

ARTICLE

## Evaluating the Quality of Research on Problem-Based Learning in Korean English Classrooms

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### ABSTRACT

Alongside the increasing concern of the Korean state in preparing for the 4th Industrial Revolution (4IR) era, Korean national (English language) curricula are being reconstructed to educate students about criticality, creativity, communication, and collaboration. Problem-based learning (PBL) is one of the effective pedagogical approaches to facilitate these competencies alongside different disciplines including English language competency. Thus, teachers and teacher educators in Korean English language teaching (ELT) need quality-assured research cases that address PBL-based ELT programmes in the Korean context for their references. In this study, the qualities of research on PBL-based ELT programmes in Korea are systematically reviewed, focusing on aspects of the statement of research purposes, conceptual frameworks of PBL, procedures of PBL application, evaluation of the PBL effects, and revealed limitations, and implications for improvement. Based on the findings, implications for improving research on PBL in Korean ELT are discussed.

**Keywords:** Problem-based learning (PBL); English language teaching; Systematic review; Implementation of PBL; Quality of research

### 1. Introduction

In the midst of the Fourth Industrial Revolution (4IR) era, the Korean state has recently endeavoured to update its national curricula. Korean education policies and systems

are reported to have limitations in nurturing competences needed in the new era such as creative problem-solving. This is because the education system has focused on training students for the Korean Scholastic Aptitude Test (KSAT) (Lim and Kye, 2019). Alongside the onset of the new era and

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considering experiences with pandemics, climate changes, and a changing environment, individuals optimized for gaining high test scores may face disadvantages. Thus, the Ministry of Education (MOE) in Korea started to emphasize enhancing learners' skills and competencies to effectively respond to uncertainty, complexity, and variability (MOE, 2021, 2022). This shift requires developing agency among students (OECD, 2019), in order to assist them to actively and autonomously establish their goals, procedures, and strategies for problem solving, and bring about changes and improvements in and through problem solving (Han, 2023a). The development of agency and autonomy is critical for both effective learning and real-life problem-solving among learners in the new era.

Korean national English curricula, alongside other subject areas, have undergone improvements to align with the changing orientation of education. They focus on developing students' competencies in communication, self-management, collaboration, and information processing, aiming to cultivate individuals who are adaptable to the complexities, uncertainties, and variabilities of society and social problems (MOE, 2022). This approach requires teachers to practise pedagogies that promote students' interdisciplinary learning, real-life-based learning, and reflective practices. Learner participation, thinking processes, and problem-solving activities are encouraged to enhance these competences (MOE, 2022). These competences and related activities are considered the foundation for improving the communicative competencies of language learners. Problem-based learning (PBL) is one of the pedagogic methods that enable learners to engage, interact, and address real-life issues through goal-setting, procedural planning, critical thinking, problem-solving, and reflection, enhancing language competencies (MOE, 2015, 2022).

Different from the teacher-led, text-based traditional teaching approach, in PBL, teachers work as facilitators, students have responsibility as self-directed learners, and ill-structured problems are suggested (Savory, 2006). Through PBL, students identify their problems, sort out learning issues, design strategies to resolve them, apply the strategies, evaluate the effects, and reflect on the processes and outcomes in collaboration and communication (Han, 2023a; Hmelo-Silver, 2004). Given all stages of problem-solving requires the sharing of different knowledge, information, and opinions, and constant, multiple negotiations of differ-

ent meanings, students in PBL significantly interact with each other and improve self-directed learning readiness (Han, 2023a). Through dynamic interactions and communications, they also naturally develop language competencies (Ansarian and Lin, 2018) along with sociality, criticality, and several cognitive and metacognitive skills.

While PBL offers several pedagogical benefits for realizing the language education required in the new era, it has not been widely performed in Korea, particularly in English language teaching (ELT). According to Park (2012), its inactivity seems to reside in Korean teachers' difficulties in designing pedagogical problems, managing the learning processes, giving feedback, and assessing the learning process and outcomes, as well as their concern about students' inability in discussion and self-directed learning. The teachers also recognized that parents would not welcome the adoption of PBL due to its ineffectiveness for KSAT preparation. Keum (2019) mentioned teachers' teaching beliefs and school environment as factors that narrow PBL implementation.

