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Research Paper

Characteristic Features of Problem-Based Learning in the English as a Foreign Language Classroom: A Focus Group Study

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Abstract

Problem-based learning (PBL) is a teaching method that fosters the development of problem-solving, self-directed, and collaborative skills. Several studies have explored the effectiveness of PBL in the English as a foreign language (EFL) classroom. However, our current knowledge is limited concerning the characteristic features of PBL in this context. In this qualitative study, 12 EFL teachers from both public and private institutions were interviewed in focus groups to determine the characteristic features of PBL in Hungarian EFL classrooms. Nine out of 12 teachers described 12 PBL scenarios; the four most common features reported by the EFL teachers were (1) the ill-structured nature of problems, (2) their relevance to real life, (3) small group work, and (4) collaboration. The study also found that none of the EFL teachers reported the use of self-assessment in their EFL classrooms. Furthermore, it was found that the 12 PBL scenarios described by the teachers showed 48.33% alignment on average with the original features of PBL (Barrows, 1996; Savery, 2015). The article concludes with suggestions for teachers on how PBL should be applied to exploit its full potential in the EFL classroom.

***Keywords**:* Problem-Based Learning, Problem-Solving Skills, Self-Directed Learning, Focus Groups

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1. Introduction

Problem-based learning (PBL) is an instructional method in which students learn new content by collaboratively solving complex and ill-structured problems. PBL has gained popularity since it is student-centered, develops generic skills, contributes to an integrated core curriculum, fosters motivation, and promotes deep learning (Wood, 2003). PBL was designed by Barrows and Tamblyn in the 1960s to address fundamental problems in medical education, such as extensive rote learning with little or no relevance to medical practice. Over the past decades, PBL has gained popularity in many different disciplines, including engineering, business, and teacher education (Walker & Leary, 2009).

PBL has also been introduced to the EFL classroom, and even a tutorial process was developed for its incorporation into the language classroom (Ansarian & Teoh, 2018). Numerous studies have found the PBL method effective for language learning, and in a meta-analysis, Orhan (2025) concluded that PBL is highly effective in fostering language development. These previous studies focused on exploring the extent to which PBL can enhance the development of diverse areas of language learning such as vocabulary (e.g., Lin, 2015), reading comprehension (e.g., Lin, 2018), and writing (e.g., Dawilai et al., 2021). However, these studies failed to provide deeper insight into how educators can employ PBL in the language classroom; hence, our knowledge is limited concerning the characteristic features of PBL in the EFL context.

There are significant structural obstacles to integrating PBL into Hungarian education (Csizér et al., 2025; Öveges & Csizér, 2018). Key constraints include a centralized curriculum that limits adaptation and a secondary system skewed

toward high-stakes Matura exams. Teachers also face practical challenges like large classes, mandatory textbooks, disjointed language instruction across levels, and resource scarcity. Finally, centrally dictated content undermines language teacher education programs (Csizér et al., 2025).

Therefore, in this study, 12 EFL teachers were asked to describe PBL scenarios from their classrooms. The descriptions were coded for PBL features and compared to the original characteristic features of PBL (Barrows, 1996; Savery, 2015). In this way, similarities and differences between the original features of PBL and the PBL process employed in the EFL classroom were explored. By exploring the characteristic features of PBL in the EFL classroom, we can gain deeper insight into how teachers employ PBL and point to features that might be missing from the original conceptualization of PBL. In this way, educators can refine their teaching practices. The article concludes with some suggestions on how to facilitate the implementation of PBL in the EFL classroom.

2. Problem-Based Learning

Problem-based learning (PBL) is a student-centered teaching method in which new content is learnt via solving problems. Problems are solved during a problem-based learning cycle that usually includes six steps (Hmelo-Silver, 2004). First, a tutor presents a complex and ill-structured problem that might have more than one solution. Second, students analyze the problem collaboratively by identifying facts from the problem scenario. In this way, students can understand the problem to a greater extent and can generate hypotheses about probable solutions. Next, students identify knowledge deficiencies, also known as learning issues, (i.e., the information necessary for them to solve the problem). Students collect new information, that is, they engage in self-directed learning before applying their new knowledge to solve

the problem. Finally, students engage in self-reflection, evaluating their hypotheses and reflecting on the abstract knowledge they mastered during the PBL cycle. In PBL, the teacher's role is to facilitate problem-solving by asking questions. Teachers or facilitators guide learners through the learning process.

2.1 Features of PBL

There are six core features of PBL (Barrows, 1996). First, PBL is student-centered (i.e., students are responsible for their own learning process guided by a tutor). Students' tasks involve the identification of knowledge discrepancies and sources of information. In addition, students are also responsible for sharing relevant information with their group members. By executing these tasks to solve a specific problem, students' motivation increases (Savery, 2015).

Second, students learn in small groups (five to nine learners). However, students are reassigned to new groups at the end of each problem-based scenario. In this way, students are always forced to interact with new peers. By working in small groups, students also improve collaborative skills that can also be utilized in their future workplaces. Hmelo-Silver (2004) pointed out that good collaborators know how to function effectively in a group. Therefore, effective collaborators must establish common ground, resolve deficiencies, negotiate the actions that the group might take, and come to an agreement. During collaboration, ideas are openly exchanged, and each student must engage in the tasks. Students must be able to explain their ideas to collaborate productively. In this way, learning can be enhanced. Hmelo-Silver (2004) also pointed out that the processes of becoming an effective collaborator and learning collaboratively are usually interwoven.

