MIAP Learning Process Integrated with Game-Based Learning for Enhancing Pāli Translation Skills

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Received: November 23, 2025; Revised: May 15, 2026; Accepted: June 2, 2026

Please cite as: Kaewsai, T., Kerdnaimongkol, S., Krittaphot Sakkadhammo, P.& Bhanussadit , P. (2026). MIAP learning process integrated with game-based learning for enhancing Pāli translation skills. *International Journal of Educational Communications and Technology, 6*(2), 71-82.

ABSTRACT: *This study aimed to synthesize and develop The MIAP Learning Process Integrated with Game-Based Learning (MIAP–GBL learning process), create a learning management platform based on this process, and compare learners' Pāli translation skills before and after implementation. A mixed-methods approach was employed. The participants were nine Buddhist monk students from the DCI Center for Buddhist Studies, purposively selected from those enrolled in the Pāli II. Research instruments included an achievement test, a satisfaction questionnaire, and a semi-structured interview form. The research was conducted in four phases: (1) synthesizing MIAP–GBL learning process based on 17 relevant studies, (2) developing the MIAP–GBL learning process with four instructional stages, (3) developing a Moodle-based learning management platform and instructional media package, and (4) implementation and assessment of Pāli translation skills using a single-group pretest–posttest design over four weeks. Their learning progress was analyzed using a t-test.*

Results revealed that the MIAP–GBL learning process comprised four stages: Creating Motivation and Hosting the Game, Studying Information and Explaining the Rules, Practicing through Gameplay, and Assessing Progress and Reflecting after Gameplay. The learning platform was developed using Moodle and supported by teaching materials, including documents, slides, and digital games (Kahoot!/ Quizlet/ Wordwall/ Wayground). The instructional package achieved an efficiency of 84.55/81.48. Post-test scores were significantly higher than pretest scores, and overall satisfaction was rated at the highest level. In conclusion, the developed MIAP–GBL learning process effectively enhanced learners' achievement, translation ability, and intrinsic motivation, serving as an integrated model for Pāli translation education.

Keywords: MIAP, Game-Based Learning, Pāli Translation Skills

1. Introduction

Buddhist scriptures transmitted to the present day can be categorized into five main language groups (Appleton, 2014; Bhikkhu Sujato & Bhikkhu Brahmali, 2014). Many Theravāda scholars believe that Pāli is the language most closely related to Māgadhī, the vernacular used by the Buddha in his discourses (Karpik, 2019; Thanavuddho Bhikkhu, 2017). Consequently, the study of the Pāli language has become a long-standing tradition. In Thailand, Pāli studies have continued since the Sukhothai period and flourished during the Rattanakosin era (Bannakornkul & Mangmeesrisuk, 2018). Prince Vajirañāṇavarorasa (1859-1921), the Supreme Patriarch, reformed the Pāli curriculum in 1920 (BE

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2463), replacing Mūlakaccāyana with a newly composed grammar text and establishing the "Royal Dhamma Studies Office" (Sanam Luang National Dhamma Studies Examination) to oversee the nine-tiered Pāli curriculum (Pahrian Thamm). This system emphasizes grammar mastery, followed by translation from Pāli to Thai and and Thai to Pāli (Venerable Dr Hammalawa Saddhātissa, 1990). The underlying principle asserts that mastery of Pāli grammatical structure is essential for accurate comprehension and faithful translation of Buddhist scriptures (Phra Mahawasan Yangsingor, 2024).

In contemporary Thai monastic education, besides traditional Nakk Thamm and Pāli programs, modern curricula have been introduced in the Pariyatti Thamm for General Studies and university systems to enhance monks' academic and interdisciplinary competence (Butmee, 2022). However, studies reveal that monastic instruction often lacks lesson planning, appropriate teaching techniques, classroom activities, and effective use of technology and media (Phra Mahaneti Netimethi (Kuldharathira) et al., 2024; Phrakittisarasuthee (Cherdchai Silasampanno) et al., 2025; Phramaha Apichai Samrid, 2024). Consequently, a large number of students fail the national Pāli examinations each year, averaging about 9% (Phramaha Apichai Samrid, 2024), reflecting significant educational inefficiency. One major factor is the rapid transformation toward a technology-oriented society (Phrakittisarasuthee (Cherdchai Silasampanno) et al., 2025).