In this sense, identifying pedagogically sound cases of PBL application in Korean English classrooms would provide English teachers with reasonable rationales for considering PBL implementation and designing context-sensitive PBL-based ELT programmes. Thus, the research should be sufficiently systematic and transferrable to reduce the resistance or suspicion of teachers, teacher educators, and other stakeholders towards PBL as an effective ELT pedagogy. Thus, in the current study, the researcher investigates the quality of research on PBL-based ELT programmes in Korea, considering aspects of the statement of research purposes, conceptual frameworks of PBL, procedures of PBL application, evaluation of the PBL effects, revealed limitations, and implications for improvement; the review of specific procedures, types, and attributes of PBL implementation is addressed in another separate research project by the researcher.

For research to ensure the reliability and quality of research, duplicating the pedagogical experiments conducted in the research should be feasible and yield a similar outcome to the original study. In this sense, quality empirical research on PBL-based ELT should clearly and systematically describe its research processes and findings. Thus, the research evaluated as high-quality will become valuable resources for teachers and teacher educators interested in implementing

PBL in ELT.

Based on the findings, implications for improving research about PBL-based ELT programmes are discussed.

## 2. Principles of problem-based learning

PBL is a learner-centred pedagogical approach that empowers learners to construct knowledge through research, integration of theory and practice, and application of knowledge and skills to develop solutions (Savery, 2006). Introduced in the 1980s and 1990s as a method to improve the lecture-centred traditional teaching approach and realize student-centred, multidisciplinary education in medical schools in North America and Europe (Barrows and Tamblyn, 1980), PBL is now widely utilized. Its effectiveness has led to its application in various fields such as engineering (Walker and Leary, 2009), business English courses (Xie, 2022), and pre-service teacher education (Han, 2024; Hmelo-Silver, 2004).

According to the studies by Han (2022a, 2022b, 2023a, 2024) and Hmelo-Silver (2004), the PBL process can be summarized into four stages: problem definition, strategy design, strategy implementation, and implementation evaluation. In the first stage, problem definition, students attempt to clarify what they know and what they need to know for problem-solving, creating learning issues to solve together. They share existing knowledge and information related to the issues, specify challenges, and set goals for solving the problem. In the strategy design stage, students formulate resolutions through meaningful negotiations by associating what they know and found, applying accustomed heuristics, or creating new resolutions. In the stage of strategy implementation, while applying their strategies to the problem context, they monitor the responses and the appropriateness of their strategies. In the final stage of implementation evaluation, students reflect on the process and outcomes of their solving. By comparing the initial goals and the outcomes, they judge the success or failure of their problem-solving. Recognizing success, they can confirm the different knowledge and meanings applied to problem-solving. In case of failure, they may modify their meanings and strategies based on their collective, collaborative reflective practices.

Throughout each stage, students constantly exchange knowledge and opinions and negotiate different meanings

to select appropriate content, directions, and ideas. These processes constitute metacognitive monitoring. They often encounter the need to change their knowledge, thoughts, and opinions to enhance problem comprehension, strategy design, and strategy revision. Thus, they also experience metacognitive regulation. In this sense, problem-solving processes are metacognitive activities (Han, 2023a; Kek and Huijser, 2016) enabling students to continuously reflect on their taken-for-granted concepts, gradually advance in cognition throughout the learning process (Savery, 2006), and foster metacognition and higher-order thinking ability (Hmelo-Silver, 2004; Torp and Sage, 2002). Furthermore, through PBL, students develop information searching ability (Schroeder and Zarinia, 2001), teamwork and collaboration skills (L'Ecuyer et al., 2015), self-directed learning readiness (Han, 2023a), and positive attitudes towards their learning (Chun, 2021).