Third, teachers are not knowledge providers but facilitators or guides during the PBL learning process. In PBL, teachers are not necessarily experts

in the field but rather expert students who can hint at the most appropriate strategies. The learning process is scaffolded by modelling and guiding through questioning strategies (Hmelo-Silver, 2004). However, scaffolding is gradually removed as learners progress and gain more experience with PBL. In this way, learners will have more responsibilities and facilitating roles (e.g., guiding learners through the PBL cycle and checking the progress of the group). By controlling progress, facilitators make sure that each student is engaged and incentivize students to share their ideas (Hmelo-Silver, 2004). By motivating learners to justify their thinking, facilitators assure the evolution of higher order thinking skills. In addition, by asking appropriate questions, facilitators foster students' self-reflection.

Fourth, problems serve as incentives for learning; therefore, learning is organized around problems (Barrows, 1996). Problems might be presented in many different formats, such as case vignettes, written cases, or videos. In PBL, problems must be ill-structured (i.e., without a single correct solution; Hmelo-Silver, 2004; Savery, 2015). Ill-structured problems are more challenging and motivating for learners than well-structured ones. Hmelo-Silver (2004) pointed out that problems must be complex and open-ended to promote flexible thinking. In addition, problems must be connected to real life and students' experiences to enhance intrinsic motivation. Problems are considered appropriate when feedback can be provided to enable students to assess how effective their knowledge, learning, and reasoning strategies were during the PBL cycle. Problems must also foster students' argumentation strategies. Solving problems requires multidisciplinary knowledge; therefore, students must integrate knowledge from various scientific fields (Barrows, 1996; Hmelo-Silver, 2004). For example, redesigning a canteen requires multidisciplinary solutions, that is, knowledge from numerous content areas (e.g., interior design, ergonomics, and finance). Students must develop flexible

and extensive knowledge during the PBL process. Hmelo-Silver (2004) claimed that building flexible and extensive knowledge is more than just learning facts related to a specific scientific field. Instead, students integrate information from various fields. This type of knowledge is organized around fundamental principles in these fields. Furthermore, knowledge must be flexible so that students can retrieve and employ it in different situations. Students can develop flexible knowledge by taking part in various problem scenarios. Therefore, Hmelo-Silver (2004) recommended that the development of effective problem-solving skills and flexible knowledge can be promoted by designing problem scenarios in which students can use these skills. It is important that students discuss the problems presented to them to activate their background knowledge. In this way, students can better process new information since they can relate the new knowledge to prior information.

Fifth, problems are tools for the fostering of problem-solving skills (Barrows, 1996). Therefore, problems must be presented as they occur in a real-life setting. Apart from fostering problem-solving skills, PBL also promotes communicative, self-directed, and life-long learning skills (Hmelo-Silver, 2004). The development of effective problem-solving skills is at the core of PBL, since students must be able to employ suitable reasoning and metacognitive skills. A suitable strategy to solve medical problems is hypothetical-deductive reasoning, while case-based or analogical reasoning might be more appropriate in design fields such as architecture. Metacognitive skills denote students' executive control procedures, which include planning to solve problems, controlling their own development, and assessing to what extent their aims have been achieved. Metacognitive skills also play a crucial role in the development of lifelong, self-directed skills, thus enabling autonomous learning.

Finally, students master new knowledge via self-directed learning (Barrows, 1996). Students are required to collaborate with the other members of their own group. Furthermore, students discuss, review, compare, and debate their new knowledge during self-directed learning. Hmelo-Silver (2004) pointed out that metacognitive strategies are essential for the development of SDL skills. Metacognitive and life-long learning skills make autonomous learning possible. SDL involves numerous subskills. Students must possess metacognitive awareness of their own knowledge. Setting learning goals is also expected from students, and they need to identify what information is necessary to solve the specific problem. Students also need to plan their learning and choose suitable strategies to attain their goals. Finally, students must assess to what extent their goals were reached. Dochy et al. (2003) pointed out that a seventh feature might be added to the six core features: learning occurs through the analysis and solving of representative problems. Therefore, the students' competencies must be assessed by instruments pertaining to real-life and authentic problems.

A more detailed list of features is provided by Savery (2015). However, there are overlaps between Barrows's (1996) and Savery's (2015) lists of features. The main differences are that Savery (2015) highlighted that students must reapply the knowledge they gained during self-directed learning to the problem via resolution and reanalysis. In addition, students must self-assess their learning outcomes and the new concepts and principles they have learnt. It is important that students evaluate what they learned from the problem-solving process and discuss the newly acquired concepts and principles (Savery, 2015). Since PBL is a motivating and engaging form of learning, students often feel a close connection to the details of the problems and their suggested solutions. By taking part in a debriefing process, students can consolidate their new knowledge. According to Savery (2015), by requiring

students to reflect on their own learning, the self-reflective nature of learning can be reinforced, and students' metacognitive processing skills can be fostered.