Game-Based Learning (GBL) has recently gained considerable attention as an instructional approach. GBL integrates educational content into game mechanics to promote engagement and motivation (Sounthornwiboon et al., 2025) in both traditional and online learning environments (Zhyhadlo, 2022). It enhances learning performance and reduces learner anxiety (Ahmed et al., 2022), providing enjoyable and interactive learning contexts (Rahmadani et al., 2024) that strengthen both cognitive and behavioral engagement (Plass et al., 2015; Zhyhadlo, 2022). Game mechanics—such as points, levels, and leaderboards—foster challenge and accomplishment. GBL also provides immediate, accurate feedback useful for self-assessment and improvement. In language learning, GBL has proven effective in developing vocabulary and grammar skills (Alabedi et al., 2023; Zhyhadlo, 2022). Since Pāli translation requires mastery of vocabulary, grammar, and syntactic interpretation (Ahmed et al., 2022; Alawadhi & Abu-Ayyash, 2021), GBL's capacity to create enjoyable, motivating, and collaborative learning environments (Ahmed et al., 2022; Plass et al., 2015; Zhyhadlo, 2022) makes it particularly suitable for enhancing translation skills and transforming monotonous lessons into lively and effective learning experiences (Jin et al., 2021; Shakhmalova & Zotova, 2023).

The MIAP (Motivation–Information–Application–Progress) learning process is a competency-based instructional model emphasizing active engagement and practical skill development (Hinon et al., 2024). It consists of four key stages: Motivation, which stimulates learners' interest; Information, where essential content is delivered (Phunaploy et al., 2021); Application, which encourages hands-on practice and problem-solving (Chumchuen et al., 2020; Thanachawengsakul et al., 2023); and Progress, which assesses learning outcomes (Hinon et al.,2024). MIAP focuses on learner-centered skill training (Chumchuen et al., 2020) and promotes authentic learning through experience (Phunaploy et al., 2021). Studies show MIAP enhances critical and analytical thinking (Thanachawengsakul et al., 2023; Thongprasit & Piriyasurawong, 2023) and improves academic performance significantly (Benjamaha & Uantrai, 2021). Because Pāli translation requires analytical reasoning and stepwise application of grammatical rules (Thongprasit & Piriyasurawong, 2023), the Application and Progress phases of MIAP are particularly effective for translation training, offering practice, feedback, and measurable progress toward linguistic competence.

Therefore, it is essential to redesign Pāli language pedagogy to align with 21st-century learning behaviors (Phrakhrusriatthasasaka, 2021). Translation skill is central to understanding the Tipiṭaka and its commentaries—the core of Buddhist doctrine. Traditional Pāli instruction, however, remains dominated by rote memorization and grammatical explanation (Phramaha Wutthikrai Puṇṇavuḍḍhi (jampan), 2021; PhraMahaYod Abhipuñño (Sopa), 2021), leading to low motivation and limited application ability. This study thus integrates Game-Based Learning (GBL) with the MIAP learning process to create a participatory, motivating, and hands-on instructional model (Benjamaha & Uantrai, 2021; Jin et al., 2021; Rahmadani et al., 2024; Thongprasit & Piriyasurawong, 2023). The combined GBL–MIAP framework fosters meaningful learning by using GBL to enhance engagement and MIAP to structure systematic progression and performance monitoring. This integrated process aims to develop deep understanding and sustainable linguistic competence in Pāli translation (Thongprasit & Piriyasurawong, 2023; Zhyhadlo, 2022), thereby improving both learning outcomes and instructional efficiency in contemporary Pāli education.

2. Research Questions

2.1 What are the instructional stages of the MIAP learning process integrated with Game-Based Learning (MIAP–GBL learning process) for enhancing Pāli translation skills?
2.2 What are the stages and learning activities of the developed MIAP–GBL learning process for enhancing Pāli translation skills?
2.3 What modules and functions are included in the learning management platform based on the MIAP–GBL learning process for enhancing Pāli translation skills?
2.4 What are the differences in learners' Pāli translation skills before and after participating in the MIAP–GBL learning process?

