



## Enhancing Teacher Professional Development through Project-Based Learning in Vietnamese Kindergartens

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### ABSTRACT

Project based learning (PBL) has been increasingly recognized as an effective approach to enhance teacher professional development, fostering innovative teaching practices and student-centered learning environments. This study investigates the integration of PBL in Vietnamese kindergartens and its influence on teacher professional development. Employing the new teacher professional development framework, the research initially conducted a questionnaire survey with 272 preschool teachers nationwide, followed by in-depth interviews with 11 teachers. The study examines the motivations behind PBL adoption, the implementation process, challenges encountered, and the effectiveness of PBL compared to traditional teaching methods. Through these data collection methods, the research reveals that PBL offers significant opportunities for professional growth and development, including enhanced pedagogical skills, increased student engagement, and a more learner-centered approach. Despite challenges such as limited resources and a lack of familiarity with PBL, teachers reported positive experiences and a willingness to continue integrating PBL into their classrooms.

## 1. INTRODUCTION

The evolving demands of the 21st century have underscored the need for educational approaches that foster critical thinking, collaboration, and creativity in learners. Among these, project-based learning (PBL) has emerged as a transformative pedagogical method that aligns with these demands by engaging students in hands-on, inquiry-driven projects that simulate real-world challenges (Eswaran, 2024). The prevalence of PBL has increased significantly, contributing to serious discussions about its advent (Almulla, 2020). While its benefits for students are well-documented, PBL also holds significant promise for teacher professional development (TPD), offering educators opportunities to adopt learner-centered methodologies and enhance their teaching practices.

In Vietnam, the adoption of PBL has been a focal point of educational reform in recent years, encompassing various educational levels, from early childhood to higher education (Duc et al., 2022; Bui, 2020). Within kindergartens, where child-centered teaching approaches are prioritized, PBL has shown potential to nurture holistic child development, including cognitive, social, and communication skills. However, the integration of PBL into early childhood education also presents challenges, including limited teacher training, resource constraints, and significant demands on educators' time and effort.

Given these challenges, teacher professional development programs that incorporate PBL can serve as a vital strategy to equip educators with the skills, confidence, and collaborative practices necessary for its effective

implementation (Pan et al., 2022). PBL-based TPD programs emphasize active participation, reflective practice, and collaboration, enabling teachers to shift from traditional, teacher-centered models to more dynamic, student-focused approaches. Despite the global trend toward integrating PBL into TPD, research on its implementation within Vietnamese early childhood education remains sparse, particularly concerning its long-term impact and scalability.

This study seeks to address this gap by examining the role of PBL in enhancing teacher professional development in Vietnamese kindergartens. Utilizing a new analytical framework for TPD (Sancar et al., 2021), the research explores how PBL-based approaches can empower teachers to adopt innovative practices and overcome systemic challenges. Through nationwide surveys and in-depth interviews, this study aims to evaluate the current status of PBL in early childhood education and its potential to transform TPD, contributing to the broader discourse on educational innovation in Vietnam.

## 2. LITERATURE REVIEW

### *Project-based learning*

PBL is more than just a trend in education. It is gaining popularity as a fundamental change toward a more interesting and effective approach of preparing students for the needs of the twenty-first century (Zhang & Ma, 2023). PBL improves education by promoting deeper understanding and knowledge retention, developing essential 21st-century skills such as critical thinking and creativity, improving collaboration and communication, and increasing student motivation and engagement through hands-on, student-centered projects (Allison, 2018; Markula & Aksela, 2022; Owens & Hite, 2022).

Literature review implies that PBL involves three main stages (Sharon, 2021; Sylvia, 2013; ECAP, n.d.). First, students and teachers collaborate to pose an essential question and plan the project, including setting goals and conducting initial research. Second, students actively engage in the learning process by developing a final product, conducting ongoing research, and receiving feedback. Finally, students present their work to an audience and reflect on their learning experience. This process fosters critical thinking, problem-solving, and collaboration skills.

### *Application of project-based learning in Vietnam*

The first efforts on PBL in Vietnam focused mostly on introducing the concept and theoretical underpinning of this teaching method. Researchers translated and adapted foreign material on PBL to provide a fundamental understanding for Vietnamese educators. These efforts resulted in the production of textbooks and lecture materials for various training courses, as well as research papers in local scientific journals and conferences. The theoretical research sought to situate PBL in the Vietnamese educational landscape, investigating its potential benefits and compatibility with national educational goals.

In the past decade, PBL has emerged as a focal point of educational research in Vietnam. PBL has been widely embraced in various levels of education in Vietnam, including kindergarten, elementary, secondary, high school and higher education (Duc et al., 2022; Bui, 2020). PBL has been applied in several subjects and themes such as natural science (Ha, 2023), Vietnamese language (Bui et al., 2023), and English (Allison & Do, 2015; Tran & Tran, 2021). The studies with experimental implementation in Vietnam indicate that PBL offers a compelling approach for Vietnamese classrooms. Studies show it boosts student engagement by tackling real-world issues, fostering a sense of ownership in their learning. This, in turn, strengthens their ability to learn independently and hone critical thinking and problem-solving skills (Chi, 2023; Duc et al., 2022; Nguyen & Vu, 2017).

