

# DEVELOPING ENGLISH PROFICIENCY AMONG MEDICAL STUDENTS THROUGH AI-EMBEDDED PADLET: A NOVEL APPROACH

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**ABSTRACT:** This study investigates the effectiveness of Padlet, an interactive AI-embedded digital platform, in enhancing English proficiency among medical students in the Central Highlands of Vietnam. With English becoming increasingly vital in the medical field, tailored pedagogical methods are essential. Therefore, Padlet serves as a supplementary tool to traditional language instruction, providing students with a collaborative environment for language practice through various functions such as brainstorming, discussions, and peer feedback. Using a quantitative approach, the research examines Padlet's impact on medical students' English proficiency, confidence levels, and engagement in language learning activities. The findings indicate that Padlet fosters active participation, peer interaction, and reflective learning experiences, contributing to the improvement of English proficiency among medical students. The implications of these findings for language teaching pedagogy in medical education contexts are also discussed, along with recommendations for future research and practical implementation strategies towards creating dynamic and collaborative language learning environments, particularly in the medical field, to better prepare students for effective communication in professional settings.

**Keywords:** Medical students, AI-embedded Padlet, English proficiency, Central Highlands.

## PHÁT TRIỂN NĂNG LỰC TIẾNG ANH CỦA SINH VIÊN Y KHOA QUA PADLET TÍCH HỢP AI: MỘT PHƯƠNG PHÁP MỚI

**TÓM TẮT:** Khi tiếng Anh ngày càng quan trọng trong lĩnh vực y tế, việc áp dụng các phương pháp sư phạm phù hợp trở nên cấp thiết. Padlet, như một công cụ hỗ trợ giảng dạy ngôn ngữ truyền thống, cung cấp cho sinh viên một môi trường hợp tác để thực hành thông qua các chức năng như động não ý tưởng, thảo luận và phản hồi từ bạn bè. Nghiên cứu này,

sử dụng phương pháp định lượng, đánh giá tác động của Padlet lên trình độ tiếng Anh, mức độ tự tin và sự tham gia vào các hoạt động học ngôn ngữ của sinh viên y khoa. Kết quả cho thấy Padlet thúc đẩy sự tham gia tích cực, tương tác, nhận xét chéo và trải nghiệm học tập, từ đó nâng cao trình độ tiếng Anh của sinh viên y khoa. Những kết quả này đóng góp vào phương pháp giảng dạy ngôn ngữ trong giáo dục y tế và đưa ra các khuyến nghị cho nghiên cứu tương lai cũng như chiến lược triển khai thực tế, nhằm tạo ra môi trường học ngôn ngữ năng động và hợp tác, chuẩn bị tốt hơn cho sinh viên giao tiếp hiệu quả trong môi trường làm việc chuyên nghiệp.

**Từ khóa:** Sinh viên Y khoa, Padlet tích hợp AI, trình độ tiếng Anh, Tây Nguyên.

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## 1. INTRODUCTION

In an increasingly globalized world, English proficiency has become a critical skill for medical professionals (Koerber & Graham, 2017; Hull, 2016). The ability to use English effectively is essential for medical students and medical staff to access the latest research, read academic materials, participate in international seminars, and communicate with foreign experts (Lodhi et al., 2018). However, many medical students in non-English speaking countries face significant challenges in achieving the necessary level of English proficiency (Oliver et al., 2012; Jiang et al., 2022).

Traditional language instruction methods often fall short in catering to the unique needs of medical education in Vietnam, resulting in limited progress (Albright, 2018; Gao et al., 2020). Moreover, the lack of opportunities for real-world practice and feedback further impedes language acquisition among students in Vietnam (Dang, 2011; De Bot et al., 2005; Otte, 2006).

The demand for innovative approaches to tackle English language learning challenges in the medical domain in Vietnam is evident. Among such approaches is Padlet, an AI-embedded platform emerging as a viable solution, offering interactivity and adaptability conducive to effective language development. Investigating the efficacy of this novel approach is crucial to addressing the persistent issue of English proficiency among medical students and improving overall communication in healthcare settings. This research aims to evaluate the effectiveness of Padlet in improving English proficiency, confidence, and engagement among medical students.

## 2. LITERATURE REVIEW

### 2.1. Padlet

Padlet is a digital platform that serves as a traditional classroom noticeboard, providing a blank space for teachers and students to engage and share diverse content such as texts, web links, images, audio files, and videos (Park et al., 2023). Similar to a physical noticeboard, all posted

content on Padlet is visible to all participants, fostering a user-friendly and enjoyable platform for sharing ideas and facilitating online collaboration.