3. Research Objectives

3.1 To synthesize the MIAP–GBL learning process for enhancing Pāli translation skills.
3.2 To develop the MIAP–GBL learning process for enhancing Pāli translation skills.
3.3 To develop a learning management platform based on the MIAP–GBL learning process for enhancing Pāli translation skills.
3.4 To compare learners' Pāli translation skills before and after learning through the MIAP–GBL learning process.

4. Research Hypotheses

4.1 The instructional media package developed under the MIAP–GBL learning process for enhancing Pāli translation skills will achieve the efficiency criterion of 80/80.
4.2 Learners engaged in the MIAP–GBL learning process will demonstrate significantly higher Pāli translation performance in the posttest than in the pretest ($p < .05$).
4.3 Learners' overall satisfaction with the MIAP–GBL learning process for enhancing Pāli translation skills will reach a high level ($\bar{x} \geq 3.50$).

5. Methodology

5.1 Research Scope
The study employed two variables: Independent variable: the MIAP–GBL learning process; dependent variable: Pāli translation skills. Population and Sample: The population comprised Buddhist monk students studying Pāli at the Dhammacariya (Pali Studies) level IV; the sample consisted of nine monk students from the DCI Center for Buddhist Studies enrolled in the Pāli II course during the second semester of the 2025 academic year, selected using purposive sampling. Research Content: The instructional content was based on the Pāli II course (Pāli Grade IV curriculum). Experimental Duration: The experimental period lasted four weeks.

5.2 Research Instruments
Three research instruments were employed in this study: an achievement test, a satisfaction questionnaire, and a semi-structured interview form. The achievement test was developed by the researcher as a multiple-choice test with four options per question. The number of items and content were designed to align with the behavioral objectives. The test was initially checked for appropriateness and then evaluated for quality, including difficulty index (P), discrimination index (r), and reliability using the KR-20 formula. The satisfaction questionnaire and semi-structured interview were designed by the researcher and reviewed by experts. Revisions were made based on expert feedback before finalization. The satisfaction questionnaire consisted of two parts: Part 1 included five dimensions with a total of 10 items, rated on a 5-point Likert scale (very high, high, moderate, low, very low). Part 2 collected open-ended feedback. The semi-structured interview consisted of five open-ended questions aimed at exploring learners' experiences and perceptions regarding the MIAP–GBL learning process for enhancing Pāli translation skills.

5.3 Research Methodology
This study employed mixed-methods design, integrating qualitative and quantitative approaches. The research was conducted in four phases according to the research objectives as follows:

Phase 1: Synthesizing MIAP–GBL learning process
The researcher reviewed 10 studies related to the MIAP learning process (8 from Scopus, 2 from ThaiJO) to synthesize the MIAP learning process. Additionally, 7 Scopus studies on Game-Based Learning (GBL) were analyzed to synthesize the GBL process. The results from both syntheses were then integrated to form the MIAP–GBL learning process aimed at enhancing Pāli translation skills. Findings from this phase were used as the basis for Phase 2.

Phase 2: Developing MIAP–GBL learning process
Based on the synthesis from Phase 1, the researcher developed the MIAP–GBL learning process for Pāli translation skill enhancement. The draft process was evaluated for appropriateness by three experts. Recommendations from the experts were applied to revise and finalize the process, which was then prepared for implementation in teaching.

Phase 3: Developing Learning Management Platform and Instructional Media Package
The researcher developed an instructional media package based on the MIAP–GBL learning process for enhancing Pāli translation skills. Content and exercises from three lessons were integrated into a set of materials, including teaching documents, presentation slides, and digital games from four interactive platforms suitable for classroom use: Kahoot!, Quizlet, Wordwall, and Wayground.

Kahoot!: Real-time quiz platform fostering competition and engagement; suitable for knowledge review and in-class assessment, accessible via mobile or computer.

Quizlet: Supports vocabulary memorization and matching exercises through flashcards and game modes (Match, Blast, Block), enhancing retention and translation fluency.

Wordwall: Allows creation of interactive activities (matching, ordering, fill-in-the-blank) to practice Pāli sentence structure and grammar individually or in groups.

Wayground: Features scoring and time tracking for immediate feedback and assessment of learner understanding.

The combination of these platforms ensured engagement throughout all stages of the MIAP–GBL learning process.

