mixed 2×2 (treatment × time) ANOVA run with the RKMF post-test reported a simple main effect for treatment, $F(1, 88) = 11.029$, $p < .005$, $\eta_p^2 = .11$ (medium-large effect), but not for time $F(1, 88) = .844$, $p = .361$. This result indicates that for the immediate vocabulary measure, learners once again made significantly more gains in the treatment group ($M = 7.7$) than in the control group ($M = 6.53$), and that this impact was maintained in the delayed measure for the treatment ($M = 7.89$) and control ($M = 6.67$) groups. The significant difference between the groups was maintained across time measures. Figure 3 displays this trend.

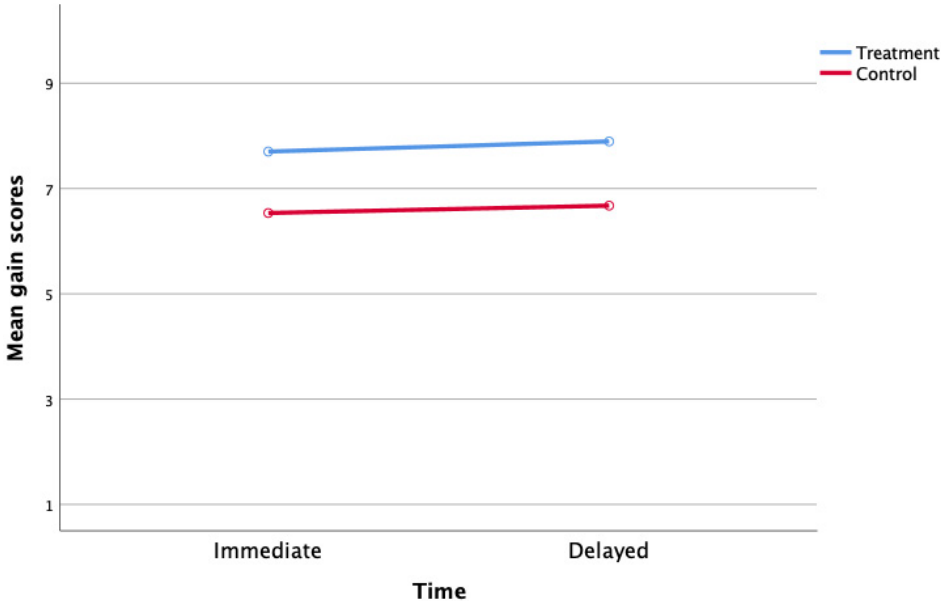


Figure 3. Gain scores for the RKMF post-test across treatment and time measures.

4.4 Descriptive statistics for PBL perceptions survey

Table 2 displays descriptive statistics for the PBL perceptions survey in the four assessed dimensions and the total mean score. Results indicate that the mean score for the four components was high, which is confirmed by the total mean score ($M = 6.09$; $SD = .66$). The highest mean score is found in the organisation component, followed by motivation, interaction/collaboration, and learning.

Table 2. Descriptive statistics for PBL perceptions survey.

	N	Minimum	Maximum	Mean*	SD
Motivation	47	2.25	7.00	6.15	.87
Organisation	47	4.75	7.00	6.24	.63
Interaction/Collaboration	47	3.17	7.00	6.05	.83
Learning	47	4.20	7.00	5.96	.69
Total mean score	47	4.21	6.95	6.09	.66

*The survey scale's minimum and maximum possible values are 1 and 7, respectively.

5. Discussion

The first research question concerned the impact of PBL on L2 vocabulary learning. The main effect for treatment found in the 2×2 Mixed ANOVAs across time measures revealed that PBL had a significant impact on the (immediate and delayed) vocabulary gains made by these learners. That is, participants learnt and retained more words when they were

exposed to a PBL methodology than when they were exposed to regular coursebook practice. The academic achievement enhanced by a project-based methodology has been reported in previous studies in STEM settings (Hsu et al., 2014; Kaldi et al., 2011; Karaçalli & Korur, 2014), EFL settings (Benlaghrissi & Ouahidi, 2024; Song et al., 2025), and L2 vocabulary learning settings (Kristiawan et al., 2022; Nami & Asadnia, 2024; Shafaei & Rahim, 2015). Interestingly, unlike the findings of Shafaei and Rahim (2015), participants in both groups did not show a decline in their retention test scores and, in fact, demonstrated significant gains in the translation production post-test. Although the delayed post-tests were administered two weeks after the immediate post-tests, learners in both groups may have continued to have exposure to the target words after the treatment (Loewen & Plonsky, 2016). In addition, the nature of the experimental design—which included the target words as a baseline test, an immediate post-test, and a delayed post-test—may have caused a test effect whereby "learners improve simply through exposure to the same test items" (Loewen & Plonsky, 2016, p. 48). Although separating the delayed post-test from the immediate test may reduce memory effects, significant group differences emerged in the immediate post-tests and were sustained in the delayed measures.