### *Project based learning at early childhood education*

Currently, an increasing number of kindergartens and primary schools are integrating PBL into their classrooms. Furthermore, in countries like Spain, educational authorities in some regions have made PBL mandatory in classroom curricula (Tierney et al., 2022). This approach has become the foundation of innovation movements in many schools worldwide (Ravitz, 2009). However, scientific evidence regarding the effectiveness of PBL in developing learners' competencies in early childhood education is still very limited (Angelle, 2018; Ferrero et al., 2021).

In a study involving 45 preschool children, teachers and students collaboratively explored the 17 Sustainable Development Goals (SDGs) of the United Nations through a project-based learning approach. The project took place in a kindergarten classroom at a school (pseudonymously named "Poole State Preparatory") where teachers and researchers collaborated to foster global awareness and cultural understanding through an inquiry-based learning

approach using the five senses. The learning process was divided into five stages, from asking questions and gathering information to creating final products and sharing results. Despite facing some challenges such as time constraints and inconsistent parental involvement, the project yielded positive outcomes. Children demonstrated significant progress in their thinking, understanding of multiculturalism, and social skills (Johnson et al., 2019).

PBL was studied for use during the Covid-19 pandemic in Makassar to promote engagement among teachers, between teachers and students, and between teachers and families (Herman et al., 2023). After a period of implementation and testing, PBL has shown initial promising results in developing preschoolers' communication skills, creativity, and motivation to learn. As a result, Herman et al. (2023) concluded that PBL can offer a creative and enjoyable learning experience for young children, fostering their enthusiasm and motivation to learn.

Overall studies suggest that the process of organizing project-based learning activities for 5-6 year-olds should be conducted as follows (Angelle, 2018; Ferrero et al., 2021; Johnson et al., 2019; Zhang & Ma, 2023): (1) Start with a simple, easy-to-understand, and easy-to-implement project; (2) Use hands-on activities to engage and excite students; (3) Encourage students to work in groups to foster teamwork and cooperation; (4) Create opportunities for students to share their products with others, such as parents or other classes; (5) Use technology to enhance the learning experience, such as using tablets or computers for research or creating presentations; (6) Allow students to have some control over the project, such as choosing a topic or how they will present their product.

Several studies on project-based learning have been conducted in Vietnam over the past decade, but primarily in secondary education and above. These initiatives, while promising, have remained small-scale and unsystematic, often limited to pilot projects within individual schools or districts (Nguyen et al., 2017). Research on PBL in early childhood education remains limited nationwide. Most studies focus on gathering data about the current status of PBL in specific locations (Nguyen, 2022) or conducting surveys of administrators and preschool teachers in certain areas (Nguyen et al., 2017), exploring solutions to connect families with preschools through PBL (Nguyen et al., 2018) and approaching PBL to introduce children to English (Hoang, 2017).

PBL has been implemented at the preschool level in Vietnam to enhance young children's engagement and development through hands-on, inquiry-based projects. The examples of PBL applications in Vietnamese preschools highlight the effectiveness of PBL in fostering holistic child development, especially in enhancing cognitive, social, and communication skills. However, a research gap exists in exploring the long-term impact of PBL on young children's sustained learning outcomes, as well as the scalability of these models across diverse educational settings. Further studies could investigate how PBL methods might be adapted to different cultural contexts and the role of teacher training in optimizing PBL approaches for early childhood education.

### ***Teacher professional development through PBL***

In professional development programs for teachers, PBL has been selected due to its learner-centered approach, which naturally engages participants' curiosity (Choi et al., 2016; Farrow et al., 2022; Guo & Yang, 2012; Markula & Aksela, 2022). PBL enhances students' comprehension and promotes deeper learning while boosting their motivation. It serves as a crucial strategy for fostering independent thinkers and learners, enabling students to address real-world issues through self-directed inquiries, planning, and varied learning strategies. By integrating PBL, it is anticipated that teachers will experience increased motivation in their professional development, as it helps address practical challenges and enhances their teaching skills. In addition to these benefits, PBL can also:

*Increase self-efficacy:* Studies have shown that engaging in PBL professional development can boost teachers' self-efficacy, leading to increased confidence in their ability to design and implement effective learning experiences. This is crucial, as confident teachers are more likely to take risks and try new approaches in the classroom.

*Shift to student-centered instruction:* PBL's learner-centered nature requires teachers to move away from traditional, teacher-centric methods and embrace a more student-centered approach (Sharon, 2021). Professional development that models and supports this shift can lead to significant changes in teaching practices.