The learning management platform was developed using Moodle, integrated with digital tools (Kahoot!, Quizlet, Wordwall, Wayground) and supporting media (PDFs, supplementary documents). Moodle's features allow structured lesson sequencing, easy access via computer or mobile devices, and flexibility for pre-study or review. The platform and materials were evaluated by three experts for appropriateness, revised based on recommendations, and tested with the sample group using the 80/80 criterion.

Phase 4: Implementation and Assessment of Pāli Translation Skills
Data were collected using a Single-Group Pretest–Posttest Design. Learners completed a pretest before instruction, followed by 4 weeks of learning via the MIAP–GBL learning process. Learners could also access the Moodle platform for self-study or review. Post-intervention, learners completed a posttest, and skill improvement was analyzed using t-tests. Satisfaction questionnaires and semi-structured interviews were conducted. Interview data were transcribed, coded, and analyzed using Thematic Analysis, with themes categorized according to research objectives.

6. Results

Phase 1: Synthesis of MIAP–GBL Learning Process for Enhancing Pāli Translation Skills
The synthesis of the MIAP–GBL learning process for enhancing Pāli translation skills was divided into three parts: (1) synthesis of the MIAP learning process, (2) synthesis of Game-Based Learning (GBL) process, and (3) synthesis of the integrated MIAP–GBL learning process for enhancing Pāli translation skills. The results are presented in Tables 1, 2, and 3, respectively.

Table 1. Results of Synthesis of the MIAP Learning Process

MIAP	Learning Activities	References
1. Motivation	Instructors should stimulate learners' interest to create a desire to learn the content by using broad, supportive questions and media to ensure active participation of most learners.	(Benjamaha & Uantrai, 2021; Chumchuen et al., 2020; Klinbumrung, 2020; Klinbumrung & Surpare, 2021; Krimchai, 2024; Phunaploy et al., 2021; Seetao & Surpare, 2020; Thanachawengsakul et al., 2023; Thongprasit & Piriyasurawong, 2023; Tongrot & Pansri, 2022)
2. Information	Instructors should select the "must-know" content to teach first. For example, when teaching measurement tools, instructors should first teach how to read the tools, followed by how to use them, maintain them, and identify their parts.	(Benjamaha & Uantrai, 2021; Chumchuen et al., 2020; Klinbumrung, 2020; Klinbumrung & Surpare, 2021; Krimchai, 2024; Phunaploy et al., 2021; Seetao & Surpare, 2020; Thanachawengsakul et al., 2023; Thongprasit & Piriyasurawong, 2023; Tongrot & Pansri, 2022)
3. Application	Instructors should provide exercises that allow learners to apply the knowledge gained to solve problems, while varying activities to prevent boredom and maintain engagement.	(Benjamaha & Uantrai, 2021; Chumchuen et al., 2020; Klinbumrung, 2020; Klinbumrung & Surpare, 2021; Krimchai, 2024; Phunaploy et al., 2021; Seetao & Surpare, 2020; Thanachawengsakul et al., 2023; Thongprasit & Piriyasurawong, 2023; Tongrot & Pansri, 2022)
4. Progress	Instructors should review and explain exercises so learners can adjust their understanding of the content, while varying activities to increase interest and reinforce learning through repetition.	(Benjamaha & Uantrai, 2021; Chumchuen et al., 2020; Klinbumrung, 2020; Klinbumrung & Surpare, 2021; Krimchai, 2024; Phunaploy et al., 2021; Seetao & Surpare, 2020; Thanachawengsakul et al., 2023; Thongprasit & Piriyasurawong, 2023; Tongrot & Pansri, 2022)

From Table 1, the synthesis of the MIAP learning process comprises four stages: (1) Motivation, (2) Information, (3) Application, and (4) Progress.

