

RESEARCH

***Fostering 21st-Century Skills through Project-Based Learning:
Learners' Perspectives from a Thai-English Translation Course***

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Abstract

This research aimed at investigating learners' attitudes toward project-based learning in a Thai-to-English translation course; and exploring how the students perceived their 21st-century skill development through project-based learning (PBL). The data were obtained from 85 Thai EFL English-major undergraduates, enrolling in the Thai-to-English Course for the academic year 2022, through a questionnaire on attitudes toward project-based learning and perceptions of developing 21st-century skills through project-based learning, and a self-reflection. The quantitative data from the questionnaire were analyzed using means and standard deviation, while the qualitative data from the reflection was conducted through content analysis to draw themes. The research findings highlight that the participants hold positive attitudes toward project-based learning (PBL). The research findings indicate that the participants held positive attitudes toward PBL. Moreover, they perceived PBL as an effective pedagogical approach that enhanced their 21st-century skills, including critical thinking, creativity, information literacy, and communication. In addition, the study provides insights into how PBL fosters these skills, aligning with the evolving educational needs of students in the 21st century.

Keywords: Project-based Learning (PBL), 21st-century skill development, Attitude, Perception

Introduction

In recent years, Project-Based Learning (PBL) has gained prominence in translation education (Hilmi & Safitri, 2022; Al-Sowaidi, 2021; Astuti et al., 2021; Apandi & Afiah, 2019; Moghaddas & Khoshsaligheh, 2019; Deng, 2018; Alkhatnai, 2017; Li, 2015). This pedagogical approach represents a shift towards experiential and student-centric learning, aligning with the evolving demands of 21st-century skills such as critical thinking, creativity, information literacy, and effective communication. These competencies are considered essential in our interconnected and technology-driven world (Binkley et al., 2012). Translation proficiency plays a vital role in facilitating cross-cultural communication, making it imperative for translation professionals to possess these 21st-century skills. In today's professional world, translation proficiency holds a pivotal role in fostering effective communication across linguistic and cultural boundaries. As the global landscape becomes increasingly interconnected, the ability to translate not only language but also nuanced cultural nuances is crucial. Translation professionals are expected to possess a suite of 21st-century skills, including critical thinking to convey meaning accurately, creativity to adapt content for different contexts, and collaboration to work with diverse teams and clients worldwide (Binkley et al., 2010). Moreover, their information literacy and ICT skills are vital for researching and utilizing digital resources while maintaining ethical standards (Binkley et al., 2012).

Project-based Learning

Rooted in Vygotsky's social constructivism model (1978), Project-based learning (PBL) is a collaborative approach that emphasizes learner autonomy, investigative activities, and reflection on real-world practices (Kokotsaki et al., 2016). Stoller (2006) defines PBL as an integration of process and product, focusing on skill integration and student accountability. Condliffe (2017) notes its enhancement of critical 21st-century skills like creativity, critical thinking, and communication. Furthermore, the complexity of PBL involves engaging students in challenging tasks such as design and problem-solving, preparing them for various real-world scenarios (Quint and Condliffe, 2018).

Hovey and Ferguson (2014) identify the core of Project-Based Learning (PBL) as a complex project-centered curriculum, emphasizing individual and cooperative learner initiative to

foster real-world motivation. Trilling and Fadel (2009) further highlight the critical role of continuous reflective evaluation and revision, leading to practical and applicable outcomes. In the realm of PBL research, the ability to critically assess information's adequacy and reliability becomes crucial, especially when using ICT tools, a process where Bell (2010) notes the essential guidance role of teachers. Additionally, PBL's interdisciplinary nature encourages an in-depth exploration of topics and connections between subjects, thereby enhancing learners' knowledge and skills (Ralph; 2015).

The collaborative and negotiated nature of team projects in PBL fosters the development of negotiation skills and the effective amalgamation of language skills with disciplinary knowledge, further enhancing information technology proficiency (Poonpon, 2017). Echoing these multifaceted benefits, Shin (2018) reports highly positive perceptions and improved outcomes among students engaged in technology-enhanced project-based learning. This method not only improves vocabulary and language skills but also significantly boosts motivation and attitudes towards learning English, underlining the comprehensive impact of PBL.