The results can be explained in terms of the characteristics of PBL practice that are developed in line with 21st-century skills and have been found to support learning in this context, namely collaboration, problem solving, social skills, and autonomy (Boss & Larmer, 2018; Boss & Krauss, 2022). First, a skill such as collaboration is deeply entrenched in PBL, as socialising the knowledge is crucial for learners to achieve a higher developmental stage while interacting with peers (Vygotsky, 1978). Boss and Larmer (2018) and Bringle and Hatcher (2009) have underscored the role of collaborative learning and the academic benefits that students can achieve through social interaction. This is supported by research in EFL settings, which suggests that the collaborative co-creation inherent in PBL can enhance language learning by encouraging learners to share responsibility in completing tasks and engage in culturally relevant, scaffolded activities that foster lexical development (Kristiawan et al., 2022). Moreover, the social learning environment nurtured in the PBL context supported meaning-making and the active construction of vocabulary knowledge (Lee et al., 2021; Nami & Asadnia, 2024). Second, problem-solving was developed by these learners as they worked on the driving questions identified at the beginning of the project. These questions increased learners' curiosity towards the topic of the project and served as an agent of motivation (Krajcik & Mamlok-Naaman, 2006) to process the target words. The food-themes project that was implemented in the study involved hands-on activities such as creating food-trucks and menus, which allowed learners to connect new lexical items to referents in the real world, and internalise those meanings through active use. Third, addressing real-world problems fostered the development of social skills relevant to EFL learning, as learners jointly participated in a language project connected to their community and explored how their school could benefit from it (Torres & Rodríguez, 2017). Thus, the project was connected to the real world and students thought that what they were doing was relevant (Bell, 2010), which may have increased their motivation in the activities and, consequently, their engagement with the target words. Social skills

were also developed when learners asked for input in both written and spoken form as part of the PBL group activities, helping them develop stronger form-meaning connections (Uchihara et al., 2022). Finally, the authenticity of the materials, the language used, and the final product created by learners supported their EFL learning and increased autonomy through a sense of ownership with the learning process (Artini et al., 2018; Nami & Asadnia, 2024; Shi et al., 2024). Larmer et al. (2015) argued that authentic activities that are directly connected to the real world can make a project meaningful through student-centred learning experiences. That is, the self-directed, real-life decisions made by these learners helped them make their learning more meaningful and relevant (Boss & Krauss, 2022), which prompted better target word learning and retention. Establishing a connection with real-world contexts is essential, as learners' ability to construct meaning and develop critical thinking are life skills that extend beyond the classroom and remain valuable throughout their lives (Gómez-Ortiz et al., 2023).

The involvement load hypothesis (Laufer & Hulstijn, 2001; Hulstijn, 2013) offers a theoretical lens for explaining the greater target word engagement and vocabulary gains observed in the PBL group. The activities completed by the participants in the PBL group included a high involvement load in the components of Need (learners needed to engage with the meanings of the target words to complete the activities for the project), and Search (learners had to ask the teacher for the meaning of the target words or look them up in the digital materials created by the teacher). While the component of Evaluation was reduced in the PBL group (learners did not complete target word discrimination activities), it can be argued that the motivational impact of Need in a PBL approach is stronger than in regular coursebook instruction. Higher target word engagement in the PBL group seems to provide support for this proposition. Although previous studies have reported high levels of student motivation towards PBL (García-Varcálcel & Basilotta, 2017; Yamada, 2021), no quasi-experimental studies including a control group to assess motivation have been conducted, perhaps due to the difficulties in administering a single instrument that can cater for motivation in both conditions. Nevertheless, these young learners increased vocabulary gains in the PBL group because they sought to access the meanings of the target words so that they could successfully complete the final product. The finding highlights the relevance of motivational aspects in activating deeper word processing levels.