Table 2. Results of the Synthesis of the Game-Based Learning (GBL) Process

GBL	Learning Activities	References
1. Hosting	The instructor selects, studies, and tries out the game in advance to ensure understanding before using it in class. During instruction, the teacher explains the game to ensure that learners fully understand how it works.	(Ahmed et al., 2022; Chiang, 2020; Kamal Hossain & Abdullah Al Younus, 2024; Liu et al., 2022; Navinkumar & Sivakami, 2024; Zhyhadlo, 2022)
2. Instruction	The instructor demonstrates how to play the game step by step, performing the demonstration slowly so that students can remember the details. The instructor clearly explains the procedures and rules of the game, possibly using visual aids or allowing students to practice playing before the actual gameplay.	(Ahmed et al., 2022; Chiang, 2020; Kamal Hossain & Abdullah Al Younus, 2024; Liu et al., 2022; Navinkumar & Sivakami, 2024; Rahmadani et al., 2024; Zhyhadlo, 2022)
3. Gameplay	Learners play the game according to the established rules within a specified time limit to avoid affecting subsequent learning activities. The instructor supervises the sequence, time control, and gameplay rules while observing and collecting data for later discussion.	(Ahmed et al., 2022; Chiang, 2020; Kamal Hossain & Abdullah Al Younus, 2024; Liu et al., 2022; Navinkumar & Sivakami, 2024; Rahmadani et al., 2024; Zhyhadlo, 2022)
4. Reflection	After gameplay, the instructor facilitates a discussion among students about the insights and lessons learned from the game. The instructor leads a reflection session focusing on the intended learning objectives.	(Ahmed et al., 2022; Chiang, 2020; Kamal Hossain & Abdullah Al Younus, 2024; Liu et al., 2022; Navinkumar & Sivakami, 2024; Rahmadani et al., 2024; Zhyhadlo, 2022)

From Table 2, the synthesis of the game-based learning process revealed four stages: (1) Hosting, (2) Instruction, (3) Gameplay, and (4) Reflection.

Table 3. Results of the Synthesis of the Integrated MIAP–GBL Learning Process for Enhancing Pāli Translation Skills

MIAP	GBL	MIAP–GBL Learning Process	Learning Activities
1. Motivation	1. Hosting	1. Creating Motivation and Hosting the Game	The instructor stimulates learners' interest by asking thought-provoking questions, highlighting the importance of the lesson, outlining the content framework, and explaining the objectives of the game.
2. Information	2. Instruction	2. Studying Information and Explaining the Rules	The instructor teaches the content using digital media and presentation slides through a combination of lecture and Q&A. After presenting the content, the instructor introduces the game along with explanations and demonstrations on how to play.
3. Application	3. Gameplay	3. Practicing through Gameplay	Learners play the game according to the specified rules (Kahoot!/Quizlet/Wordwall/Wayground), divided into a Warm-up Game for practice without scoring and an Active Game with scoring to monitor learners' skills (not for formal assessment). The instructor observes and evaluates overall learner performance to determine when to conclude the game, followed by post-lesson exercises.
4. Progress	4. Reflection	4. Assessing Progress and Reflecting after Gameplay	The instructor provides feedback on game performance, praises strengths, and points out areas for improvement for each learner. Learners then engage in a discussion to share insights and lessons learned from the game. Finally, the instructor reviews the completed exercises and summarizes key points and relevant teachings related to the lesson.

From Table 3, the synthesis of the MIAP–GBL learning process for enhancing Pāli translation skills consists of four stages: (1) Creating Motivation and Hosting the Game, (2) Studying Information and Explaining the Rules, (3) Practicing through Gameplay, and (4) Assessing Progress and Reflecting after Gameplay.

Phase 2: Development of the MIAP–GBL Learning Process for Enhancing Pāli Translation Skills

The development of the MIAP–GBL learning process for enhancing Pāli translation skills is presented in Figure 1. From Figure 1, the MIAP learning process integrated with Game-Based Learning (MIAP–GBL learning process) for enhancing Pāli translation skills consists of four stages. Each stage includes detailed implementation, technology use, and instructional media as follows:

Stage 1: The instructor stimulates learners' motivation and explains the objectives of the game. PowerPoint/Canva slides are used for each lesson, including thought-provoking questions, illustrative images, content framework, learning objectives, and the significance of the lesson to provide an overview. Then, game applications such as Kahoot!, Quizlet, Wordwall, or Wayground are presented to attract learners' attention and communicate the purpose of the game.

Stage 2: The instructor teaches the lesson content and explains the game rules. PowerPoint/Canva slides are used to support content delivery. Next, the game applications (Kahoot!/Quizlet/Wordwall/Wayground) are introduced to explain menus and rules, followed by step-by-step game demonstrations.