Savery (2015) also emphasized that PBL activities must be closely related to real life. Students must be able to transfer the skills they learn during PBL to real-life situations. Furthermore, students must be evaluated in harmony with the goals of PBL, and PBL should be the pedagogical foundation in the curriculum and not just a separate part of it. Table 1 summarizes the main features of PBL outlined by Barrows (1996) and Savery (2015).

Table 1.

Main Features of PBL

	Barrows (1996)		**Savery (2015)**
1.	Student-centered learning	1.	Students' control over their learning
2.	Small groups	2.	Ill-structured problems
3.	Teachers as facilitators	3.	Multidisciplinary learning
4.	Problems as basis for learning	4.	Collaboration
5.	Problems as tools for fostering problem solving skills	5.	Reapplication of new knowledge
6.	New information gained via self-directed learning	6.	Final analysis
		7.	Self- and peer-assessment
		8.	Real-life activities
		9.	Harmony between exams and goals of PBL
		10.	PBL is the pedagogical foundation of the curriculum

There are five main goals of PBL (Hmelo-Silver, 2004). First, PBL helps students construct flexible and extensive knowledge. Second, PBL fosters effective problem-solving skills. Third, PBL facilitates the development of

life-long and self-directed learning skills. Fourth, PBL helps students develop effective collaborative skills. Finally, PBL promotes intrinsic motivation.

2.2 PBL in the EFL Classroom

Given the numerous benefits of employing PBL, it is not surprising that several attempts have been made to apply it to foreign language teaching (for a detailed list see Ansarian & Teoh, 2018). In a meta-analysis, Orhan (2025) investigated the effectiveness of PBL on academic achievement in the EFL classroom. It was demonstrated that the effect size of PBL is 1.067, implying a large effect. In other words, PBL was found to be highly effective in boosting language achievement in the EFL classroom. Language skills were also demonstrated by moderator analyses as a real moderator on the effect size of PBL on achievement. In contrast, study group and location, the duration of treatment, learning environment, and document type were not found to be real moderators.

Research on the effects of PBL has focused on many different areas of language learning. For example, Lin (2015) investigated the effects of PBL on learning English words at an elementary school. The participants were assigned to a control (n = 28) and an experimental (n = 28) group. The control group received lecture-based instruction, while the students were taught by PBL techniques in the experimental group. The students were asked to complete a vocabulary test before and after instruction. In addition, participants composed a topic-based written sample and completed a self-report. Lin (2015) found no significant discrepancies between the pre- and post-test results between the two groups. Nevertheless, the PBL group performed better than the control group in utilizing the off-list level vocabulary. The students in the experimental group also utilized a higher percentage of words beyond the 200-word level and produced lengthier

compositions than students in the control group. The self-report also showed that students could sufficiently engage in English discussions. Lin (2015) concluded that PBL can be utilized to promote students' ability to use and acquire vocabulary in context.

In another study, Lin (2018) investigated the effects of PBL on students' English reading comprehension. The participants were assigned to an experimental and control group. The experimental group was guided by the problem and searched for solutions on the Internet, while the control group was taught using traditional lecture-based methods. Both groups completed a reading comprehension test before and after the intervention. Lin (2018) found that the PBL group had significantly higher mean scores on the reading comprehension test in contrast to the control group.

In a more recent study, Dawilai et al. (2021) examined the effectiveness of creative writing by comparing PBL teaching and problem-based blended learning teaching. The participants were 60 EFL students enrolled in a creative writing course in Thailand. The participants were required to compose creative writing tasks alone and also in groups over 14 weeks. The authors used a pre-test-post-test research design to measure the effectiveness of the two approaches. The results indicated that students in the problem-based blended learning group outperformed those in the traditional PBL group.

Apart from investigating the effectiveness of PBL on language learning achievement, several educators have aimed to develop materials to facilitate the implementation of PBL in the EFL classroom. For example, Mishan (2011) piloted PBL on a materials development course and reported the teachers' and students' positive reflections on the PBL approach. Some scholars have attempted to combine different types of teaching methods with PBL. For example, Hsu et al. (2025) attempted to integrate Bilingual PBL (BPBL), English Medium Instruction (EMI) and Integrated Content and Language in

Higher Education (ICLHE). Merging EMI and ICLHE was found to be viable in bilingual teaching. However, the inclusion of BPBL boosts the comprehension of content and enhances linguistic development and cognitive skills. Apart from examining the effectiveness of PBL on language learning, some studies have also explored students' perceptions of PBL. For example, Azman and Shin (2023) found that undergraduate students have generally positive perceptions toward the approach. However, our knowledge is limited concerning how teachers view PBL and how they employ PBL in the EFL classroom. To be able to identify the characteristic features of PBL, we also need to review related approaches in the field of language teaching, namely, (1) project-based learning and (2) task-based language teaching.