During the COVID-19 pandemic, Padlet saw an increase in users, especially educators and students, following a rise in remote learning worldwide (Musayaroh, 2022). Padlet offers a diverse range of features (Borisovna & Vladimirovna, 2015) to meet the needs of various users, including educators, professionals, or individuals. Some key features include:

- **Customizable Boards:** Users can create digital boards where collaborators can contribute content in various forms, including text, images, videos, links, and documents (Wahidin et al., 2024).

- **Collaborative Tools:** Padlet facilitates real-time collaboration, allowing multiple users to contribute to a board simultaneously (Amer et al., 2024; Wahidin et al., 2024). This is particularly valuable for team projects, brainstorming sessions, virtual workshops, and distance learning environments, where participants can engage and interact regardless of physical location.

- **Privacy and Security:** With Padlet, users have control over the privacy settings of their boards, allowing them to choose between public, private, or password-protected access (Zainuddin et al., 2020). This ensures that sensitive information remains secure while still

facilitating collaboration and sharing within designated groups or communities.

In short, Padlet serves as a digital tool resembling a traditional classroom noticeboard, enabling educators and students to share diverse content. Its enhanced features, including customizable boards, real-time collaboration capabilities, and privacy controls, could support effective online engagement and confidence among medical students in their English learning, hence it could help improve English proficiency.

## 2.2. AI-embedded tools in teaching English

AI-embedded tools in teaching English refer to educational technologies and software applications that incorporate artificial intelligence (AI) capabilities to enhance and optimize the teaching and learning of the English language (Lin et al., 2023).

Some benefits and capabilities of AI-embedded tools in English language teaching include:

- **Personalized learning:** AI can analyze student performance data and adapt lesson plans, content, and practice activities to the individual needs and learning styles of each student (Chen et al., 2020).

- **Speech recognition:** AI-powered speech recognition allows students to practice pronunciation and spoken English, with the tool providing feedback on their speaking abilities (Pokrivcakova, 2019).

- **Learning analytics:** AI can analyze student interaction and performance data to provide teachers with insights into learning progress and optimize instructional approaches (Chen et al., 2020).

- **Multilingual support:** AI translation and language modeling capabilities can enable these tools to provide instructions and feedback in the student's native language (Chen et al., 2020).

In short, with such distinctive features as personalized learning, speech recognition, learning analytics, and multilingual support, Padlet can significantly enhance the English learning experience, fostering a more engaging and collaborative environment, helping students improve their English.

### 2.3. Medical Students' Learning Style Preferences.

Padlet, a digital whiteboard and collaboration tool, can be particularly useful in accommodating several of the common learning style preferences among medical students:

- **Visual Learning:** According to Breckwoldt et al. (2014), medical students tend to have a strong preference for visual learning modalities, with studies indicating that up to 65% of medical students are visual learners. Additionally, Khot et al. (2013) stated that visualization tools like diagrams, illustrations, and infographics significantly improve knowledge retention

and comprehension among visually-oriented medical students.

- **Collaborative and Team-based Learning:** Research by Burgess et al. (2017) indicated that collaborative learning approaches are widely recognized as effective in medical education, fostering the development of critical thinking, communication, and teamwork skills. Studies have found that medical students value the opportunity to engage in interactive, case-based group discussions to apply their knowledge and receive peer feedback (Dolmans et al., 2005).

- **Flexible and Accessible Learning:** Research by Masters et al. (2016) highlights the increasing use of mobile devices and web-based tools among medical students, emphasizing the need for flexible and accessible learning resources that can be accessed anytime, anywhere. Additionally, Gibbons et al. (2018) noted that medical students often juggle demanding schedules and appreciate learning technologies that support their evolving needs and preferences throughout their medical education.

By incorporating Padlet into teaching English, with its features in creating visual aids and encouraging collaboration, teachers can create engaging, interactive, and collaborative learning experiences that cater to the diverse learning style preferences of their medical students. This can lead to enhanced knowledge retention,

skill development, and overall academic success among medical students.

### **3. METHODOLOGY**

#### **3.1. Setting and participants**

This study was conducted at Tay Nguyen University in the Central Highlands of Vietnam, specifically targeting first-year medical students enrolled in the General English 1 course for the 2023-2024 academic year. First-year students were chosen for this research because they are at the initial stage of their university education, often experiencing the transition from high school to a more self-directed learning environment. This cohort is particularly significant as their early exposure to effective learning tools can set a foundation for their future academic success. Additionally, these students are typically at a similar starting point in their English proficiency, providing a more uniform baseline for assessing the impact of the experimental intervention.

The General English 1 course, also known as Communicative English 1, is the first in a series of five General English courses required for medical students to achieve a B1 Preliminary level of English proficiency. This foundational course is critical as it prepares students for subsequent courses and their future studies in Medical English.