*Improve collaboration and communication:* PBL often involves collaboration among teachers. Professional development that incorporates PBL can provide opportunities for teachers to work together, share ideas, and learn from each other. Teacher collaboration is essential for the successful implementation of PBL (Allen et al., 1996). When educators work together, they can share resources, strategies, and insights that enhance the learning experience.

Collaborative planning can lead to more cohesive project designs that integrate various subjects, making learning more relevant and interconnected for students.

### 3. MATERIALS AND METHODS

#### *Data collection*

The research team conducted an initial survey from June to October, 2022 to assess the current state of teaching practices in preschools across Vietnam, employing primarily a snowball sampling method. Efforts were made to ensure diversity among participants in terms of geographical location (northern, central, and southern regions), years of work experience, and professional roles within schools. A total of 272 teachers participated in face-to-face interviews, with demographic details such as experience and workplace distribution illustrated in Figure 1. Among these participants, 16.54% were head teachers or team leaders. The survey questionnaire focused primarily on identifying PBL activities, where applicable, and examining teachers' professional development experiences.

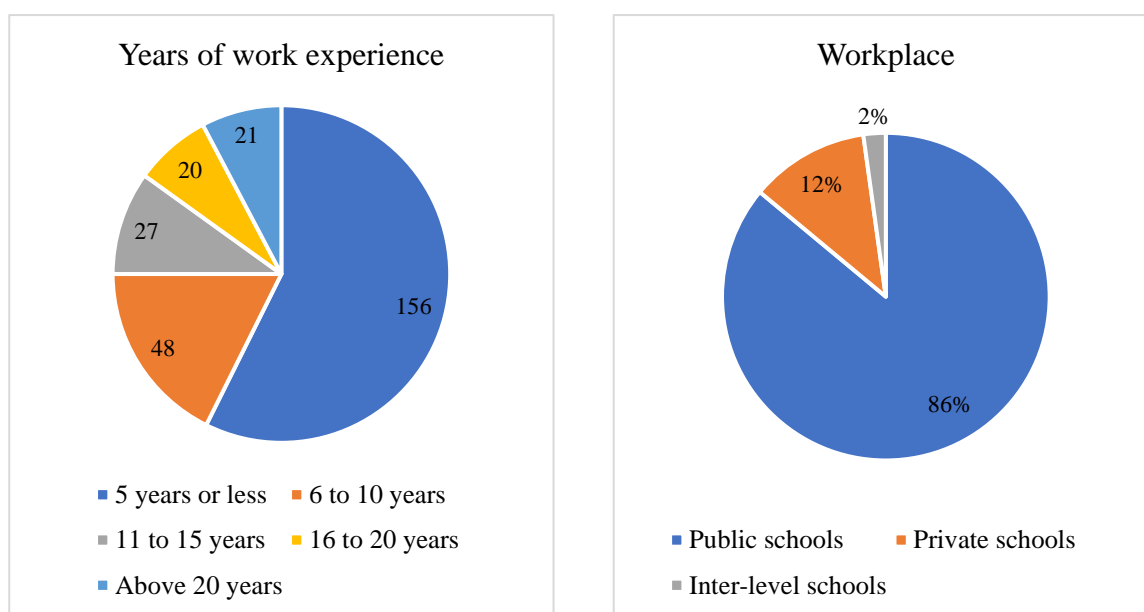


Figure 1. The characteristics of the interviewed teachers

Based on the survey results, 11 teachers from the three largest cities in Vietnam - Hanoi, Da Nang, and Ho Chi Minh City - who had conducted PBL for at least five years were selected for follow-up, in-depth interviews. These qualitative interviews were designed to gain a deeper understanding of how PBL has been implemented in early childhood education (ECE) across Vietnam, focusing on the specific challenges teachers encountered, the strategies they employed to overcome these challenges, and the perceived benefits of PBL in their professional practice. The interview questions were structured to explore both internal motivations (such as teachers' personal growth and satisfaction) and external motivations (including student engagement and administrative support) behind adopting PBL.

#### *Analysis*

Quantitative data from the questionnaire were processed using descriptive statistics. Qualitative data were analyzed using Nvivo software. The authors applied both deductive and inductive coding to analyse the collected data. Deductive coding with reference from the framework of teacher professional development (Sancar et al., 2021) and inductive coding to understand how teachers overcome the challenges to advance PBL for their professional development. While existing literature offers diverse theoretical frameworks for teacher professional development, such as self-determination theory and self-efficacy theory, the authors selected a new framework due to its detailed approach with themes, categories and codes (Table 1). This framework's specificity enabled research team to construct a coding framework that closely aligned with the project-based learning implementation, providing a more precise and relevant analysis.