2.3 Methods Similar to PBL

2.3.1 Project-Based Learning

The PBL method shares some characteristics with project-based learning (PjBL) and task-based language teaching (TBLT). PjBL is akin to PBL in the sense that learning activities are formed around attaining a common goal or completing a project (Kilpatrick, 1921). In PjBL, the focus is on an end product (e.g., building a treehouse or creating a website) and the students' learning process is more directed towards the appropriate procedures to do so. Students tend to face problems that require teaching during a project. Therefore, teachers act as instructors or coaches rather than facilitators or tutors, providing expert assistance, feedback, and recommendations about the appropriate ways to create the end product.

2.3.2 Task-Based Language Teaching

Task-based language teaching (TBLT) is an approach that utilizes tasks as the basic unit of instruction and planning in language teaching (Richards &

Rodgers, 2014). In TBLT, students are provided with functional tasks to enable them to exchange meaning and use language to accomplish real-life goals (Van den Branden, 2006). There are numerous definitions of tasks (for an overview see Van den Branden, 2006). In language teaching, *tasks* can be defined as "the one hundred and one things people do in everyday life, at work, at play, and in between" (Long, 1985, p. 89). For example, TBLT-type activities can involve checking into a hotel, describing people, and completing a registration form. In line with PBL, tasks completed in the classroom are strongly connected to tasks people complete in real life. However, Lin (2015) pointed out that the main difference between PBL and TBLT is how the problem is presented. In PBL, the teacher first presents the problem, while tasks are descriptive in TBLT. Furthermore, problems are the basis of further teaching activities in PBL. Students must review the problem, set new goals, review the learning process, and collect new information. As Spronken-Smith (2005) outlined, problems are the triggers of a continuous cycle of editing, review, reconsideration, and reformulation. In addition, another difference might be the level of guidance that the teacher provides.

To conclude, there are many similarities between PBL and TBLT and between PBL and PjBL. However, the main difference between PBL and TBLT is the presentation of the problem and the role of the teacher. As far as the difference between PBL and PjBL is concerned, learning is centered on the problem in PBL, while the focus is on the end product in PjBL. Moreover, teachers are facilitators in PBL, while teachers can be knowledge providers in PjBL.

2.4 Research Gap and Questions

Numerous studies have investigated the effectiveness of PBL in the EFL classroom (e.g., Dawilai et al., 2021; Lin, 2015, 2018). Although these studies

have provided a detailed view on how effective the PBL method is, our knowledge is still limited concerning the detailed characteristics of the PBL method that is used in EFL classrooms. Therefore, there is an urgent need to explore what the characteristic features of PBL are in this context. To find out how EFL teachers employ PBL in the classroom, focus group interviews were conducted. During the interviews, teachers were asked to describe PBL scenarios that were coded for characteristic features and compared with the original features of PBL outlined by Barrows (1996) and Savery (2015). This study aims to address the following research questions:

1. What are the characteristic features of the PBL scenarios described by the EFL teachers?
2. To what extent do the PBL scenarios described by the EFL teachers align with the original PBL criteria?

3. Methods

This study adopted a qualitative research design in the form of focus group interviews with 12 EFL Hungarian teachers from both public and private institutions to explore the characteristic features of PBL used in the EFL classroom. Qualitative interview data can provide a holistic understanding of the match between the PBL criteria and EFL teachers' use of PBL (Zohrabi & Nasirfam, 2024). Interviews are especially ideal for exploring teachers' perceptions and attitudes (Zohrabi & Khalili, 2025). In the following subsections, the context, the participants, the development of the PBL Criteria, and the data analysis will be presented.

3.1 The Context

In Hungary, the National Core Curriculum (NCC) directs primary and secondary education. The NCC requires students to study their first foreign

language in Grade 4, while the second foreign language must be introduced in Grade 9. The number of weekly foreign language classes ranges from three to five. However, this number can be more depending on the program. There are both general and vocational tracks in the secondary education system. The duration of secondary education ranges from four to eight years. Some institutions also offer one-year intensive language learning programs to enhance students' foreign language skills prior to entering Grade 9. Students must pass the Matura exam, a school-leaving exam, to complete their secondary studies. As part of the Matura, students are also required to take an exam in at least one foreign language at the B1 or B2 level of the Common European Framework of Reference (CEFR; Council of Europe, 2020).

The implementation of PBL might pose some challenges in the Hungarian education context for numerous reasons (Csizér et al., 2025; Öveges & Csizér, 2018). First, the curriculum is mostly standardized and regulated by the government. In this way, educators are limited in modifying the curricula to accommodate students' diverse needs. Second, secondary education is heavily based on exams. Formal assessments are used during the secondary school years, culminating in proficiency-based Matura exams. The results of the Matura exam serve as the basis for admission to universities. Third, there are numerous challenges for primary and secondary school teachers that include large class sizes, obligatory course book selection, students' inability to learn the same foreign language when transitioning from primary to secondary school, and resource availability (Csizér et al., 2025). Finally, there are several problems with language teacher education due to its centrally regulated content and that its outcomes and educational requirements cannot be sustained (Csizér et al., 2025).

3.2 Participants

Criterion sampling was used to recruit participants for this study (Dörnyei, 2007). The criterion for participation was to have some teaching experience with PBL. An email was sent out to five public and private schools in Hungary to recruit the participants. A total of 12 EFL (10 females and 2 males) teachers met the criterion; therefore, they participated in the focus group interviews. The participants were recruited from elementary, secondary, and private language schools in Hungary (see Table 2).