The research employed an experimental method comprising three key phases: a pre-test, an experimental phase,

and a post-test. Initially, out of the 140 students enrolled in the course, 133 completed a pre-test questionnaire designed to evaluate their English proficiency and previous experience with AI-embedded platforms for learning English.

During the experimental phase, teachers integrated Padlet, a collaborative online tool, into their English teaching. They created various activities both in and outside the classroom to enhance students' engagement and collaboration. The activities included collaborative writing tasks, peer reviews, and interactive discussions facilitated through Padlet, allowing students to practice their English skills in a dynamic and interactive environment.

At the end of the course, a post-test questionnaire was administered to assess the effectiveness of Padlet in improving students' collaboration, engagement, and English proficiency. A total of 133 students participated in this post-test.

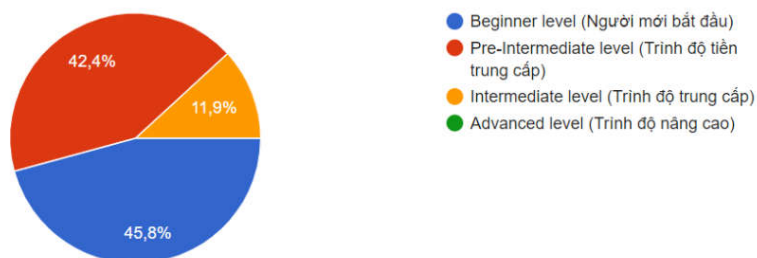
#### **3.2. Data Collection Instrument**

The study employed a quantitative method. To gather quantitative data, a pre-test questionnaire comprising 10 structured questions was utilized to assess participants' backgrounds, current English proficiency levels, and prior experiences with AI-embedded platforms, including Padlet, in learning English. Following the experimental phase in which Padlet was integrated into the English teaching and

learning process, a post-test questionnaire with nine questions was given to gather participants' feedback on how Padlet influenced their English proficiency, collaboration, and engagement. The use of questionnaires provided several advantages, including ease of distribution, the ability to collect data from a large sample, and the standardization of questions to ensure consistency in responses. The pre-test and post-test questionnaires were designed bilingually, in both English and Vietnamese.

By employing this structured approach, the study aimed to accurately measure the impact of Padlet on the students' learning experiences, providing valuable insights into the effectiveness of using AI-embedded platforms in language education.

What is your current level of English proficiency? (*Trình độ tiếng Anh hiện tại của bạn đang ở mức nào?*)



Graph 1. Students' level of English

When asked about the frequency of using Padlet during the course, 43.6% of the students reported using it 3-4 days a week, followed by 25.6% who said they used it

### 3.3. Data Collection procedures and analysis

Quantitative data from the pre-test and post-test questionnaires were analyzed using descriptive statistics to measure changes in English proficiency, collaboration, and engagement before and after the use of Padlet. This method provided a comprehensive understanding of the impact of Padlet on the students' learning outcomes and experiences.

## 4. RESULTS AND DISCUSSION

### 4.1 Results from the pre-test questionnaires:

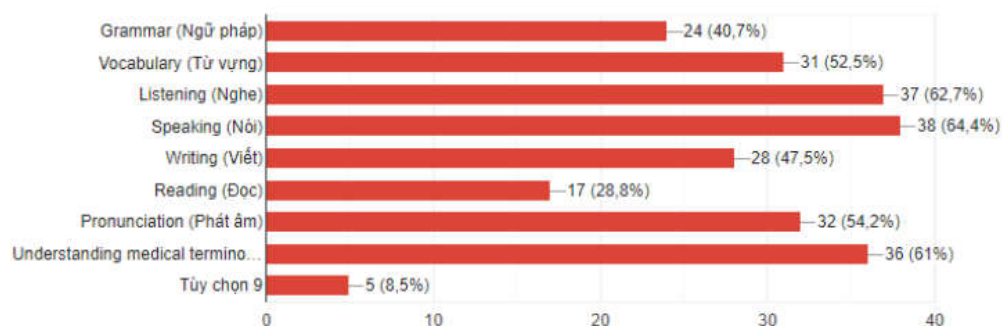
In the pre-test questionnaire, 45.8% of the students considered themselves to have an English proficiency level of beginners, followed by 42.4% who identified as pre-intermediate. About 11.9% reported having an intermediate level of English (as shown in Graph 1).

rarely. Additionally, 7.5% of students did not use it at all. More information about the frequency of using Padlet is presented in Graph 2.