Project-based Learning in Translation Classes

Project-based learning (PBL) has emerged as a significant pedagogical approach in translation classes, recognized for its ability to enhance language proficiency and translation skills. Studies have consistently shown that students exhibit positive attitudes toward PBL, linking it to increased engagement, motivation (Li, 2015), and improvements in translation quality, critical thinking, and teamwork (Moghaddas & Khoshsaligheh, 2019). Despite noting practicality and time concerns, students in various contexts, from Saudi under-preparation translators (Alkhatnai, 2017) to EFL learners in Computer-Assisted Translation (CAT) courses (Astuti et al., 2021), report benefits like autonomy, creative thinking, and academic challenges.

Engagement with PBL in translation courses is notably high, with students actively participating and demonstrating increased translation competency over traditional methods (Hilmi & Safitri, 2022; Al-Sowaidi, 2021). The project-based flipped learning model, in particular, has been credited for enhancing motivation, active participation, and self-evaluation of translation

competence (Deng, 2018), proving especially effective in English to Chinese business translation courses (Apandi & Afiah, 2019). Collectively, these findings underscore PBL's vital role in improving student attitudes, engagement, and translation skills, marking it as a valuable approach in translation education.

21st-Century Skill Framework

21st-century skills refer to a set of competencies and abilities required for individuals to be successful in the rapidly developed landscape of the 21st century. The skills involve a combination of cognitive, interpersonal, and practical proficiencies. While the specific elements may vary slightly depending on different educational and professional frameworks, several key components are consistently recognized. The KSAVE model (Binkley et al., 2012), composed of knowledge, skills, attitudes, values, and ethics, offers a comprehensive framework for understanding and categorizing the skills necessary for 21st-century learners. It divides these skills into four distinct categories: "Ways of Thinking," encompassing creativity, critical thinking, problem-solving, and metacognition; "Ways of Working," which includes communication and collaboration; "Tools for Working," covering information literacy and ICT literacy; and "Living in the World," which involves citizenship at both local and global levels, life and career skills, and personal and social responsibility, including cultural awareness and competence. This model provides a structured approach to analyze and address the multifaceted skills required in the modern world. Moreover, it emphasizes the importance of not only defining these skills but also integrating them into education systems through effective teaching and assessment, ensuring that 21st-century aims and goals become an integral part of the learning experience for students, ultimately driving meaningful change in education.

Despite globally extensive studies on the impacts and implementation of project-based learning in English language education, its impacts on learners' translation competency and 21st-century skills have been in encouragement to the wider investigation. Such a study with the translation class in Thailand, specifically a Thai-into-English one, has been in scarcity. Accordingly, there is a need to conduct this study. It aims to (1) investigate learners' attitudes toward project-

based learning in a Thai-to-English translation course; and (2) explore how the students perceived their 21st-century skill development through project-based learning.

Methodology

Participants

The participants of the current study included Thai EFL 85 English-major undergraduate students from a private university in southern Thailand, enrolling in the Thai-to-English Course for the academic year 2022 in the second semester. Most of them were native speakers of Pattani Malay, residing in Thailand's Deep South region. A smaller group hailed from other provinces in the country and spoke Thai as their mother tongue.

Instrumentation

This study employed a mixed-method design, incorporating both quantitative and qualitative approaches. The research instruments consisted of a perception questionnaire and a self-reflection. They were administered to the participants via an online platform, *Google Form*. The participants were asked to consent to respond to the questionnaire and participate in the investigation.

The questionnaire, incorporating two 5-Likert rating scale surveys, was adapted from Sulaiman & Shahrill (2015) and Shin (2018) to accurately gauge learners' attitudes towards project-based collaborative learning and their perceptions of developing 21st-century skills. These surveys were chosen for their proven validity and high Index of Item-Objective Congruence (IOC), ensuring that the questions are both relevant and effective in measuring the intended constructs. The adoption of Sulaiman & Shahrill's study was due to its comprehensive exploration of collaborative learning environments, while Shin's work was selected for its insightful analysis of skill development in a 21st-century context. Together, these studies provide a robust framework for the questionnaire, ensuring a reliable and valid assessment of learners' attitudes and perceptions. The survey of learners' attitudes towards project-based collaborative learning included 15 statements categorized into three groups: learning stimulation (items 1-4), knowledge and understanding promotion (items 5-9), and interpersonal relationship skill enhancement (items