Table 2.

Participants

Participant	Age	Teaching experience	Gender	Institution
A	27	6	male	secondary, private
B	32	8	female	secondary
C	26	7	female	secondary
D	44	21	female	elementary, private
E	32	8	female	secondary, private
F	50	26	male	elementary
G	52	28	female	elementary, secondary
H	62	38	female	elementary, secondary
I	36	12	female	elementary
J	37	13	female	elementary
K	54	30	female	elementary, secondary
L	40	16	female	elementary, secondary
Mean	41	17.75		

3.3 Focus Group Interviews

Focus group interviews are ideal for collecting opinions and viewpoints of participants (Ho, 2006). In addition, focus groups are ideal for generating ideas that can inform the creation of questionnaires (Dörnyei, 2007). Therefore, to explore teachers' views, experiences, and opinions concerning PBL, focus groups were selected as a method of inquiry.

Prior to conducting the focus group interviews, an interview guide was designed and piloted. The language of the interview guide was Hungarian. The focus groups interviews were held online. The participants were assured that the results would be reported anonymously; therefore, teachers were assigned letters from A to L (Teacher A - Teacher L). During the focus group interviews, the EFL teachers were asked to give detailed examples of their applications of PBL in the classroom.

There were two moderators during the focus group interviews. The first moderator asked the questions from the interview guide, while the second moderator paid careful attention to maintain the flow of the discussion and intervened when a participant started to dominate the discussion or motivated shy respondents to engage in the discussion. The moderators swapped roles in the middle of the focus group interview. The moderators could also ask follow-up questions when an interesting topic emerged. The interviews generally lasted for 90 minutes.

3.4 Development of the PBL Criteria

To answer the research questions, PBL criteria were developed. First, Google Scholar was searched for manuscripts with the key word “problem-based learning”. Second, the first ten manuscripts were selected that received the highest number of citations (see Appendix). Third, the manuscripts were screened for characteristic features. Four sources were selected that listed the characteristic features of PBL: Barrows (1986, 1996), Barrows and Tamblyn (1980), and Savery (2015).

Ten criteria were created based on the characteristic features of PBL outlined in Barrows (1996) and Savery (2015). Two criteria were related to the nature of problems, and seven criteria were in connection with the students, while one criterion was related to the role of the teacher (see Table 3).

1. Problems are ill-structured: A problem is coded *ill-structured* when it is complex with no single right answer, requiring critical thinking and creativity. For example, *redesigning the canteen* was coded *ill-structured* since there are multiple ways to redesign a canteen, requiring students to use their critical thinking and creativity to solve the problem. In contrast, *calculating the amount of paint necessary to paint the canteen* is a well-structured problem that can have only one answer.

2. Problems are related to real life: To fulfil this criterion, problems must have a close connection to the students' daily lives. For example, *redesigning the school canteen* can be considered a PBL scenario because it is possible that students might be asked to redesign one of the facilities of their school. In contrast, *how would you plan to travel to Mars* cannot be qualified as a problem closely connected to real life because the likelihood that the students will participate in a Mars landing operation is close to zero.

3. Students work in small groups: PBL scenarios require forming groups of minimum three to five students.

4. Students gain new knowledge via self-directed learning: To meet this requirement, students have to identify knowledge gaps, collect and share new information with the other members of the group, and use this information to solve the problem.

5. Students must collaborate: To satisfy this condition, students are required to share new information with the other members of the group.

6. Students must integrate knowledge from multiple disciplines: To fulfil this criterion, students had to integrate new knowledge from more than one discipline. For example, *redesigning the school canteen* requires students to integrate knowledge from interior design, gastronomy, and ergonomics.

7. Students must reapply their new knowledge: To meet this requirement, students are required to reapply the new knowledge they gained during the self-directed learning phase.

8. Students must engage in self- and peer-assessment: To strengthen the self-reflective nature of learning and foster metacognitive processing skills, students are required to engage in self- and peer-assessment (Savery, 2015). To fulfil this requirement, students must take part in self- and/or peer-assessment.

9. Students must engage in a final analysis: To consolidate learning, students must engage in a final closing analysis. In this way, students can reinforce what they learned from solving the problem and discuss what principles and concepts have been learned (Savery, 2015).

10. Teachers act as facilitators: To fulfil this criterion, teachers must facilitate self-directed learning by asking questions from students to better manage and understand the problem (Barrows, 1996). Scenarios in which teachers give students a lecture, provide factual information, and tell students whether they are right or wrong do not fulfil this criterion.

Table 3.