Stage 3: Learners practice through gameplay and complete exercises. The instructor opens the game applications (Kahoot!/Quizlet/Wordwall/Wayground) for learners to play. The gameplay is divided into a Warm-up Game for memorization practice without scoring and an Active Game in which scores are recorded to check learners' skills.

Stage 4: The instructor assesses learning outcomes from gameplay and exercises. Dashboards in Kahoot!/Quizlet/Wordwall/Wayground are shown to analyze game results for learners. Then, PowerPoint/Canva is used to review exercise performance and summarize key points and relevant teachings associated with the lesson.

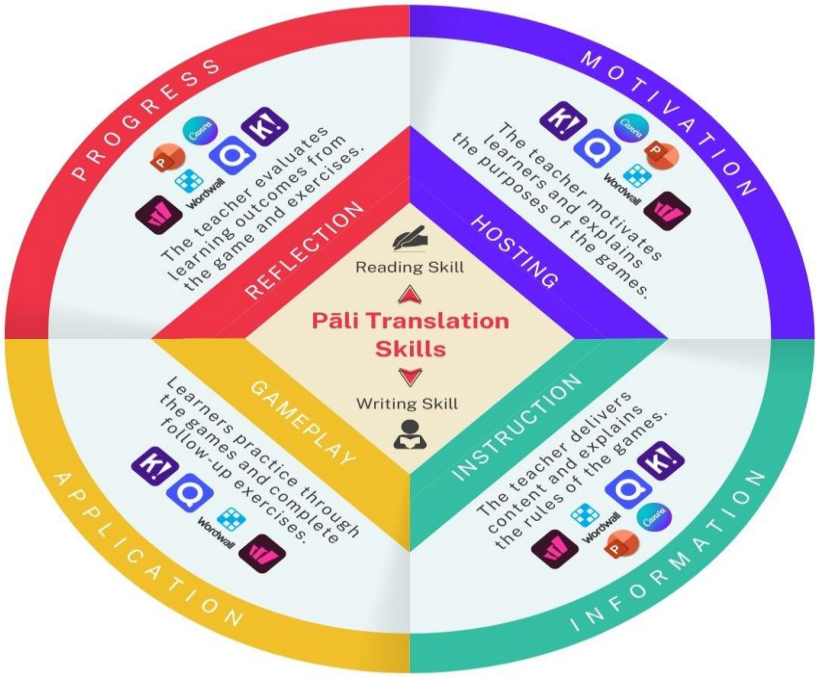


Figure 1. The MIAP Learning Process Integrated with Game-Based Learning for Enhancing Pāli Translation Skills

Phase 3: Development of the Learning Management Platform Using the MIAP–GBL Learning Process for Enhancing Pāli Translation Skills

The instructional media package developed consisted of (1) eight teaching documents, (2) five presentation slides, (3) three Kahoot! games, (4) fifteen Quizlet games, (5) three Wordwall games, and (6) one Wayground game, which were integrated and hosted on the Moodle-based learning platform.

After developing the Pāli II course test, the researcher conducted a try-out to determine a difficulty index, discrimination index, and test reliability. The try-out involved 30 participants and included 33 test items. The analysis was performed using the KR-20 formula. The results are shown in Table 4.

Table 4. Test Quality Analysis Results

Test Quality Indicator	Minimum	Maximum
Difficulty Index (P)	0.5667	0.8000
Discrimination Index (r)	0.2546	0.7266
KR-20 Reliability	0.8884	-

As presented in Table 4, the test exhibited a difficulty index (P) ranging from 0.57 to 0.80, indicating a moderate level of difficulty, and a discrimination index (r) ranging from 0.25 to 0.73, indicating an appropriate level of discrimination. The test reliability, calculated using the KR-20 formula, was 0.89, which is considered high. In summary, the test demonstrated sufficient quality and can be confidently used for assessment purposes.