Table 1. TPD coding framework (Sancar et al., 2021)

Themes	Categories	Codes
Teacher education		i. The teacher training process
		ii. Internship and school applications
		iii. Academic/teacher educators
		iv. The connection between theory and practice
Classroom practices	Teacher characteristics	i. Teachers' professional features ii. Teachers' individual features
	What to teach	i. Content knowledge ii. Pedagogical content knowledge
	How to teach	i. Teaching strategies
		ii. Teaching activities
		iii. Teaching knowledge
	Students' outcomes	i. Academic achievement
		ii. Sociocultural development
		iii. Education needs
Collaboration	i. Peer communication	
	ii. Learning and research community	
	Supportive activities	i. Coaching/mentoring
ii. Coursing		
iii. Informal support services		
External variables	School context	i. Physical resources
		ii. Contextualities
		iii. School goals
		iv. Multiculturalism
		v. Interactions with school leaders
Curriculum	i. Curriculum materials	
	ii. Curricula across different contexts	
	iii. Curriculum implementation	
Reforms and policies	i. Practical effectiveness	
	ii. Key features	

## 4. RESULTS AND DISCUSSION

### 4.1. Results

#### *Overview of PBL at ECE in Vietnam*

Among the 272 teachers interviewed, 211 (78%) had previously organized PBL activities in preschools, while 61 (22%) had not. When asked about the necessity of PBL in preschools, the results showed that 87.13% of the interviewed teachers believe that PBL is very important for the development of children's skills and for the professional development of teachers (Figure 2).

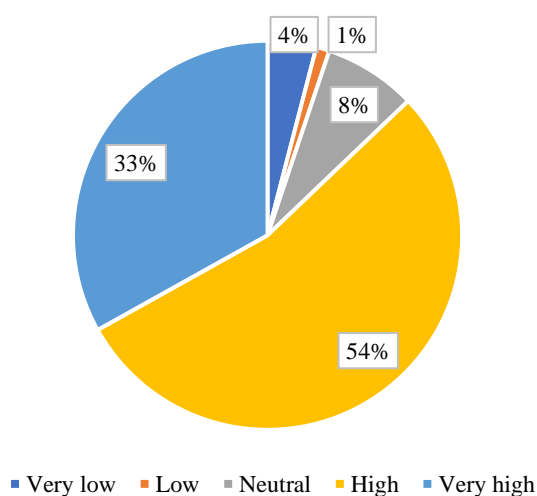


Figure 2. PBL's importance to development of students and teachers

Regarding the topics selected in PBL, there are four approaches to determining the topic and five main activities organized by teachers in kindergartens (Table 2). A certain portion of respondents (122) indicated that the project topic is either predetermined within the educational program or initiated by the teacher. At the same time, a larger group of respondents (203) preferred project topics that stem from the children's real-life experiences, interests, questions, and curiosity. Additionally, although less common, 107 respondents selected topics based on field trips that occur during the early stages of the project. It is important to note that respondents might choose multiple options, reflecting a range of preferences in the selection of PBL topics.

Table 2. Selection of the topics for PBL

No.	Selection of the topics for PBL	Number of respondents
1	The project topic is predetermined within the educational program or initiated and selected by the teacher	122
2	The project topic comes from the children's real-life experiences, chosen based on their interests, questions, and curiosity	203
3	The topic is selected based on a field trip, which always takes place in the early stage of the project	107
4	The topic is selected based on a field trip, which always takes place in the early stage of the project	138

Key activities in PBL involve several key components. A total of 169 respondents reported that exploration, experimentation, and creative activities are pre-planned at specific times to support learning. Additionally, a larger group of respondents (174) emphasized that activities should focus on investigation, exploration, and finding answers to questions using various resources. Expressive activities, such as drawing, sculpting, acting, building, and storytelling, were highlighted by 155 respondents as crucial for helping children connect their understanding and concepts. Family and community involvement was noted by a significant portion of respondents (152) as an essential aspect of the project, ensuring engagement throughout. Finally, 82 respondents mentioned that field trips may or may not be included, and if they are, they typically occur at the final stage of the project.

In general, the findings highlight a strong preference for a child-centered approach in PBL, with a clear emphasis on topics aligned with children's interests and experiences. Integrated activities that promote investigation, exploration, and expressive learning are highly valued. Additionally, the involvement of family and community is recognized as a crucial element in the successful implementation of PBL. While field trips are not always a mandatory component, they are considered valuable when integrated effectively at the appropriate stage of the project.

Table 3. Key activities in PBL

No.	Key activities in PBL	Number of respondents
1	Exploration, experimentation, and creative activities are pre-planned at specific times to help children learn certain concepts or skills	169
2	Activities focus on investigation, exploration, and finding answers to questions, utilizing various resources and integrated throughout all the children's activities	155
3	Children's expressive activities (drawing, sculpting, acting, building, storytelling, etc.) are designed to help them connect the understanding and concepts they've learned, and these activities are repeated regularly	174
4	Family and community involvement is present at every stage of the project	152
5	There may or may not be a field trip. If there is one, it usually takes place at the final stage of the project	82

#### *Teacher professional development through PBL practices*

The results of the survey confirm that after applying PBL, teachers' skills improved significantly (Figure 3). Among the 272 teachers interviewed, only 3 were unfamiliar with PBL, and 35 had only recently been introduced to it. The remaining teachers reported substantial improvements in their teaching skills after participating in PBL. Notably, 13 teachers felt very confident and were willing to train other teachers in the school to jointly implement PBL.