Meanwhile, project-based learning (PjBL) is based on similar and dissimilar frameworks to PBL. PjBL facilitates students' critical thinking, research activity, collaboration, communication, and problem-solving (Zhang and Ma, 2023) as PBL does. However, PjBL was initiated in architecture and engineering in the 16th in Italy (Knoll, 1997), founded on the experiential learning approach, or learning by doing (Brown and Lee, 2015). Thus, it values students' concrete experience in the learning process for the attainment of the objectives of a lesson (Stoller, 2006). The example activities include research about the value of solar power, running extra-class dinner groups, and having field trips to a museum (Brown and Lee, 2015), while PBL provides students with ill-structured problems that do not have a single perfect answer (Meijer et al., 2014). Thus, while both focus on students' resolution of real-world problems or questions and pursue student-driven inquiry and solution-finding, the forms of given problems or projects and resolution processes are somewhat different. With the different histories, concepts, and pedagogical attributes, PjBL is differentiated from PBL and the studies about PjBL were also excluded in the data collection process.

## 3. Application of problem-based learning in English education

While the pedagogical effects of PBL have been demonstrated in numerous research, few empirical studies examine

its impact on ELT (Li, 2018). According to Walker and Leary's (2009) review of PBL studies, based on the year 2009, out of 68 studies, 45 were related to medical education, and others focused on allied health, science, social science, and engineering. This suggests that research on the application of PBL in ELT is a relatively recent field. Consequently, finding such studies can be limited, and they may require further development in their research framework, presentations, and overall qualities.

Although research on PBL application in ELT is limited, some studies reveal its pedagogical benefits for teaching English. Malebese and Tlali's (2020) study found that African fourth-grade students benefited from learning English through PBL despite insufficient support from the community and the Department of Education. They enthusiastically participated in learning and improved English (their second language) competencies through PBL. Similarly, Xie (2022) reported that Chinese undergraduate students learning business English using PBL within an active learning framework developed positive attitudes towards PBL, gained business and language knowledge, and improved soft skills like problem-solving, cooperation, presentation, and critical thinking. Meanwhile, in Lee et al.'s (2021) study on Taiwanese college students learning multiliteracies through a multimodal problem-based approach, it was disclosed that the students enriched their vocabulary use, sentence complexity, and overall expressive fluency, while also enhancing learner autonomy.

However, the quality of the studies does not seem to be consistent, so readers may not easily refer to them for designing their PBL-based ELT programmes. For instance, Malebes and Tlali's (2020) research has an unspecified research purpose and fails to elaborate on the pedagogical aims for adopting PBL and content and procedures of PBL used in their programme. While Xie (2022) clarifies the concept of PBL employed and utilizes well-organized interview questions for data collection, he does not detail in what ways PBL was implemented in relation to business English teaching. Lee et al. (2021) do not provide concrete concepts of the PBL approach used and its specific applications. While they mention the procedural topics covered, they do not explain how the principles and procedures of PBL were integrated into their programme. Therefore, the current review examines the quality of research on PBL-based ELT programmes in the

Korean context, and determines if there are sufficient quality research papers that Korean educators and researchers of ELT, along with those in similar East Asian contexts, can refer to for planning and implementing PBL in their ELT programmes.

## 4. Data gathering and analysis

To gather data, the researcher utilized search engines and academic databases, including Korean Citation Index (KCI) and Research Information Sharing Service (RISS) for Korean publications, along with ERIC, Google Scholar, Science Direct, Willey Online Library, and Taylor & Francis Online. Exploration keywords involved 'problem-based learning (PBL)' and 'Korea' combined with various terms related to ELT: 'English', 'English education', 'English language learning', 'English language teaching', 'English listening', 'English reading', 'English speaking', 'English writing', 'English grammar', 'English vocabulary', 'English literature', or 'business English'. These keywords were applied in both English and Korean and the search was conducted in June 2023. As a result of the exploration, a total of 67 studies were gathered. By eliminating studies on English-Mediated Instruction (EMI), where instructors use English to teach academic subjects, theory-based studies, test problem-solving and pathology, conference proceedings, theses, and book chapters, 38 studies remained. The current review targeted journal articles that were at least over-indexed in the Korea Citation Index (KCI) or considered candidates for KCI inclusion. Focusing on these ensures they are readily accessible to Korean teachers, educators, or even international readers. In addition, applying a common rubric to journal articles following the same research format will facilitate reliable comparisons of research quality. Then, 9 studies of project-based learning and theoretical conceptualization were removed. By removing duplications, the final dataset included 26 studies. This way, the researcher collected journal articles that focus on English language education and are peer-reviewed by multiple reviewers. Thus, journal articles are likely to be frequently and reliably reached and referred by practitioners or researchers of ELT who are concerned with implementing PBL.