Table 5. Effectiveness of the Instructional Media Package Using the MIAP–GBL Learning Process

Items	N	$\sum x$	$\bar{x}$	Percentage (%)
Scores from Exercises	9	250.80	27.90	84.55
Scores from Tests	9	242.00	26.89	81.48

From Table 5, it was found that nine learners who participated in the trial of the Instructional Media Package for the Pāli II course, developed through the MIAP learning process integrated with Game-Based Learning, achieved an average score of 84.55% on the formative exercises during the learning sessions. This exceeded the first criterion of 80%. Furthermore, the learners obtained an average post-test score of 81.48%, surpassing the second criterion of 80%. These results indicate that the Instructional Media Package developed by the researcher for the Pāli II course demonstrated an efficiency level higher than the established 80/80 standard, thereby confirming the research hypothesis.

Phase 4: Results of the Implementation and Assessment of Pāli Translation Skills through the MIAP–GBL Learning Process

The researcher administered a pretest on Pāli translation skills to nine participants before the implementation. Subsequently, the learners engaged in learning activities designed according to the MIAP–GBL learning process and used the developed set of instructional materials. Upon completion of the learning sessions, the participants took a post-test. The pretest and post-test scores were analyzed to determine the difference and to compare the learners' Pāli translation skills before and after the learning intervention. The results of the comparison are presented in Table 6.

Table 6. Comparison of Learners' Pāli Translation Skills through the MIAP–GBL Learning Process

Test	N	$\bar{D}$	$S.D.$	t
Pretest	9			
Posttest	9	9.78	2.49	11.79

From the t-table with df = 8 and $\propto$ = .05, the critical value of t is 2.306. However, the calculated t-value shown in Table 6 is 11.79, which is greater than the critical value (11.79 > 2.306). Therefore, the mean scores of the pretest and posttest are significantly different at the .05 level, indicating that learners' Pāli translation skills after using the MIAP–GBL learning process were higher than before instruction.

The results of learners' satisfaction with the MIAP–GBL learning process for enhancing Pāli translation skills are presented in Table 7 as follows.

Table 7. Learners' Satisfaction with the MIAP–GBL Learning Process for Enhancing Pāli Translation Skills

Aspect of Opinion	$\bar{x}$	$S.D.$	Interpretation
Classroom Learning Process			
1. The learning steps according to the process are appropriate	4.44	0.53	High
2. Learning activities promote participation and motivation	4.33	0.50	High
Average	**4.39**	**0.52**	**High**
Platform and Instructional Media Package			
3. The Moodle platform is attractive and easy to use	4.22	0.44	High
4. Instructional media package support content understanding	4.44	0.53	High
Average	**4.33**	**0.49**	**High**
Digital Games			
5. Digital games are interesting and suitable	4.56	0.53	Very High
6. Game applications are easily accessible and convenient to use	4.56	0.53	Very High
7. Digital games help maintain learners' focus for longer	4.67	0.50	Very High
Average	**4.60**	**0.52**	**Very High**
Knowledge and Understanding			
8. The learning process helps learners better understand translation principles	4.33	0.50	High
9. Learners can better memorize vocabulary and sentence structures than in traditional learning	4.56	0.53	Very High
Average	**4.45**	**0.52**	**High**
Application of Knowledge			
10. Learners can apply acquired knowledge to actual Pāli translation	4.33	0.50	High
Overall Average	**4.50**	**0.51**	**Very High**

From Table 7, it can be observed that learners' overall satisfaction with the MIAP–GBL learning process for developing Pāli translation skills was at the "highest" level (mean = 4.50). Analyzing by individual aspects, the digital games component received the highest satisfaction (mean = 4.60), whereas the other four aspects attained "high"

satisfaction levels (means = 4.33, 4.33, 4.39, and 4.45). These findings are consistent with the hypotheses proposed in this study.

Learners' perceptions and experiences of the MIAP–GBL learning process for enhancing Pāli translation skills, collected through semi-structured interviews, are summarized as key themes of effectiveness. Game-based learning fostered motivation, enjoyment, and relaxation, particularly through Kahoot! and Quizlet, which enhanced engagement and reduced pressure. Compared with traditional learning, the process encouraged active participation, immediate feedback, and long-term retention. Technical management using whiteboards and time-limited games improved focus and accuracy. Learners gained clearer understanding of Pāli grammar and sentence structure, increasing confidence in composition. Wordwall and Quizlet connected learning to real-world translation, while Kahoot! and Quizlet supported self-review and autonomous learning.