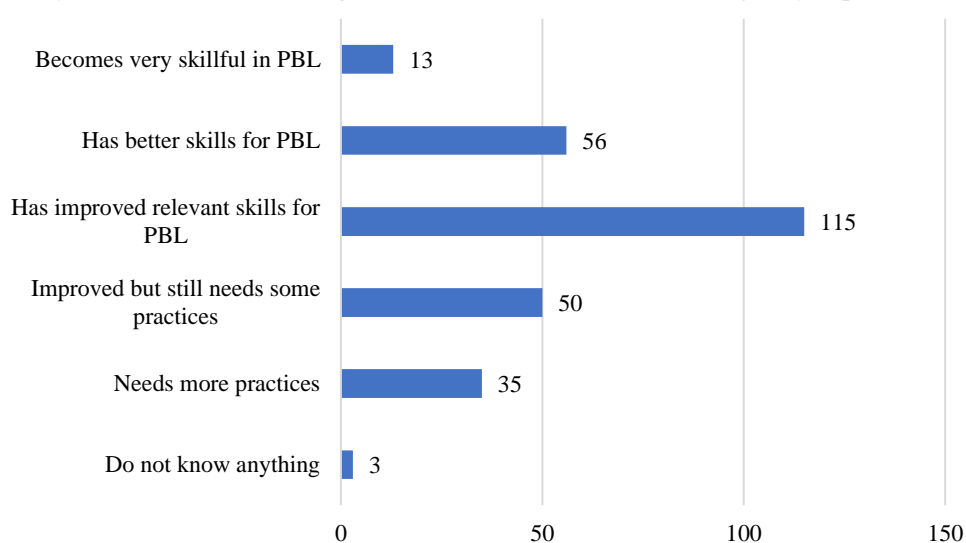


Figure 3. Teachers' improvement after implementation of PBL

Qualitative analysis indicates three themes related to TPD, including teacher education, classroom practices and external variables, presenting as follow.

#### *Teacher education*

The Teacher Education theme reveals several insights about the preparation and support teachers receive for implementing PBL in Vietnamese early childhood education. The analysis reveals that PBL training for Vietnamese preschool teachers is inconsistently implemented, with more resources and opportunities available in private and international schools than in public schools. While some schools offer annual PBL training and access to international experts, these opportunities are limited and lack continuity. Without structured internships or hands-on experiences focused on PBL, many teachers struggle to bridge the gap between theoretical knowledge and practical application. Monthly reflective meetings and feedback from student reflections help teachers adapt their approaches, but such practices are often not standardized across all schools (Table 4).

Table 4. PBL practices and TDP (theme 1: teacher education)

Categories	Codes	Results
		<ul style="list-style-type: none"> <li>i. PBL training is conducted at some private/international schools once a year. Teachers are encouraged to carefully prepare and test.</li> <li>ii. Internship does not apply but at some schools; teachers were introduced to visit other schools to learn more about PBL practice.</li> <li>iii. In some international schools, international experts in PBL were invited to conduct training.</li> <li>iv. Monthly meeting and dialogue allowed teachers to express their concerns and gaps between theory and practice.</li> <li>v. Students' reflection play important role in teacher self-orientation in PBL.</li> </ul>
	<ul style="list-style-type: none"> <li>i. The teacher training process</li> <li>ii. Internship and school applications</li> <li>iii. Academic/teacher educators</li> <li>iv. The connection between theory and practice</li> </ul>	

*Classroom practices*

This theme emphasizes the importance of continuous skill development, interdisciplinary content, collaborative planning, and adaptable teaching strategies in PBL. The results highlight that both intrinsic motivation (such as passion and self-efficacy) and extrinsic support (such as stakeholder collaboration) are vital for effective PBL in preschool settings. Additionally, the gradual approach to mastering PBL stages suggests that a supportive, learning-focused environment helps teachers refine their methods over time.

Table 5. PBL practices and TDP (theme 2: classroom practices)

Categories	Codes	Results
Teacher characteristics	<ul style="list-style-type: none"> <li>i. Teachers' professional features</li> <li>ii. Teachers' individual features</li> </ul>	<ul style="list-style-type: none"> <li>i. Pedagogical skill development (i.e. regular update teaching plan, develop creative evaluation strategy, lifelong learning), fairness, collaboration with other colleagues, parents and community members.</li> <li>ii. Self efficacy, passionate about their teaching, regular practice and efforts to overcome difficulties.</li> </ul>
What to teach	<ul style="list-style-type: none"> <li>i. Content knowledge</li> <li>ii. Pedagogical content knowledge</li> </ul>	<ul style="list-style-type: none"> <li>i. Development of the teaching subject and connection with other subjects to have interdisciplinary approach because it is prerequisite for project or problem based learning.</li> <li>ii. Teachers should anticipate various scenarios and student reactions to their teaching methods. By identifying the key points of their lessons and tracking student responses over time, teachers can continuously refine their pedagogical approaches, emphasizing the effectiveness of learning by doing.</li> </ul>
How to teach	<ul style="list-style-type: none"> <li>i. Teaching strategies</li> <li>ii. Teaching activities</li> <li>iii. Teaching knowledge</li> </ul>	<ul style="list-style-type: none"> <li>i. Teachers consult with other key stakeholders including students, colleagues, department head, parents and advisor (if schools have) to develop the PBL teaching strategy. A PBL curriculum tailored to students' specific needs is more likely to yield positive results. Teachers should enhance their skills in interactive pedagogies, especially questioning and evaluation techniques, to effectively facilitate PBL programs. Implementing inquiry-based or problem-</li> </ul>