The second research question addressed primary EFL learners' perceptions of the PBL approach. In line with García-Varcálcel and Basilotta (2017), results in the PBL perceptions survey revealed that participants displayed positive perceptions towards PBL in the components of motivation, organisation, interaction/collaboration, and learning. Participants reported that they were informed about the steps they had to follow and the roles they had to fulfil throughout the project (e.g., $M = 6.6$ for item 12: "The teacher did not give us clear instructions/The teacher clearly explained what we had to do"). This aspect may have boosted their confidence when completing the tasks and engaging with L2 linguistic items and structures (Stoller, 2006). The completion of the project involved an organised sequence of self-directed decisions and actions that actively engaged participants and increased their intrinsic motivation, which supported cognitive development (Ocak &

Uluyol, 2010). In line with this, the vocabulary gains made by these learners as they engaged with the project were a source of motivation for them as they processed and internalised more lexical items into their repertoire and felt more proficient (Webb & Nation, 2017). High levels of motivation can also influence the interaction/collaboration dimension, as PBL encourages learners to engage actively with peers and the teacher in working toward a shared final product (e.g., $M = 5.93$ for item 15: "We didn't do a good job with the project working as a team/We did a good job with the project working as a team"). These results are supported by studies reporting that PBL environments promote collaborative skills, engagement, and positive attitudes towards teamwork in an engaging workspace (García-Varcálcel & Basilotta, 2017; Liu et al., 2022). Students also reflected on their work and acknowledged feedback from the teacher (e.g., $M = 6.15$ for item 9: "The teacher did not tell us anything about the quality of our work/The teacher told us what we were doing right or wrong with our work"), which allowed them to assess whether the strategies they were using were appropriate for their project (Larmer et al., 2015). Learners were allowed to reflect on their vocabulary learning experiences and seek strategies for effective vocabulary learning, which may have been boosted by the collaborative nature of their interactions (Nami & Asadnia, 2024). Thus, this study supports previous findings (e.g., Yamada, 2021) suggesting that learners regard a collaborative learning environment as one of the most positive characteristics of PBL. In a vocabulary learning context, PBL can prompt learners to support each other and share responsibilities to unlock lexical meanings, such as looking up words in a dictionary or contextualising word use (Kristiawan et al., 2022).

The features of PBL discussed above prompted participants to display positive perceptions towards learning (e.g., $M = 5.62$ for item 3: "I learnt fewer things than at other times/I learnt more things than at other times"), as results for the motivation component suggest that the project was interesting (e.g., $M = 6.29$ for item 1: "The project was boring/The project was fun") and that they wanted to continue learning about the topic (e.g., $M = 5.49$ for item 8: "I am no longer interested in the topic of the project/I want to learn more about the topic of the project scored). Since the students were in control of their learning while being guided by the teacher, a positive appraisal of the learning process was created, results that are in line with García-Varcálcel and Basilotta (2017), who reported a high level of student commitment towards autonomous PBL activities. It is worth noting that when autonomous vocabulary learning is complemented by interaction among peers, motivation is increased. In addition, the authenticity of the materials used in the PBL sessions (e.g., plasticine food, food truck) nurtured visual memory, aiding learners in understanding and mentally organising word meanings (Nami & Asadnia, 2024). The positive perceptions expressed by the participants in the study contrast the attitudes reported by Beckett's (2005) participants, who felt that learning English in a conventional manner was more useful for them than with a PBL methodology. The ESL nature of the setting in Becket's study may have prompted the rather negative views towards a PBL methodology. Unlike ESL learners, learners in EFL settings have fewer opportunities to engage in real-world EFL projects outside the classroom (Cancino & Panes, 2021), so they may display higher motivation and greater enjoyment when participating in such projects.

6. Conclusions and implications for pedagogy

The present quasi-experimental study sought to assess the vocabulary learning and retention gains of two groups of young EFL learners being exposed to PBL and regular coursebook methodology, respectively, as well as to explore learners' perceptions of PBL. Results revealed the significant impact of a PBL methodology over regular coursebook instruction in relation to lexical gains, highlighting the strength of the approach for L2 vocabulary learning and contributing to the scarce evidence reported in the literature. The process of planning, developing, and presenting a project allowed for constant peer feedback, a negotiation of the word meanings to be conveyed, and a systematic revision of the completed work, features that are essential in project-based education (Liu et al., 2022). It must be noted that the results mainly focus on form-meaning connections, and that other aspects such as pronunciation and usage also constitute word knowledge. This approach to word learning was adopted in light of the participants' age and the unfamiliarity of the target words. Learners also displayed positive perceptions towards PBL in EFL environments and suggested additional attitudinal benefits that draw from 21st-century skills and are activated with the methodology. A methodological limitation of the study was related to the number of words that were assessed. Since the selected target words were taken from the coursebook used by learners and had to be unknown to them, lexical variety was somewhat reduced (e.g., no verbs were selected). Although ecological validity for these young learners was addressed in this way, increasing the number of words that are assessed can account for the wider range of lexical items to which learners are exposed in a school year.