10–15). The other part encompassed 75 statements divided into four categories representing various aspects of 21st-century skills based on Binkley et al.'s KSAVE model (2012). In the "Ways of thinking" category, participants emphasized the importance of creativity and innovation (1–4) as well as critical thinking, problem-solving, and decision-making (5–9). The attitudinal disposition segment (10–16) captured the mindset required for these skills. "Ways of thinking" related to learning and metacognition (17–18) offered insights into adaptability and self-directed learning. "Ways of working" covered communication skills in both the mother tongue (19–22) and English (23), along with teamwork and collaboration skills (24–29). The "Tools for working" section explored information literacy (30–33) and ICT literacy (34–38). Information literacy was further expanded (39–52), emphasizing the significance of these skills in navigating the information-rich landscape. In the context of "Living in the world," the survey delved into local and global citizenship (53–57), adaptability (58), flexibility (59–60), goal management (61), self-directed learning (62–65), and results production (66–72), highlighting personal and social responsibilities (74–75). Overall, the survey effectively captured diverse aspects of 21st-century skills, providing a comprehensive view of learners' perceptions in these vital areas. It was then piloted with a sample of 10 fourth-year English majors who passed this course last year to be sure of the same characteristics and familiarity with the approach.

The self-reflection, a qualitative instrument, aimed at the participants reflecting the benefits of the project-based collaborative learning they acquired as well as the strengths and weaknesses they were aware of through the learning approach.

Procedure

Under the Thai-English Translation course, all students were required to do a course project in which knowledge learned in the class was applied and a research skill was encouraged through collaborative working progress along the course within the framework of three core principles:

Firstly, the "Awareness Framework" challenged students to infuse creativity into translation projects guided by three principles: understanding practical learning objectives, discovering personal passion, and respecting local wisdom while promoting global awareness and empathy for

human rights and ethics. This approach, during weeks 2–4, encouraged innovative solutions aligned with these principles, using translation as a tool to foster innovation.

Secondly, the "Research-based Collaborative Investigation Framework" entailed a structured process involving groups of 5–6 students, each assigned a Thai text with its English translation. The project spanned five stages: an initial study of the Thai text (weeks 2–6), translation production (weeks 7–11) with peer review for accuracy, readability, and language flow, collaborative revision and refinement, presentation on analysis, strategies, and challenges (weeks 12–13), and group presentations (week 14). In the final stage, individual reports were created, incorporating an analysis of translation strategies, all drafts, and solutions to encountered problems. This comprehensive framework facilitated collaborative learning, deep exploration of translation strategies, and effective problem-solving.

Finally, in the "Creativity-based Innovation Framework," students contributed to society in weeks 14–16 by translating local wisdom into English. Through collaboration, they created multimedia presentations celebrating Thailand's southern border region's cultural heritage. After project submission, students completed an online survey via the course's Facebook Chat Group to assess their project-based learning attitudes and respond to open-ended questions about the learning approach.

Data analysis

This study employed a mixed-methods approach to analyze students' perceptions of collaborative project-based learning in their Thai-to-English translation class. Upon the completion of the project at the end of the semester, the students were assigned to upload their digital projects onto a Google Form in which the questionnaire was embedded. The quantitative analysis involved survey responses, with mean scores and standard deviations calculated in MS Excel for Education to assess overall attitudes and variations. Survey items used a five-point Likert scale: 1) Strongly Disagree, 2) Disagree, 3) Neutral, 4) Agree, and 5) Strongly Agree (see Table 1). The initial analysis used descriptive statistics, including means and standard deviations. Means were categorized as follows: Strongly Disagree (1.00–1.80), Disagree (1.81–2.60), Neutral (2.61–3.40), Agree (3.41–4.20), and Strongly Agree (4.21–5.00) (Pimentel, 2010). This approach facilitated

response categorization. Qualitative self-reflection data underwent thematic content analysis conducted in Open code 4.03, and coding responses to identify recurring themes and insights. These qualitative findings complemented the quantitative results, offering specific advantages associated with the learning approach.

Findings

The research findings are presented based on the research aims: (1) investigating learners' attitudes toward project-based learning in a Thai-to-English translation course; and (2) exploring how the students perceived their 21st-century skill development through project-based learning.

Learners Attitudes towards Project-based Collaborative Learning

The survey findings provide valuable insights into students' perceptions of collaborative learning through project-based approaches as presented and summarized in. Table 1.