		<p>based learning prior to PBL can serve as a valuable foundation.</p> <p>ii. PBL includes various activities such as discussions and Q&amp;A sessions between teachers and children, study tours, exploring the surrounding environment, and ways for students to present their projects, which can be through products (with or without parental involvement), drawing, creating collections, etc.</p> <p>iii. Teachers need to thoroughly understand the stages of PBL, and the more they teach, the more flexible they will become. Teachers should start with simple PBL projects, without being too perfectionist or trying to cover too much content.</p>
Students' outcomes	<p>i. Academic achievement</p> <p>ii. Sociocultural development</p> <p>iii. Education needs</p>	<p>PBL offers clear benefits for preschool children, including: students retaining knowledge for a longer period (as children often have short-term memory, but PBL helps reinforce knowledge frequently and connect it to real-life situations), developing communication skills through teamwork, and enhancing language abilities through presentations. Notably, PBL stimulates children's imagination, which gradually builds problem-solving skills and increases their enjoyment of learning.</p>

*External variable*

The analysis of the external variable reveals key factors impacting PBL implementation in Vietnam. Collaboration is crucial, with peer communication and research communities fostering knowledge sharing. Supportive activities like coaching, mentoring, and training empower teachers. The school context plays a significant role, with physical resources, school goals, and multiculturalism influencing PBL. However, challenges such as student passivity and parental understanding need to be addressed.

The curriculum is flexible, allowing for PBL integration. Policy support is evident, with the Ministry of Education and Training organizing training and development sessions. This aligns with the need for supportive activities and a conducive school culture to foster peer learning and communication, ultimately leading to successful PBL implementation.

*Table 6. PBL practices and TDP (theme 3: external variables)*

Categories	Codes	Results
Collaboration	<p>i. Peer communication</p> <p>ii. Learning and research community</p>	<p>PBL also facilitates teachers' learning and exchange of knowledge and experiences with each other, including those from different schools. Additionally, PBL enhances communication between schools and families through more frequent and engaging activities for children. During the COVID-19 pandemic, although PBL training sessions were held online, teachers were able to confidently implement PBL after the pandemic and form Zalo or Facebook groups to continue sharing PBL ideas.</p>
Supportive activities	<p>i. Coaching/mentoring</p> <p>ii. Coursing</p> <p>iii. Informal support services</p>	<p>The school invites experts for regular training, and some schools even invite international experts. Experienced teachers who have successfully implemented PBL will coach other teachers and</p>

		mentor their PBL projects. Teachers who effectively implement PBL will receive end-of-year awards. Additionally, encouragement and support from parents, including providing materials and resources, is an immense support for teachers.
School context	<ul style="list-style-type: none"> <li>i. Physical resources</li> <li>ii. Contextualities</li> <li>iii. School goals</li> <li>iv. Multiculturalism</li> <li>v. Interactions with school leaders</li> </ul>	<p>i. Most international schools have fairly good facilities, but the most important factor remains the teachers-teachers are the ‘soul’ of PBL. Some schools may lack teaching materials or funding for study tours, which can be addressed by mobilizing resources from parents.</p> <p>ii. Students in private or public schools in Vietnam tend to be more passive compared to students in international schools. Therefore, teachers need to warm up before organizing PBL activities. Some Vietnamese parents may not fully understand PBL and thus show less interest.</p> <p>iii. The school sets clear objectives for the comprehensive development of children.</p> <p>iv. Multiculturalism is very evident in some international schools. In large cities, multiculturalism is also reflected in the different lifestyles of immigrant parents living there.</p> <p>v. Schools that agree to implement PBL generally do so due to the interest and encouragement of school leaders. As a result, teachers are usually comfortable sharing and learning from the school’s leadership. Challenges are also communicated by teachers to the leadership for quicker resolution. The leadership also fosters a positive and enjoyable work culture at the school to promote peer learning and communication, allowing teachers to develop themselves.</p>
Curriculum	<ul style="list-style-type: none"> <li>i. Curriculum materials</li> <li>ii. Curricula across different contexts</li> <li>iii. Curriculum implementation</li> </ul>	The preschool education program is quite flexible, allowing teachers to develop PBL activities. Implementing PBL generally does not affect the overall curriculum framework of the Ministry of Education and Training or the school, but it enhances the effectiveness of teaching and learning activities.
Reforms and policies	<ul style="list-style-type: none"> <li>i. Practical effectiveness</li> <li>ii. Key features</li> </ul>	Currently, the Ministry of Education and Training has also started to focus on PBL and organizes training workshops for teachers. The Department and Division of Education also hold professional development sessions on PBL, inviting experienced teachers to share their practical knowledge and guide other teachers in implementing PBL.