To systematically analyse the quality of research related to how PBL is implemented in Korean ELT contexts, a

rubric with six aspects and three levels was applied. It was designed based on the rubrics developed by Hallinger (2014) and Hallinger and Bridges (2017). In their studies assessing research quality and reviewing research on PBL-based educational leadership programmes, they used a three-level research quality rubric. This tool helped them sort quality sources from the extensive database and reduce concerns associated with including low quality sources. The rubric focused on key criteria such as research questions or goals, conceptual framework, research design, data collection, and data analysis (Hallinger, 2014). Their rubric was reshaped by the author to consider the particularities and attributes of ELT contexts employing PBL and based on her inductive comprehension of the structures of the collected literature (see **Table 1**). The current rubric comprises the assessment of six aspects: (a) statement of research purposes, (b) conceptual framework, (c) procedures of PBL application, (d) evaluation of the PBL effects, (e) revealed limitations, and (f) implications for improvement. Level 0 in each aspect indicates that the study does not clarify the aspect; level 1 indicates that the study partially establishes the aspect; and level 2 indicates that the study fully establishes the aspect. Analytical rubrics employing differentiated level modes can promote greater interrater agreement by providing explicit statements for achieving each criterion (Wiggins, 1998).

Analyses of these aspects in the selected literature were conducted through the researcher's focused and repeated reading of the articles. During the first and second readings, the researcher examined how and to what extent the six aspects were addressed in each article and summarised the six identified aspects in an Excel spreadsheet. In the third reading, these were then coded with 0, 1, or 2 based on the criteria established in the rubric. Specifically, in the introduction section, statements of research purposes were examined; in the literature review section, the conceptual framework; in the methodology section, procedures of PBL application; in the findings and discussion sections, evaluations of the PBL effects; and in the conclusion section, limitations and implications for improvement.

Based on the agreement and negotiation process with an anonymous reviewer, the determined levels of the six aspects were entered into another Excel spreadsheet. A total score closer to 12 for each article suggests that the study systematically applied PBL and evaluated its impact and clearly

reported these within the research. Such articles serve as exemplary studies that highlight the several merits of applying PBL in Korean ELT.

## 5. Quality analysis of the research about the implementation of problem-based language learning in Korea

The analysis results are presented in **Table 2**. According to the categories, the aspect of the statement of research purposes scored 1.38 out of 2; conceptual frameworks of PBL scored 1.08; procedures of PBL application scored 1.73; evaluation of the PBL effects scored 1.46; revealed limitations scored 1.04; and implications for improvement scored 0.85. The overall mean across categories was 1.26. The average sum of all 26 studies was 7.54 out of 12. These results suggest that, in general, the researchers clarified their research aims (1.38), applied PBL using established procedures (1.46), assessed its effects methodically (1.73), and presented these aspects at a mid-upper level.

A total sum score closer to 12 for each article indicates a precise conceptualisation of PBL in relation to the attributes of ELT, the systematic application within the ELT programme, and clear reporting of these aspects along with their implications. The provision of the scores of each paper by the total sum and the 6 aspects helps the readers to reasonably select particular articles aligned with their specific pedagogical purposes. Regarding the total scores, eight studies (30.8%) (Bae and Park, 2009; Chun, 2020; Chun, 2021; Kim, 2015; Kwon, 2017; Lee and Kim, 2019; Lee, 2017a; Park and Cho, 2012) scored over 10. However, nine out of 26 studies (34.6%) (Cho, 2014; Kim, 2014; Kweon, 2014; Kim and Lee, 2019; Lee, 2020; Park, 2020; Park, 2014; Park et al., 2022; Won and Park, 2021) scored below 6. In other words, over a third of the reviewed studies on PBL-based ELT programmes revealed a need for researchers to develop a more comprehensive understanding of PBL, engage in deliberate and specific planning and implementation of PBL, and specify these aspects in their research.