PBL Criteria

1.	Problems are ill-structured
2.	Problems are related to real life
3.	Students work in small groups
4.	Students gain new knowledge via self-directed learning
5.	Students must collaborate
6.	Students must integrate knowledge from multiple disciplines
7.	Students must reapply their new knowledge
8.	Students must engage in self- and peer-assessment
9.	Students must engage in a final analysis
10.	Teachers act as facilitators

3.5 Data Analysis

To answer the first research question, the recorded interviews were transcribed and coded for the main characteristic features of PBL using the above PBL criteria (see Table 3) based on Barrows (1996) and Savery (2015). Two researchers coded the interviews using the PBL criteria and the inter-coder reliability was .91. Disagreement was resolved by discussion. Since there are many similarities between PBL and TBLT and between PBL and PjBL, careful attention was given to identify PBL scenarios and not to confuse them with possible PjBL and TBLT scenarios. Special attention was paid to the presentation of the problem and the role of the teachers in the scenarios described. Furthermore, to distinguish PBL and PjBL, careful attention was given to the teachers' role (e.g., as facilitators or knowledge providers) and if learning was centered on a problem as in PBL or the focus was on the end product as in PjBL.

To answer the second RQ, percentages were calculated between the PBL scenarios described by the EFL teachers and the PBL criteria (see Table 3) to establish to what extent the PBL employed in the participants' EFL classrooms aligns with the original conceptualization of PBL.

4. Results

4.1 RQ1. What are the Characteristic Features of the PBL Scenarios Described by the EFL Teachers?

During the focus group interviews, nine teachers listed 12 PBL scenarios that they employed in their EFL classroom. There were three teachers whose descriptions of the scenarios did not match any of the PBL criteria. Table 4 shows the PBL scenarios described by the teachers. In all 12 PBL scenarios, teachers reported that problems constituted the basis for learning, which is a basic requirement of PBL. Therefore, these scenarios were coded as PBL

scenarios. However, the EFL teachers also described other learning scenarios in which problems were not the basis for learning. These scenarios were excluded from the analysis.

Table 4.

PBL Scenarios

				PBL criteria									
				1	2	3	4	5	6	7	8	9	10
Learning scenarios	Teacher	Total number of ticks	Percentage of matches	Problems are ill-structured	Problems are related to real life	Students work in small groups	Students gain new knowledge via self-directed learning	Students collaborate	Students integrate knowledge from multiple disciplines	Students reapply their new knowledge	Students engage in self- and peer-assessment	Students perform a final analysis	Teachers act as facilitators
7	A	8	80	✓	✓	✓	✓	✓	✓	✓			✓
9	A	8	80	✓	✓	✓	✓	✓	✓	✓			✓
11	I	8	80	✓	✓	✓	✓	✓	✓	✓			✓
10	I	7	70	✓	✓	✓	✓	✓	✓	✓			
3	E	6	60	✓	✓	✓	✓	✓	✓				
8	G	5	50	✓	✓	✓	✓	✓					
4	B	5	50	✓	✓		✓		✓	✓			
1	D	4	40	✓		✓		✓	✓				
12	J	3	30	✓		✓		✓					

5	B	2	20	✓	✓							
6	C	1	10		✓							
2	H	1	10	✓								
Number of ticks/PBL criterion				11	9	8	7	8	7	5	0	0	3

As far as the nature of problems is concerned (Criterion 1–2), 11 out of 12 problems were ill-structured in the 12 PBL scenarios described by the EFL teachers. In other words, the EFL teachers provided problems that had more than one solution. Finally, nine out of 12 problems were related to real life events. Several teachers emphasized the importance of real-life events during the focus group interviews.

As far as students' roles are concerned (Criterion 3–9), in eight out of 12 PBL scenarios, students worked in small groups in the EFL classroom. In scenarios 2, 4, 5, and 6, teachers used pair work instead of small groups for different reasons. For example, Teacher B believed that class discipline can be controlled more easily if students work in pairs and not in small groups. As far as knowledge is concerned, in seven out of 12 PBL scenarios, teachers explained how students gain new knowledge during self-directed learning. In the other five scenarios, teachers did not provide a detailed account of how students gain new knowledge in the EFL classroom. In eight out of 12 PBL scenarios, teachers reported that students are required to collaborate. Teachers reported in seven out of 12 PBL scenarios that their students were required to integrate knowledge from different disciplines. In only five out of 12 PBL scenarios, teachers reported that their students were required to reapply their new knowledge gained during the self-directed learning process. Interestingly, none of the EFL teachers mentioned that they asked their students to engage in self-assessment. Similarly, none of the teachers reported asking their students to participate in a final closing analysis.

Finally, as far as teachers' roles are concerned (Criterion 10), teachers emphasized the teacher's facilitative role in only three scenarios. In the other PBL scenarios, teachers reported that they acted as both facilitators and knowledge providers simultaneously.

In the following, more detailed descriptions are only provided for Scenarios 7, 9, and 11 because of their high alignment score and the presence of one of the distinctive features of PBL (i.e., teachers' role as facilitators).

PBL Scenario 7: "Redesigning the canteen" (Teacher A)

PBL Scenario 7 took place in three subsequent 45-minute classes in a secondary school. Students were asked to redesign their school canteen with limited amount of money available (3000 euros). The teacher created three groups (4–5 students) and the students started discussing the information they needed to solve the problem. Teacher A reported that students collected information about interior design, healthy diet, and costs. Teacher A also assigned responsibilities to each student to motivate them (see Excerpt 1).