Overall, the findings from in-depth interviews with teachers who have implemented PBL underscore the positive impact of PBL on their professional growth. Teachers consistently highlighted that their own characteristics and attributes were the most influential factors in shaping successful PBL practices. Additionally, external motivators, such as parental support, active engagement, and a positive working environment, have been instrumental in encouraging teachers to continuously refine and enhance their PBL activities.

Recent policy initiatives at both central and local levels have increasingly endorsed PBL, providing foundational support that promotes its sustainable development within preschool education. This external support has empowered teachers to implement PBL more confidently, fostering a sense of accomplishment as they witness positive outcomes for their students and receive recognition from their colleagues. Over time, these external motivations have evolved into intrinsic ones, as teachers derive personal satisfaction and commitment from their successes in PBL (Liu et al., 2019).

*“The school leadership is very friendly and supportive of teachers. Teachers who perform well are recognized and praised in front of the entire school, with clear explanations given for the recognition so that other teachers can learn from it. However, the rewards are more psychological than material. When trust is placed in us, it provides additional motivation to continue developing PBL activities at the school”* (a teacher from Hanoi).

**Challenges and Solutions**

The results of the in-depth interviews reveal a total of 23 challenges listed in the process of implementing PBL (Fig. 4), specifically as follows: Challenges related to subjective factors from teachers (9): lack of investment in personal development, insufficient effort, not participating in training, lack of experience, lack of interdisciplinary and practical knowledge, inadequate classroom management skills, lack of materials and real-life models, lack of time and patience, and barriers when facing initial failures; Challenges from parents (4): lack of agreement and interest, parents’ lack of trust in PBL, PBL requiring significant parental cooperation/support, and parents’ expectations for their child’s performance after participating in PBL; Challenges from students (4): students not knowing how to ask questions, students being passive in class, students coming from different family and cultural backgrounds, and students lacking focus.

Other objective challenges: lack of facilities, materials, teaching aids, lack of funding for study tours, and overcrowded classrooms. Those challenges are particularly prevalent in public schools, where the facilities are still quite limited compared to private or international schools.

*“Organizing PBL for the first time is often very challenging. If teachers are well-prepared and successful in their initial implementation, they will be very motivated for subsequent attempts. However, if they encounter failure right from the start, they may be reluctant to revisit PBL”* (a teacher from Ho Chi Minh city).

Challenges					
teachers			Lack of PBL training for teachers	Students' lack of concentration	Less proactive Asian culture
Lack of deep and interdisciplinary understanding	Lack of proper model or practice to follow	Insufficient classroom management skills			
Time and energy required	Lack of practice	Lack of comprehensive training	Parents' concerns	Excessive demands of parents	Students' diversity (culture, nations)
			Lack of parents' cooperation		
Lack of materials			Lack of parental involvement	Differences in competences	Small investment in teaching
			Lack of field trip		
				A large number of students in a class	Failures in the first PBL activities

Figure 4. Compared number of item codes by challenges

These challenges are similar to those identified in previous research, such as managing diverse student needs and ensuring that projects remain student-centered (Ali, 2019; Ferrero et al., 2021; Johnson et al., 2019). Great working pressure is also a considerable challenge in implementing PBL (Liu et al., 2019). In the context of Vietnam, fundamental and comprehensive reform is consistently emphasized, and early childhood education is recognized as a crucial part of the national education system. As a result, teachers feel pressured to continuously enhance their professional skills and update their knowledge, including PBL.

Despite its challenges, PBL offers numerous benefits for both students and teachers. To ensure the quality and sustainability of PBL implementation in kindergartens, interviewed teachers have shared several effective strategies. Teachers should prioritize designing engaging activities that foster creativity and problem-solving skills. Continuous professional development is essential for refining PBL techniques, such as effective questioning and group facilitation. Building strong relationships with students is crucial for understanding their unique needs and tailoring instruction accordingly. By leveraging available resources, collaborating with the community, and adopting active teaching methods, teachers can create a stimulating PBL environment that supports children's holistic growth and development. Indeed, the success of PBL hinges on ongoing professional development and support to overcome its challenges and maximize its impact (Darmuki et al., 2023; Markula & Aksela, 2022).

*"I believe that peer learning and coaching are the most optimal approaches for schools to consistently implement PBL or other active teaching activities. Having someone to accompany and supervise helps provide the motivation needed to overcome challenges in work and even in personal life. When implementing PBL, collaborating with colleagues and exchanging ideas leads to more engaging concepts and greater success"* (a teacher from Hanoi).