Concerning the statement of research purposes, eleven studies (42.3%) clearly stated the purpose, while the rest scored level 1 (53.8%) or 0 (3.8%). The study scoring level 1 or 0 in this aspect used general terms like 'effect' or 'impact'

**Table 1.** Rubric for analysing the quality of the research of PBL in ELT.

| Aspects/Level                    | Not clearly established                                                                        | Partially established                                                                                                                                       | Fully established                                                                                                                      |
|----------------------------------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
|                                  | 0                                                                                              | 1                                                                                                                                                           | 2                                                                                                                                      |
| 1 Statement of research purposes | There is no clear definition of the research problems or questions.                            | The author defined research problems or questions, but they are not consistent with the research results.                                                   | Research problems or questions are clearly defined, and they are consistent with the research results.                                 |
| 2 Conceptual frameworks of PBL   | There is no clear conceptual framework of PBL or provision of inappropriate conceptualization. | The author suggested the concept of PBL, but not in relation to ELT.                                                                                        | The author specified the conceptual framework of PBL in relation to ELT.                                                               |
| 3 Procedures of PBL application  | There are no specific procedures of PBL application in ELT.                                    | The author provided general procedures of PBL application in ELT, but without specifics.                                                                    | The author provided the specific procedures of PBL application in ELT.                                                                 |
| 4 Evaluation of the PBL effects  | There is no clear suggestion of the effect of PBL application in ELT.                          | The author revealed the general effect of PBL application in ELT implicitly or in terms of a limited aspect or based on invalid or unreliable measurements. | The author systematically and specifically revealed the effect of PBL application in ELT based on the use of valid and reliable tools. |
| 5 Revealed limitations           | There is no clear description of the revealed limitations.                                     | The author described the general limitations of PBL application in ELT, but not in relation to contextual factors.                                          | The author specifically revealed the limitations of PBL application in ELT in relation to various influential factors.                 |
| 6 Implications for improvement   | There are no clear statements of how to improve the processes of PBL application in ELT.       | The author stated general ideas for the improvement of PBL application in ELT, but not in relation to the particular pedagogical contexts.                  | The author specifically stated how to improve the PBL application in ELT in relation to the particular pedagogical contexts.           |