Interview Excerpt 1. (Teacher A)

> *I like assigning responsibilities to each student in a group because in this way even the lazier students must also work on a particular task. By giving them responsibilities, I can also assess the students individually, it is easier for me.*

Next, students had to share their information and discuss whose ideas would be accepted. In the subsequent class, students had to revisit the problem; however, the teacher assigned each student to a different group and students could collect more information concerning the problem. The students were once again reassigned to a different group in the last class of the PBL cycle. On the final day, students presented their solutions in plenum.

In Scenario 7, students could expand their vocabulary by learning words related to items of furniture (e.g., tray, cutlery, vending machine), personnel (e.g., canteen staff, dinner lady/canteen assistant), and actions (e.g., queuing, recess/lunch break, clatter). In terms of grammar, students could practice the use of modal verbs such as *would*, such as "I would paint the walls yellow" or "I would give more food selections to students". Apart from improving vocabulary and practicing modal verbs, students could practice speaking and listening skills while taking part in the discussions.

PBL Scenario 9: "Organizing a camp" (Teacher A)

PBL Scenario 9 took place in three subsequent 45-minute classes at a secondary school. The students had to organize a summer school camp with a limited amount of money available (1000 euros). The teacher assigned the students to three groups of 4–5 students and asked them to collect information that they needed to solve the problem. Teacher A reported that students collected information about possible locations for the camp, activities that students could engage in, and health and safety issues. In the second class, students were reassigned to different groups and were asked to collect more information and share it with their new groupmates. This process was reiterated on the third class. Finally, students presented their solutions to the problem.

In PBL Scenario 9, students learnt new lexical items related to camping such as essential gear (e.g., tent, sleeping bag, backpack/rucksack, flashlight/headlamp, lantern), tools and navigation (e.g., compass, multi-tool, first-aid-kit, tarp), campfire and cooking (e.g., kindling, tinder, billycan), and environment and activities (e.g., campsite/pitch, trailhead, terrain, leave no trace). As far as grammar is concerned, students could practice modal verbs as

in the previous scenario. In addition, students could practice speaking and listening skills during the discussion of the different ideas.

PBL Scenario 11: "Water pollution" (Teacher I)

PBL Scenario 11 took place in two subsequent 45-minute classes at an elementary school. Teacher I was a teacher of English and chemistry and presented the real-world problem of water pollution to the students. Furthermore, a sample was taken from a nearby river and presented to the students to demonstrate the real problem of water pollution. The teacher provided the necessary equipment for the experiment, such as cotton wool, oil, and detergent. The students were asked to collect information on how they can check the extent of water pollution. The teacher assigned the students to four groups of 3–4 students, who collected information and shared their knowledge with the others. In the second class, the students were reassigned to different groups and were asked to collect more information and share their new knowledge. Finally, the students could perform the experiment. Teacher I emphasized that students were intrinsically motivated during the experiment:

Interview Excerpt 2 (Teacher I)

Although it is a very basic experiment, students were enthusiastic about it.

In PBL Scenario 11, students could expand their vocabulary by learning lexical items related to types of pollutants (e.g., effluent, heavy metals, microplastics), how pollution occurs (e.g., point and non-point source pollution, runoff, seepage), and environmental effects (e.g., algal bloom, dead zones, turbidity). As far as grammar is concerned, students could practice the use of *need* (e.g., "you need to put the cotton wool into the pipe"). Furthermore, students could practice reading skills by carefully following instruction on how to measure water pollution. Students could also practice speaking and listening skills while participating in the discussions.

4.2 RQ2. To What Extent do the PBL Scenarios Described by the EFL Teachers Align with the Original PBL Criteria?

The alignment between the features of the original PBL criteria (Barrows, 1996; Savery, 2015) and the features of the PBL scenarios described by the EFL teachers ranged between 10% to 80% with an average of 48.33%. On the one end, there were two PBL scenarios with a percentage of 10: Scenario 6 and Scenario 2 lacked 90% of the main features of PBL. On the other end, there were three PBL scenarios (7, 9, and 11) with a percentage of 80, meaning that there were only two features that did not align with the original PBL criteria.

The four scenarios with the highest similarity scores (Scenario 7, 9, 10, and 11) were described by only two EFL teachers. In other words, one third of the PBL scenarios were described by one sixth of the participants. This might imply that these two teachers were either more familiar with PBL than the other teachers, or they were more compliant with the original PBL criteria than the others, whereas the other participants were more prone to modifications of the original PBL criteria.

5. Discussion

This study found that the four most common features reported by the EFL teachers were (1) the ill-structured nature of problems, (2) their relevance to real life, (3) small group work, and (4) collaboration. Hmelo-Silver (2004) claimed that problems should be open-ended and complex to boost flexible thinking, while activities used in PBL scenarios must be valued in real life (Savery, 2015). The relatively high frequency of Criterion 1 and 2 is likely related to the inherent nature of PBL. In PBL, problems function as the basis of learning and problems must be ill-structured and connected to real-life events. The third most frequent criteria (Criterion 3 and 5) were related to students working in small groups collaboratively. These findings are in line

with Barrows (1996), who claimed that small groups are ideal for effective and diligent work among multiple peers, while Savery (2015) pointed out that "collaboration is essential" in PBL (p. 8).