#### **4.2. Discussion**

The findings from this study underscore the transformative potential of PBL in fostering teacher professional development (TPD) in Vietnamese kindergartens. By highlighting its impact on teaching practices, collaborative planning, and interdisciplinary learning, the results reaffirm the suitability of PBL as a strategy for enhancing both teacher and student outcomes. However, the study also reveals challenges associated with its implementation and suggests potential solutions to mitigate these issues.

##### ***Benefits and Strengths of PBL in TPD***

PBL has significantly contributed to teachers' professional growth, enhancing their pedagogical skills and fostering a shift toward more student-centered teaching approaches. Teachers reported improved abilities in designing inquiry-based activities, managing collaborative projects, and integrating interdisciplinary content into their curricula. Additionally, the reflective practices promoted through PBL-including monthly dialogues and feedback sessions-allowed educators to bridge the gap between theoretical knowledge and practical application.

Teachers also demonstrated increased self-efficacy and motivation after successfully implementing PBL projects. Many educators expressed readiness to mentor their peers, suggesting that PBL's collaborative nature encourages a culture of mutual learning and professional growth. The involvement of families and communities in PBL further enriched the educational experience, promoting a more holistic approach to early childhood education.

##### ***Challenges in PBL Implementation***

Despite its benefits, PBL implementation in Vietnamese kindergartens faces several challenges. These can be categorized into three main areas: teacher-related, parent-related, and systemic obstacles.

*Teacher-Related Challenges:* Many teachers struggle with inadequate preparation and training for PBL, particularly in public schools where resources are limited. A lack of experience, interdisciplinary knowledge, and classroom management skills was frequently reported, alongside difficulties in balancing the time-intensive nature of PBL with other professional responsibilities. Teachers also cited barriers such as insufficient patience and discouragement from initial failures.

*Parent-Related Challenges:* Parental understanding and support are critical for the success of PBL, yet many parents remain skeptical of its effectiveness or are hesitant to actively participate. Misaligned expectations between teachers and parents regarding the outcomes of PBL further complicate its implementation.

*Systemic Obstacles:* The disparity in resources between public and private schools emerged as a significant systemic challenge. Public schools often lack the physical facilities, teaching materials, and funding required for

effective PBL implementation. Additionally, overcrowded classrooms and the passive learning habits of some students posed further difficulties.

### ***Solutions for Effective PBL Implementation***

The findings suggest several strategies for addressing these challenges:

**Enhanced Professional Development:** Regular training sessions focusing on PBL techniques, such as questioning strategies, project facilitation, and interdisciplinary planning, are crucial. Structured internships and hands-on experiences, particularly for novice teachers, can bridge the gap between theory and practice. Peer coaching and mentoring programs, where experienced teachers guide their colleagues, have also proven effective (Markula & Aksela, 2022).

**Strengthening Collaboration:** Collaboration among teachers, parents, and communities is essential for overcoming resource constraints and ensuring active participation in PBL projects. Schools can foster such collaboration by organizing workshops, family engagement activities, and teacher-parent meetings to align expectations and promote understanding of PBL (Burbank et al., 2021).

**Leveraging Policy Support:** Recent policy initiatives by the Ministry of Education and Training, including PBL workshops and professional development sessions, represent a positive step. Expanding these efforts to include more public schools and rural areas could reduce disparities in resource availability and training opportunities.

**Gradual Implementation:** Teachers should start with simple PBL projects to build confidence and refine their approaches. Early successes can motivate teachers to tackle more complex projects over time, thereby minimizing the risk of discouragement.

**Broader Implications:** The findings align with global research highlighting PBL's role in fostering creativity, collaboration, and critical thinking in both students and educators. However, this study contributes uniquely to the understanding of PBL in the context of Vietnamese early childhood education, emphasizing the importance of localized solutions to systemic challenges.

## **5. CONCLUSION**

The study demonstrates that the implementation of PBL in Vietnamese preschools offers promising long-term benefits, fostering essential competencies in young learners while simultaneously supporting teachers' professional growth. Evidence from our research shows that PBL encourages teachers to engage in self-directed learning and to adopt a variety of active teaching methods, leading to a deeper awareness of their professional strengths and areas for improvement. This reflective process is critical for teachers' ongoing development and has broader implications for enhancing teaching quality within early childhood education.

Despite encountering multiple challenges—both systemic and resource-based—teachers have shown resilience and adaptability in navigating these obstacles. Notably, the study identifies peer learning and coaching as effective, low-cost strategies that support the quality and sustainability of PBL practices. This finding is particularly relevant for public preschools, where limited resources have sometimes fostered a misconception that PBL requires extensive facilities. By highlighting these feasible support mechanisms, our study underscores actionable solutions that can facilitate PBL implementation across diverse educational contexts, especially in resource-constrained environments.

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