Table 1: Learners' Attitudes towards Project-based Collaborative Learning

Statements	\bar{x}	SD	Attitude Level
<i>Learning Stimulation</i>	4.51	0.57	<i>Strongly Agree</i>
1. The project-based collaborative learning encourages me to enjoy participating in translation class activities.	4.56	0.56	Strongly Agree
2. After participating in the video production project, I found learning translation is not so difficult but challenging for me.	4.43	0.61	Strongly Agree
3. I prefer learning through doing a project that has a collaborative learning component.	4.38	0.61	Strongly Agree
4. Learning Thai-to-English translation while doing the group project was really beneficial.	4.65	0.51	Strongly Agree
<i>Knowledge and Understanding Promotion</i>	4.57	0.53	<i>Strongly Agree</i>
5. In this translation project, I learned a lot about translation strategies for specific work.	4.65	0.48	Strongly Agree
6. Through the translation project, I increased my knowledge of new	4.67	0.48	Strongly Agree

Statements	\bar{x}	SD	Attitude Level
English expressions and word usage.			
7. I could learn more about Thai-English translation in a collaborative group project.	4.56	0.59	Strongly Agree
8. I got more knowledge of Thai-English translation when working with my peers.	4.60	0.55	Strongly Agree
9. I prefer the authentic materials of the project (presentation of local charms and uniqueness) compared to the materials in a traditional classroom environment.	4.37	0.55	Strongly Agree
Interpersonal Relationship Skill Enhancement	4.42	0.68	Strongly Agree
10. In the project, I felt it was great to work cooperatively with teammates.	4.46	0.71	Strongly Agree
11. After participating in the project, I felt the relationship within my team improved as we worked on the project cooperatively.	4.40	0.77	Strongly Agree
12. I felt responsible for the success to which everyone in the group shared their contributions.	4.57	0.56	Strongly Agree
13. All the members of my group were committed to the success of the group.	4.29	0.75	Strongly Agree
14. Members of my group felt a commitment to other individuals in the group.	4.13	0.79	Agree
15. Project-based collaborative learning has helped me to learn to work effectively in groups.	4.65	0.51	Strongly Agree
Total Average Score	4.49	0.60	Strongly Agree

On average, students held highly favorable and widely accepted attitudes towards this learning method, with a mean score (\bar{x}) of 4.49 and a relatively low standard deviation (SD = 0.60), indicating a consensus among respondents. Specifically, collaborative learning through projects was recognized for its effectiveness in promoting knowledge and

understanding ($\bar{x} = 4.57$, $SD = 0.57$) and stimulating the learning process ($\bar{x} = 4.51$, $SD = 0.53$). Additionally, students showed strong agreement regarding the role of this approach in fostering interpersonal skills ($\bar{x} = 4.42$, $SD = 0.67$). The aspects that received the highest levels of favor and acceptance included the perception that the translation project led to an increase in knowledge of new English expressions and word usage ($\bar{x} = 4.67$, $SD = 0.48$). Furthermore, students noted that they learned extensively about translation strategies for specific work through the project ($\bar{x} = 4.65$, $SD = 0.48$). They also found the experience of learning Thai-to-English translation through group projects to be highly beneficial ($\bar{x} = 4.65$, $SD = 0.51$) and recognized that project-based collaborative learning enhanced their ability to work effectively in groups ($\bar{x} = 4.65$, $SD = 0.51$). These insights emphasize the positive impact of collaborative project-based learning on students' knowledge acquisition and skill development.

Consistently, the findings from the self-reflections also revealed that collaborative project-based learning in a Thai-to-English translation class has yielded a wealth of insights from learners, shedding light on the advantages it brings. Firstly, learners emphasized that activities supported various language learning strategies (*see Excerpt 1*). They mentioned the importance of vocabulary acquisition and learning how to use it effectively. This includes gaining a substantial vocabulary in both Thai and English and understanding how to apply it. Additionally, learners mentioned the significance of learning translation strategies that can be applied in diverse contexts. These insights underscored the practical and strategic aspects of language learning and translation.

Excerpt 1: During we did the activities, we can develop quickly because of the failure. We could learn from that and saw the correct one on that time.