**Table 2.** Quality of the research about PBL implementation in ELT in the Korean context.

| Author  | Year          | Statement of research purposes | Conceptual frameworks of PBL | Procedures of PBL application | Evaluation of the PBL effects | Revealed limitations | Implications for improvement | Sum  |
|---------|---------------|--------------------------------|------------------------------|-------------------------------|-------------------------------|----------------------|------------------------------|------|
| 1       | Park et al.   | 2022                           | 1                            | 1                             | 1                             | 1                    | 0                            | 5    |
| 2       | Chun          | 2021                           | 2                            | 2                             | 2                             | 1                    | 2                            | 11   |
| 3       | Kim           | 2021                           | 1                            | 2                             | 2                             | 1                    | 0                            | 8    |
| 4       | Won and Park  | 2021                           | 1                            | 1                             | 2                             | 0                    | 0                            | 4    |
| 5       | Yun and Maeng | 2021                           | 2                            | 1                             | 1                             | 2                    | 1                            | 7    |
| 6       | Chang         | 2020                           | 1                            | 1                             | 2                             | 2                    | 1                            | 7    |
| 7       | Chun          | 2020                           | 1                            | 1                             | 2                             | 2                    | 2                            | 10   |
| 8       | Lee           | 2020                           | 2                            | 0                             | 2                             | 1                    | 0                            | 5    |
| 9       | Park          | 2020                           | 1                            | 1                             | 2                             | 1                    | 0                            | 5    |
| 10      | Kim and Lee   | 2019                           | 0                            | 0                             | 1                             | 1                    | 0                            | 2    |
| 11      | Kim and Oh    | 2019                           | 1                            | 1                             | 2                             | 1                    | 2                            | 8    |
| 12      | Lee and Kim   | 2019                           | 2                            | 2                             | 2                             | 2                    | 2                            | 12   |
| 13      | Shin          | 2019                           | 2                            | 0                             | 1                             | 2                    | 1                            | 7    |
| 14      | Kwon          | 2017                           | 2                            | 2                             | 1                             | 2                    | 2                            | 11   |
| 15      | Lee           | 2017a                          | 1                            | 1                             | 2                             | 2                    | 2                            | 10   |
| 16      | Lee           | 2017b                          | 1                            | 1                             | 2                             | 2                    | 0                            | 7    |
| 17      | Kim and Uhm   | 2016                           | 2                            | 1                             | 2                             | 2                    | 0                            | 8    |
| 18      | Im            | 2015                           | 1                            | 1                             | 2                             | 1                    | 2                            | 9    |
| 19      | Kim           | 2015                           | 2                            | 2                             | 2                             | 2                    | 0                            | 10   |
| 20      | Cho           | 2014                           | 1                            | 0                             | 1                             | 2                    | 0                            | 5    |
| 21      | Park          | 2014                           | 2                            | 1                             | 2                             | 1                    | 0                            | 6    |
| 22      | Kim           | 2014                           | 2                            | 1                             | 2                             | 1                    | 0                            | 6    |
| 23      | Kweon         | 2014                           | 1                            | 1                             | 2                             | 0                    | 0                            | 4    |
| 24      | Park and Cho  | 2012                           | 1                            | 2                             | 2                             | 1                    | 2                            | 10   |
| 25      | Brinegar      | 2011                           | 1                            | 1                             | 1                             | 2                    | 2                            | 8    |
| 26      | Bae and Park  | 2009                           | 2                            | 1                             | 2                             | 2                    | 2                            | 11   |
| Level 2 |               | 11 (42.3%)                     | 6 (23.1%)                    | 19 (73.1%)                    | 14 (53.8%)                    | 11 (42.3%)           | 8 (30.8%)                    |      |
| Level 1 |               | 14 (53.8%)                     | 16 (61.5%)                   | 7 (26.9%)                     | 10 (38.5%)                    | 5 (19.2%)            | 6 (23.1%)                    | 7.54 |
| Level 0 |               | 1 (3.8%)                       | 4 (15.4%)                    | 0 (0%)                        | 2 (7.7%)                      | 10 (38.5%)           | 12 (46.2%)                   |      |
| Mean    |               | 1.38                           | 1.08                         | 1.73                          | 1.46                          | 1.04                 | 0.85                         | 1.26 |

of PBL on learners, instead of outlining specific, measurable pedagogic aims or addressing particular issues related to their PBL-based ELT programme; the implied aims and research questions were revealed in the data collection or analysis sections. This inconsistency made it difficult to comprehend the researchers' intention of PBL application in ELT as well as to evaluate the validity of their literature review and methodology.

In relation to the descriptions of conceptual frameworks of PBL, only six studies (23.1%) by Chun (2021), Kim (2021), Lee and Kim (2019), Kwon (2017), Kim (2015), and Park and Cho (2012) scored level 2, while 61.5% of the studies scored level 1. This lack of in-depth literature review or difficulty in connecting PBL to language development seems to stem from the limited availability of diverse studies about PBL application in ELT. According to Lin (2018), there are few empirical studies investigating the effects of PBL-based ELT on students' English language competences, particularly in the Asian EFL contexts. This highlights the need for more varied studies about PBL-based ELT.