7. Discussion

Based on the comparison of learners' Pāli translation skills through the MIAP–GBL learning process, the calculated t-value was 11.79, which exceeded the critical value at df = 8, $\propto$ = .05 (2.306). Since 11.79 > 2.306, the difference between the pretest and posttest mean scores was statistically significant at the .05 level. This indicates that the MIAP-GBL learning process developed in this study effectively enhanced learners' Pāli translation skills, consistent with the research hypothesis. This result can be attributed to the unique characteristics of the MIAP-GBL learning process, which promotes learner engagement across cognitive, affective, and behavioral dimensions. This finding aligns with Zhyhadlo (2022), who emphasized comprehensive motivation and engagement. The process stimulated both intrinsic and extrinsic motivation through game mechanics-such as points, levels, and leaderboards-which fostered positive emotions, including a sense of achievement and healthy competition. Consequently, learners demonstrated engagement across four key dimensions: cognitive, emotional, behavioral, and sociocultural. These outcomes are consistent with Kamal Hossain & Abdullah Al Younus (2024) and Rahmadani et al. (2024), who confirmed that game-based learning fosters intrinsic drive and sustained proactive learning behavior. Furthermore, the findings support Ahmed et al. (2022), who noted that learning environments reducing anxiety while maintaining challenge levels encourage graceful failure-the willingness to take risks and learn from mistakes. Game-based learning transforms repetitive activities into challenging and stimulating tasks, motivating learners to make continuous efforts toward improved learning outcomes (Shakhmalova & Zotova, 2023). Regarding the MIAP component, this learning model emphasizes skill development and learner competency through the active use of knowledge to solve authentic problems. This approach aligns with Thongprasit & Piriyasurawong (2023), who highlighted MIAP's potential to strengthen learners' real-world competencies. When integrated with cooperative learning strategies, MIAP fosters independent knowledge construction and higher learning achievement (Seetao & Surpare, 2020). In particular, the Application (A) stage allows learners to apply acquired knowledge and skills to solve simulated real-world problems, an essential feature of experiential learning. Therefore, the MIAP–GBL learning process for enhancing Pāli translation skills effectively enhances both intrinsic motivation and practical competency, leading to deeper comprehension of Pāli linguistic structures, accurate application of grammatical principles, and sustainable learning outcomes.

7 Limitations of the Study

This study has several methodological limitations that should be acknowledged. Since the Pāli II course (Pāli Grade IV curriculum), which is an advanced and highly challenging level of Pāli education, the number of enrolled students is naturally limited. In this academic year, only nine Buddhist monk students were enrolled, resulting in the use of a single-group pretest–posttest design without a control group.

Although this design was appropriate for the initial implementation of the MIAP–GBL learning process, the absence of a control group may limit internal validity, as external factors such as prior learning experience, self-study, and individual motivation may have influenced the results. In addition, the small sample size and purposive sampling may affect external validity and the generalizability of the findings to broader educational contexts.

Future research should include larger sample sizes across multiple institutions and a control group to strengthen both internal and external validity. Despite these limitations, the study provides practical implications for instructional design in advanced Pāli language education and demonstrates the feasibility of integrating digital game-based learning into traditional Buddhist education contexts.

6. Conclusions

This study aimed to develop a learning process that integrates the MIAP learning process with Game-Based Learning (GBL), particularly through digital games, to enhance Pāli translation skills in alignment with 21st-century learning principles. The developed MIAP–GBL learning process represents a systematic integration of digital technology and the discipline of Pāli language education. The findings revealed that this process effectively enhanced learners' learning achievement, including deeper conceptual understanding, translation ability, and intrinsic motivation, when compared with traditional instruction. Therefore, The MIAP Learning Process Integrated with Game-Based Learning for Enhancing Pāli Translation Skills demonstrates a highly potential pedagogical model for fostering contemporary and learner-centered Pāli language instruction. This study provides a practical framework for promoting integrative learning management within the broader context of Pāli language education.

8. Acknowledgements

I would like to thank you, DCI Center for Buddhist Studies, for supporting the sample in the research, and the Department of Education Technology and Information Science, Faculty of Technical Education, King Mongkut's University of Technology North Bangkok supported this research.

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