Secondly, Learners discussed how activities in the classroom positively influenced their memory retention. Learners acknowledged that passive listening often led to difficulties in remembering information, but through these activities, they found their memory and understanding of concepts improved significantly. This highlights the role of active learning methods in reinforcing language skills (*see Excerpts 2 and 3*).

Excerpt 2: I easily forget if I just listen. So, using activities helps me to remember so much.

Excerpt 3: Learning activities help to improve myself a lot because they're fun and I can understand and remember more than learning without activities.

Thirdly, cultural exchange emerged as an important aspect of classroom activities. Learners described how these activities allowed them to exchange opinions and ideas with peers from different cultural backgrounds (see *Excerpt 4*). This not only improved their language skills but also enhanced their ability to engage in cross-cultural communication. Translating words, phrases, and sentences from their culture into natural English further enriched their language skills (see *Excerpt 5*).

Excerpt 4: Exchange or opinion with other cultures, such as culture languages.

Excerpt 5: My group did a product and there were some words, phrases, and sentences that I took from Thai culture. Therefore, I can improve myself by learning and searching these kinds of words and trying to translate them into natural English.

Learners pointed out that classroom activities contributed to skill development. This included teamwork (see *Excerpt 6*), problem-solving (see *Excerpt 7*), and time-management (see *Excerpt 8*) skills. They highlighted that competing against time in group activities challenged them to think quickly and make decisions efficiently. This aspect of skill development is valuable not only for language learning but for overall personal growth.

Excerpt 6: We can get more styles in translation between our group members through doing activity.

Excerpt 7: It made me apply what I've learned in the class. I have to seek more information to make my work more reliable and logical.

Excerpt 8: Activities taught me to think and answer in a short time.

Critical thinking skills were mentioned as a key benefit of participating in classroom activities. Learners explained that engaging in these activities heightened their ability to think

critically (*see Excerpt 9*) and make informed decisions before taking action (*see Excerpt 10*). This is particularly important when dealing with translation and language-related challenges.

Excerpt 9: Activities encouraged me to think comprehensively before taking action and making decisions.

Excerpt 10: I have to seek more information in terms of making my work more reliable and logical.

In addition, learners expressed that classroom activities were motivating and enhanced their overall learning experience (*see Excerpt 11*). The enjoyment they derived from these activities, along with the knowledge and understanding gained, played a crucial role in maintaining their interest and commitment to learning.

Excerpt 11: Learning activities help to improve myself a lot because it's fun and I can understand and easy to remember more than learning without activities.

Moreover, activities were seen as comprehensive tools that not only helped learners understand lessons better but also enabled them to apply what they had learned (*see Excerpt 12*). This practical application of language skills in real-world scenarios is essential for language proficiency.

Excerpt 12: Activities are most effective to me. When we do activities, we always make different groups, and we will get great ideas from our different members and any activities.

Lastly, learners learned to be adaptable and flexible (*see Excerpt 13*), especially when dealing with unexpected changes in content or approaches in the classroom (*see Excerpt 14*). This adaptability is a valuable skill for language professionals who often encounter diverse and unpredictable translation challenges.

Excerpt 13: In the classroom, some activities or techniques that the teacher provides can be challenging. Still, I appreciate the fact that the teacher encourages us to find answers on our own.

Excerpt 14: The activities can be quite unexpected, but that keeps us on our toes and helps us adapt.

In summary, both qualitative self-reflections and survey findings highlight the comprehensive benefits of collaborative project-based learning in a Thai-English translation class. Participants noted improved language and translation skills, enhanced memory, cross-cultural communication, critical thinking, and motivation, along with the practical application of these skills through classroom activities. This approach significantly fosters knowledge acquisition and skill development.

Learners' Perception of Developing 21st-Century Skills through Project-based Learning

This section outlines research findings on participants' perceptions of developing 21st-century skills through project-based learning, categorized in Table 2 as "ways of thinking" (creativity, critical thinking, problem-solving, metacognition), "ways of working" (communication, collaboration), "tools for working" (information literacy, ICT literacy), and "living in the world" (local and global citizenship, life and career skills, personal and social responsibility, including cultural awareness and competence).