In the aspect of the procedures of PBL application, 19 studies (73.1%) specified how PBL was implemented in their pedagogic context, resulting in an average score of 1.73, representing the highest level among the six aspects. This suggests that most studies implemented PBL in a principled manner, contextualized it effectively, and precisely reported these aspects in their research. In particular, Kim and Uhm (2016) demonstrated a detailed application of PBL in high school English reading classes, outlining 40 PBL activities that fostered diverse student discussions. Chun (2021) specified the procedures of applying PBL in teaching the trend of literature using on-line and off-line approaches over three modules. These studies will be useful references for teachers considering the application of PBL.

Concerning the evaluation of the effects of PBL application in ELT, 14 studies (53.8%) specified the applied methods to measure the achievement of the goals of their PBL-based ELT programmes in a valid way. These studies developed their measurement tools by referencing relevant research and implementing revisions based on pilot studies or peer reviews. However, the studies by Kim and Lee (2019), Im (2015), and Kim (2014) did not justify the formation of their questionnaire items or prove the reliability of their methods for pre- and post-tests. For instance, Im (2015) used the

same test in a short period, before and after the programme, to measure students' enhancement of language competencies. In addition, the test focused on measuring students' vocabulary and listening skills despite aiming to identify the effect of PBL on conversation skills. Park (2020) presented only descriptive statistics of her survey in the conclusion section, omitting separate sections for data collection and analysis processes. These limitations affect the validity or reliability of the studies' research outcomes and lead to scores of 1 or 0 in the PBL effects evaluation aspect.

In terms of clarifying revealed limitations and suggesting implications for improvement, only eight studies (30.8%) (Bae and Park, 2009; Chun, 2020; Chun, 2021; Im, 2015; Kwon, 2017; Lee, 2017a; Lee and Kim, 2019; Park and Cho, 2012) specifically described both. The average scores were 1.04 and 0.85 each, the lowest compared to the other aspects. The remaining studies added the limitations and resolutions of their programmes in conclusion sections without specific contexts, or some did not mention them.

## 6. Discussions and implications

In interpreting the quality of the research on PBL-based ELT programmes in Korean ELT contexts, only eight studies (30.8%) scored over 10 out of 12. Notably, the study by Lee and Kim (2019) scored 12 as the highest, and the studies by Bae and Park (2009) and Kwon (2017) followed it with scores of 11. Generally, the eight studies clarified their aims and research questions, explained the theoretical backgrounds and models applied in their programmes, specified the processes of programme development and lesson planning, presented data gathering and analysis in valid and reliable ways, and discussed the limitations of the current programmes and implications for improvement. Thus, guidelines for establishing good PBL-based ELT programmes, based on the thorough analysis of these studies, will provide researchers or facilitators with meaningful references. Particularly, analysing these studies can offer valuable pedagogical implications for contextualizing PBL implementation in East Asian countries, including Korean ELT, where expectations regarding teacher and student roles, relationships and pedagogic practices share similarities (Han, 2023b). In addition, when those studies are reinterpreted by their target students, more specific and different implications will be yielded, pro-

viding differentiated tips for PBL implementation at various levels.

However, the mean score (M 1.38) of the statement of research purposes suggests that researchers would benefit from professional development to more clearly define their research aims and questions and construct a consistent research structure. The ability to design consistent research seems fundamental and essential for teachers and lecturers to become proficient researchers. Thus, to foster a generation of such researchers, Korean postgraduate programmes should consider reformulating and strengthening academic writing courses.

In many articles, conceptual frameworks of PBL were not succinctly stated in relation to the attributes of ELT (M 1.08), which may be due to insufficient relevant literature about PBL in ELT, as argued by Kwon (2017). Thus, the research area of PBL-based ELT needs to be deepened and widened through further studies, and the studies should be produced that discuss the theoretical, systematic articulation of PBL and the principles of language teaching. Meanwhile, integrating PBL-based ELT into English teacher education programmes can lead to a greater number of teachers skilled in implementing PBL and communicative lessons (Han, forthcoming). Consequently, adopting PBL within the English education department has the potential to gradually improve PBL implementation in Korean ELT classrooms and stimulate the production of relevant studies by both pre-service or in-service English teachers and teacher educators.