A critical takeaway from the study is that EFL teachers can benefit their primary classrooms by including methodologies that go beyond traditional coursebook use and encourage the development of 21st-century skills. This approach does not imply that teachers should choose one methodology over the other, but that there is value in including some of the features of PBL in their lessons. PBL places learners at the centre of the educational experience, as they are decision makers in the design, planning, and execution of a project. Allowing for more autonomy and collaboration in the creation of short-term projects that do not disregard the language learning component of an EFL class will likely support learning and increase young learners' engagement through collaborative work. These "mini projects" can involve creating a poster based on learners' interests, creating a blog with relevant information for the class, or creating a family tree. They can also be more suited for students whose language and/or presentation skills are underdeveloped. Once young learners are familiarised with the basic aspects of PBL, they can move on to more complex projects that can be presented in front of an audience. A crucial aspect is the scaffolding of target lexical words, phrases, and collocations by means of specific strategies (e.g., highlighting) that can increase peer awareness (Nami & Asadnia, 2024). Teachers can also scaffold learning by allowing L1 use when learners discuss the project in their groups and switching to L2 when learners give brief presentations of their work. As PBL methodologies become more ubiquitous when responding to the challenges of the 21st

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century, the role of the teacher becomes key in supporting young learners throughout the steps required to complete a PBL project. Active engagement in young learners is crucial to focus the methodology on the child. Teachers can help accomplish this by designing authentic projects that align with learners' interests, prompting them to contribute to project creation, and ensuring sustained engagement throughout each stage. Although teachers generally value the relevance of PBL methodologies, they can benefit from being trained on how to plan and organise a PBL classroom for children who have not been exposed to the methodology before (Kaldi et al., 2011). Therefore, planning and follow-up efforts must be carefully structured, as simply providing a common space for PBL does not guarantee effective communication or collaboration (García-Varcálcel & Basilotta, 2017). PBL encourages teachers to recognize that each student possesses a unique set of skills that can be nurtured within a collaborative environment—a perspective that has become increasingly relevant in the 21st-century EFL classroom.

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Appendix A.

Semantic Differential Scale Items from the PBL Perceptions Survey (adapted from García-Valcárcel & Basilotta Gómez-Pablos, 2017)

1. *Fue aburrido (el proyecto)/fue divertido (el proyecto).*
   It was boring/It was fun.

2. *Perdí el tiempo con el proyecto/Aproveché el tiempo con el proyecto.*
   I wasted my time with the project/I took advantage of the time with the project.

3. *Aprendí menos cosas que otras veces/Aprendí más cosas que otras veces.*
   I learnt fewer things than at other times/I learnt more things than at other times.

4. *Fue interesante (el proyecto)/No fue interesante (el proyecto).*
   It was not interesting/It was interesting.

5. *No comprendí nada de lo que hicimos en el proyecto/Comprendí lo que hicimos en el proyecto.*
   I did not understand anything about what we did in the project/ I understood what we did in the project.

6. *Me distraje con el proyecto/Me enfoqué en el proyecto.*
   I was distracted with the project/I have been focused on the project.

7. *Solo copié y pegué información/Pude crear y compartir información.*
   I only copied and pasted information/I could create and share information.

8. *Ya no me interesa el tema del proyecto/Quiero aprender más sobre el tema del proyecto.*
   I am no longer interested in the topic of the project/I want to learn more about the topic of the project.

9. *El proyecto fue inútil/El proyecto fue útil.*
   The project was useless/The project was useful.

10. *No me gustó nada esta forma de trabajar en el proyecto/Me encantó la forma de trabajar en el proyecto.*
    I did not like this way of working in a project at all/I liked this way of working in a project.

11. *La profesora no me ayudó/La profesora me ayudó.*
    The teacher did not help me/The teacher helped me.

12. *La profesora no nos dio instrucciones claras/La profesora explicó claramente lo que teníamos que hacer.*

    The teacher did not give us clear instructions/The teachers clearly explained what we had to do.

13. *No compartimos materiales entre los compañeros de grupo del proyecto/ Compartimos materiales entre los compañeros de grupo del proyecto.*

    We did not share materials among the members of the group/We shared materials among the members of the group.