Table 2: Learners' Perception of Developing 21st-Century Skills through Project-based Learning

21 st -century skill category	\bar{X}	SD	Perception Level
Ways of thinking	4.29	0.65	Strongly Agree
<i>Creativity and innovation</i>	4.40	0.64	<i>Strongly Agree</i>
<i>Critical Thinking, Problem-Solving, Decision Making</i>	4.26	0.66	<i>Strongly Agree</i>
<i>Metacognition</i>	4.20	0.66	<i>Strongly Agree</i>
Ways of working	4.32	0.65	Strongly Agree
<i>Communication</i>	4.29	0.68	<i>Strongly Agree</i>
<i>Teamwork collaboration</i>	4.34	0.62	<i>Strongly Agree</i>
Tools for working	4.23	0.68	Strongly Agree
<i>Information literacy</i>	4.27	0.65	<i>Strongly Agree</i>
<i>ICT literacy</i>	4.26	0.69	<i>Strongly Agree</i>

21 st -century skill category	\bar{X}	SD	Perception Level
<i>Information literacy</i>	4.15	0.71	<i>Agree</i>
Living in the world	4.18	0.70	Agree
<i>Local and global citizenship</i>	4.17	0.70	<i>Agree</i>
<i>Life and career</i>	4.10	0.71	<i>Agree</i>
<i>Personal and social responsibility</i>	4.27	0.69	<i>Strongly Agree</i>
Total Average Score	4.26	0.67	Strongly Agree

Table 2 reveals students' strong positive perceptions of 21st-century skills, with an overall average score of 4.26 (SD = 0.68). In the "ways of thinking" category, creativity and innovation scored highest (\bar{X} = 4.40, SD = 0.64), indicating a strong inclination towards new ideas. Other areas like critical thinking, problem-solving, and metacognition also rated highly. Students showed proficiency in "ways of working," with effective communication (\bar{X} = 4.29, SD = 0.68) and teamwork collaboration (\bar{X} = 4.34, SD = 0.62) receiving strong ratings. In the "tools for working" category, information literacy (\bar{X} = 4.27, SD = 0.65) and ICT literacy (\bar{X} = 4.26, SD = 0.69) were well-regarded, with a slightly lower score in a subsequent instance of information literacy. For "living in the world," students scored positively on adaptability, respect for diversity, and personal and social responsibility. These results collectively underscore the students' preparedness in collaborative learning, critical thinking, communication, teamwork, information management, and ethical responsibility, crucial for modern success.

Discussion

This study reveals the positive impact of project-based learning (PBL) on student attitudes and the development of 21st-century skills in translation classes, resonating with Vygotsky's social constructivism and reinforcing PBL's effectiveness in enhancing language and translation skills (Li, 2015; Moghaddas & Khoshsaligheh, 2019). It highlights students' improved creativity and critical thinking, aligning with Condliffe's findings (2017) and emphasizing PBL's role in modern education. The study also underscores the importance of interdisciplinary collaboration, in line with Ralph's

(2015) and Poonpon's (2017) research, essential for addressing contemporary challenges. Additionally, it echoes Shin's (2018) observations of increased motivation and language skills through PBL and aligns with Al-Sowaidi (2021) and Deng's (2018) research on enhancing translation competency. Overall, the present study affirms PBL's comprehensive benefits in translation education, including linguistic proficiency, critical thinking, interdisciplinary learning, motivation, and translation skills, preparing students for the complexities of today's world.

Implications

The implications of this study are multifold. Firstly, educators and curriculum developers are encouraged to integrate PBL into translation and language learning curricula to enhance language proficiency, critical thinking, and interdisciplinary skills. Secondly, the study suggests that PBL can be a valuable tool for educators looking to engage students more deeply and prepare them for real-world challenges. Furthermore, the emphasis on translation skills indicates that PBL can specifically benefit translation studies by providing a more contextual and practical learning environment. Educational policymakers might also consider promoting PBL methodologies in broader educational settings due to their proven effectiveness in enhancing 21st-century competencies.

Suggestions for Further Research

Future research should explore the long-term impacts of PBL on students' professional development and career readiness in the field of translation. There is a need for comparative studies that evaluate the effectiveness of PBL against other teaching methodologies in translation education. Further research could also examine the specific components of PBL that contribute most significantly to skill development, as well as the challenges and limitations of implementing PBL in diverse educational settings. Investigating the role of technology in enhancing the PBL experience, especially in remote or hybrid learning environments, would also provide valuable insights. Additionally, expanding this research to different cultural and linguistic contexts would offer a broader understanding of PBL's applicability and effectiveness in global translation education.

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