In PBL Scenarios 7, 9, and 11, the problems formed the basis for the learning process. All three problems in PBL Scenarios 7, 9, and 11 were ill-structured and related to real-life situations as outlined in Savery (2015), as students might organize simple events (e.g., holidays) or redesign their homes or offices during their life. Furthermore, students might carry out basic research in their everyday life in which they have to follow instructions. Scenario 11 was also an example of content and language integrated learning (CLIL) since students learned chemistry through English.

In PBL Scenarios 7, 9, and 11, the students were in the center of the learning process and responsible for their learning process. Teacher C also emphasized that he made sure that each student was responsible for their own learning by giving them special roles. Students worked collaboratively in small groups and gained new knowledge via self-directed learning in line with the literature (Barrows, 1996; Savery, 2015). In PBL Scenario 7, students gained new knowledge concerning interior design, ergonomics, food science, and nutrition, while in PBL Scenario 9 students learnt about environmental science, health and safety issues, and outdoor education. In PBL Scenario 11, students learnt about environmental science and chemistry. In other words, students integrated new knowledge from various disciplines in line with the literature on PBL (Savery, 2015). Students were also asked to reapply their new knowledge in PBL Scenarios 7, 9, and 11.

Most importantly, teachers did not provide new knowledge but rather acted as facilitators in PBL Scenarios 7, 9, and 11 in line with Savery (2015) and Lin (2015). In this way, students became responsible for collecting information and hence became responsible for their own learning process. Furthermore,

students had to make decisions about sources and the accuracy of information. In this way, students could improve their critical thinking, which is one of the strongest predictors of academic achievement and speaking ability (Soodmand Afshar et al., 2014; Soodmand Afshar & Rahimi, 2014).

There was a close alignment between the features of the original PBL process and the PBL process employed in the participants' EFL classrooms. As demonstrated in Table 4, the similarity scores were 80% for PBL Scenarios 7, 9, and 11. This means that there were two features that did not align with PBL. In PBL Scenarios 7, 9, and 11, students did not engage in self- or peer-assessment. In addition, students were not required to engage in a closing analysis, as recommended by Savery (2015). The finding that teachers did not use self- and peer-assessment is in line with Butler (2023), who claimed that there is a reluctance from both teachers and students to use self-assessment in EFL classrooms. First, teachers are skeptical about the accuracy of their students' self-assessment. Second, students are not aware of the benefits of self-assessment. However, research demonstrated that self-assessment and students' speaking accuracy and fluency are positively associated (Alibakhshi & Sarani, 2014).

6. Suggestions for Teachers

Based on the findings of this study, teachers are advised to carefully consider the suggestions outlined below to explore the full potential of PBL.

1. Problem: Teachers should carefully select an ill-structured problem that has more than one solution. The problem should be related to a real-life situation, and its solution should require the integration of new information from multiple disciplines.

2. Students' role: Students should work collaboratively in small groups to solve problems and should be reassigned to new groups on each occasion. To

achieve this, teachers must carefully plan their classes ahead. More importantly, students should engage in self- and peer-assessment, and a final analysis should be conducted to check their own progress. This study found that none of the 12 EFL teachers required their students to engage in self-assessment. Consequently, teachers' attention should be drawn to the benefits of self-assessment in the EFL classroom (Butler, 2024; Wind & Zólyomi, 2022). For example, students could be given a rubric and asked to fill it in after each PBL cycle has terminated.

3. Teacher's role: Teachers should not provide new information but rather should act as a facilitator. Acting as facilitators in the EFL classroom is a distinctive feature of the PBL process. Therefore, teachers must pay careful attention not to act as knowledge providers.

7. Conclusion

This study explored the characteristic features of PBL in the EFL classroom. The findings show that there is close alignment between the original features of PBL and the features of the PBL scenarios described by the EFL teachers. However, this study found that EFL teachers do not exploit the full potential of PBL. For example, students were not required to engage in self- and peer-assessment in the PBL scenarios described. Although PBL became an effective method to learn new content in natural and social sciences, it did not become widely used in language education (Richards & Rodgers, 2014). One of the reasons might be that teachers are not fully aware of the determining features of PBL. Therefore, EFL teachers tend to apply TBLT and PjBL rather than PBL in the EFL classroom. Moreover, PBL might require more time-consuming preparation that might deter EFL teachers from its application. However, PBL has numerous benefits, such as fostering students' emotions

(Jdaitawi, 2020), which play an important role in motivated learning behavior among Hungarian EFL learners (Albert et al., 2024).

This study has several limitations. First, the study is based on self-reported data. Teachers might have described idealized or socially desirable scenarios of their own practice rather than what actually occurred in their classroom, representing a significant threat to validity. Second, a small and homogenous sample was used from one single country, which limits the generalizability of the findings. Third, the study lacks triangulation since the findings are based solely on teacher interviews. Observational data would have provided a more reliable and much richer picture of the PBL features in action. Fourth, focus group interviews might elicit specific kinds of socially acceptable opinions (Smithson, 2000). Fifth, particular types of interviewees might dominate focus group interviews. However, in this study, the second moderator paid careful attention to this issue and asked those participants to contribute who seemed less active during the discussions. Nevertheless, it cannot be excluded that some participants' replies might have influenced those of the other interviewees.

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