Limitations of the studies and implications for improvement were also not sufficiently specified. If these aspects are more precisely addressed by the researchers within particular research contexts, future researchers and facilitators could gain detailed and contextualised tips for their programme implementations. In addition, providing the limitations can encourage ELT researchers interested in PBL to explore and implement various PBL models, ultimately improving and enriching the research areas related to PBL.

Meanwhile, procedures of PBL application (M 1.73) were generally well-organised in the programmes and clarified in most of the articles. Thus, another study that thoroughly reviews this aspect and reconstructs various procedures of PBL-based ELT programmes by student levels is expected to provide different facilitators with useful outlines for programme design; in fact, this aspect seems to be es-

sential for English teachers to reference when implementing PBL.

Though evaluation methods and processes of PBL effects were well-represented in general, some studies did not state how their survey questions or tests were formulated and verified. Using the same language test twice before and after the short period of the programme (Im, 2015) cannot be reliable for the measurement of students' enhancement of language competence. Assessing students' vocabulary and listening skills for the measurement of communication competence (Park, 2020) also cannot gain validity sufficiently. Furthermore, the measurements for students' metacognitive skills, higher-order thinking skills, and social skills in PBL programmes were not formed and applied in theory-based, principled ways in some studies. Therefore, the tools for measuring students' cognitive, metacognitive, and social abilities, affective attributes, and language competencies need improvement. To achieve this, developing the research skills of ELT researchers as social scientists with inter-disciplinary knowledge and perspectives, seems essential. As PBL aims to result in language learners who can adapt to the complexities and uncertainties of our current and future society, equipped with the skills for solving ill-structure problems, Korean researchers and teachers themselves need to be proficient problem-solvers and explorers who actively seek out, integrate, and construct new knowledge.

## 7. Conclusions

In response to the growing request for high-quality research cases on PBL in Korean ELT contexts, this study analysed the quality of existing research. This analysis is particularly timely as Korean state and educators prepare for the demands of the 4IR. Thus, the current study analysed the quality of research concerning the application of PBL in Korean ELT contexts, focusing on six key aspects.

The review processes revealed that researchers generally grasped the concept of PBL, applied PBL based on established protocols, and measured the effects of PBL, at a mid-upper level. Procedures for PBL application received the highest average score, whereas limitations of the studies and implications for improvement scored the lowest. These findings indicate that the presented PBL procedures deserve the attention of Korean English teachers, as mean-



ingful sources. However, the insufficient descriptions about limitations and improvement strategies in the studies may hinder Korean teachers' efforts to adapt and contextualize these PBL-based ELT programmes for their specific contexts. Furthermore, only 30.8% of the studies scored over 10 out of 12 in sum. This suggests that identifying and recommending high-quality research on PBL in Korean ELT contexts can be a complex task.

Based on the findings, it is imperative for researchers to more systematically practise PBL in Korean ELT contexts and specifically and consistently present their conceptual frameworks, methods for evaluating PBL effects, and the limitations and improvements for their studies. These efforts will contribute to providing potential PBL practitioners in Korean ELT with useful and reliable references for designing context-sensitive PBL-based ELT programmes. In addition, given that most of the collected research was published in Korean domestic journals, improving researchers' research practice and presentation skills as professional writers will also contribute to the overall enhancement of the quality of Korean ELT journals; this effort must be accompanied by professional and constructive feedback from reviewers. This way, the researchers need to improve their research quality while considering a broader international readership in ELT and PBL. Collectively, these endeavours will lead to the production of high-quality articles on PBL-based ELT programmes in Korea and similar social and academic contexts.

Meanwhile, in this study, a rubric for assessing the quality of journal articles was developed, drawing on a couple of pedagogical research and attributes of PBL in ELT. Considering a wider range of research on quality assessment could lead to an even more robust rubric and more comprehensive evaluation of the articles. Therefore, the researcher expects that the current review would be one of several efforts contributing to the development of improved rubrics or scales for research quality assessment.

## Conflict of Interest

The author declares no conflict of interest.

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