14. *Ahora me resulta más difícil relacionarme con mis compañeros del proyecto/Ahora me resulta más fácil relacionarme con mis compañeros del proyecto.*

    Now it is more difficult for me to talk with my project classmates/Now it is easier for me to talk with my project classmates.

15. *Trabajando en grupo no conseguimos hacer bien el proyecto/Trabajando en grupo conseguimos hacer bien el proyecto.*

    We did not do a good job with the project working as a team/We did a good job with the project working as a team.

16. *El tamaño del grupo no fue adecuado (éramos pocos o éramos muchos para hacer el proyecto)/El tamaño del grupo fue el adecuado.*

    The size of the group was not appropriate (we were too few or too many students)/ The size of the group was appropriate.

17. *No me sentí cómodo con mis compañeros/Me sentí cómodo con mis compañeros.*

    I did not feel comfortable with my classmates/I felt comfortable with my classmates.

18. *La profesora no nos decía si estábamos haciendo bien el proyecto/La profesora nos decía si estábamos haciendo bien el proyecto.*

    The teacher did not tell us if we were doing a good job in the project / The teacher told us if we were doing a good job in the project.

19. *La profesora no nos dijo nada sobre la calidad del trabajo presentado/La profesora nos dijo lo que estaba bien o mal del trabajo presentado.*

    The teacher did not tell us anything about the quality of our work/The teacher told us what we were doing right or wrong with our work.

Appendix B.

Summary of activities for the treatment group and the control group

Week/ Lesson	Treatment group activities		Control group activities
1	Module 1	- Group assignment. - DVD: Project description and roles. - Role selection. - Driving questions: Discussing possible answers.	- Main vocabulary words of the unit. - Listening activities, repetition activities, dialogues, guessing games with grammatical form have you got? - Workbook activities. - Target word exposure: *pudding*.
	Module 2	- Recapping of activities. - Booklet page 1: Food truck brainstorming. - Brainstorming result sharing.	
2	Module 3	- Booklet page 2: Questions about food trucks. - Checking other groups' work in pairs. - Booklet page 3: Name and location for food truck.	- Vocabulary word practice: song. - *is there/are there* grammar practice. - Dialogues, listening activities from workbook.
	Module 4	- DVD: Famous company logos. - Using computers to find interesting logos for food truck.	
	Module 5	- Booklet page 4: Creating logo and slogan for food truck. - Presenting logos in front of the class. - Work on feedback from other groups.	
3	Module 6	- Brainstorming session: ideas and colours for food truck. - Booklet page 5: Colouring a draft food truck. - Food truck design presentation to the class and feedback.	- Students watch a DVD about a canteen in the UK. - Reading exercise from workbook. - Vocabulary activity from workbook.
	Module 7	- DVD: Chef cooking. - Naming ingredients for dishes. - Booklet page 6: Brainstorming session: Food to be served in the food truck.	
	Module 8	- Presentation: Main vocabulary words of the unit. - Booklet pages 7 and 8: Food to be served and ingredients for the food. - Target word exposure: 10 target words.	
4	Module 9	- Booklet page 9: Menu draft. - Draft presentation to the class and feedback. - Work with materials to create menu (cardboard, glue, markers, magazines, etc.).	- Description of a healthy meal. - Target word exposure: *healthy*, *dairy*. - Workbook activities.
	Module 10	- Booklet page 10: Menu design. - DVD: How to assemble a miniature food truck. - Work on the presentation for the food truck fair.	

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Week/ Lesson	Treatment group activities		Control group activities
5	Module 11	- Booklet pages 11-16: Food truck creation under teacher supervision.	- Reading activity: A Special Cake. - Target word exposure: *nuts*, *raisins*, *grapes*, *butter*, *seeds*, *biscuits*. - Comprehension activity (true/ false).
	Module 12	- Food truck creation. - Food truck and menu presentation to the class with feedback.	
6	Module 13	- Food creation with plasticine. - Food ingredients practice.	- Grammar activities with a story. - Countable and uncountable nouns. - Quantifiers: a few, a little, some, and any. - Workbook activities.
	Module 14	- Presentation of food truck and food made of plasticine to classroom with feedback.	
	Module 15	- Food truck fair instructions. - Work on plasticine food to be sold at the fair. - Poster with questions to be answered at the fair (e.g., *How much is it?*).	
7	Module 16	- Practice for the food truck fair.	- Reading exercise. - Workbook activities. - Target word exposure: *sweetcorn*.
	Module 17	- Food truck festival: presentation of food trucks and plasticine food and interaction with audience. - Guided SWOT (strengths-weaknesses-opportunities-threats) about students' work after the food truck fair.	