In terms of the specific challenges faced in learning the English language, the findings revealed that speaking (64.4%) and listening (62.7%) are the most challenging aspects, followed by understanding medical terminology (61%). Pronunciation (54.2%) and vocabulary (52.5%) also present significant difficulties for more than half of the participants. Writing (47.5%) and grammar (40.7%) are moderately challenging, whereas reading (28.8%) is considered the least challenging skill (Graph 2).

What aspects of English language learning do you find most challenging? (*Bạn thấy khó khăn nhất ở khía cạnh nào của việc học tiếng Anh?*)

59 câu trả lời

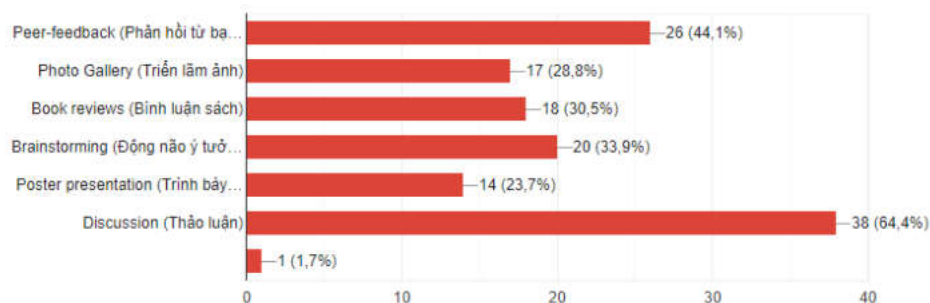


Graph 2. Specific challenges faced by medical students in learning the English language

Regarding the activities to improve their English proficiency in Medical English classes, the most preferred activity is Discussion (64.4%). Peer-feedback is the second most favored activity at 44.1%, followed by Brainstorming and Book reviews by 33.9% and 30.5% of respondents, respectively. “Photo Gallery” and “Poster presentation” are less popular, chosen by 28.8% and 23.7%, respectively, possibly due to the more passive nature of these activities (Graph 3).

Which activities would you like to do in and outside of your Medical English class to improve your English proficiency? (*Bạn muốn tham gia hoạt động nào trong và ngoài lớp học Tiếng Anh Y khoa để nâng cao trình độ tiếng Anh của mình?*)

59 câu trả lời



Graph 3. Activities to improve their English proficiency in Medical English classes

## 4.2 Results from the post-test questionnaires:

### 4.2.1 The effectiveness of Padlet in improving students' interaction and collaboration

When asked about the frequency of using Padlet during the course, 43.6% of the

students reported using it 3-4 days a week, followed by 25.6% who said they used it rarely. Additionally, 7.5% of students never used it at all. More information about the frequency of using Padlet is presented in Graph 4.

How much time did you spend for Padlet each week?  
(Bạn đã dành bao nhiêu thời gian cho Padlet vào mỗi tuần?)



Graph 4. Students' frequency of using Padlet

Regarding the effectiveness of Padlet in improving students' participation and collaboration inside and outside the classroom, the majority of students (more than 85%) revealed that Padlet helped them to be more engaged and cooperative with their teammates and classmates. Specifically, 87.97% of students agreed or strongly agreed that Padlet encouraged them to communicate more with classmates outside the classroom, and 91.73% felt that Padlet motivated their group to interact and complete tasks together.

In terms of confidence and idea sharing, 89.47% of students agreed or strongly agreed that Padlet helped increase their confidence to participate actively in class. Moreover, 87.22% said that Padlet allowed them to share ideas and resources easily.

Regarding engagement and motivation, 87.97% of students reported increased engagement in their learning after using Padlet, and 91.73% felt more motivated to complete tasks upon seeing others submit their assignments on Padlet.

For feedback and peer-learning, 88.72% of students felt comfortable receiving feedback on Padlet, and 92.68% believed they could learn from their peers' videos and recordings in other groups. Furthermore, 93.98% and 93.23% of students respectively felt they could learn the use of words and ideas from peers' and teachers' feedback on Padlet.

In terms of idea expression, 93.99% of students admitted that Padlet enabled them to express their ideas and thoughts effectively (Table 1).

**Table 1. Students' reflection on the effectiveness of Padlet in increasing their collaboration and engagement.**

No.	Statements	Strongly agree	Agree	Disagree	Strongly disagree
1	Padlet encourages me to communicate more with my classmates outside of the classroom. (Padlet khuyến khích tôi giao tiếp nhiều hơn với các bạn cùng lớp sau giờ học.)	17,29%	70,68%	9,02%	3,01%
2	Padlet helped increase my confidence to participate actively in the class (Padlet giúp tôi tự tin hơn để tham gia tích cực vào lớp học)	24,06%	65,41%	6,02%	4,51%
3	Padlet allowed me to share ideas and resources easily (Padlet cho phép tôi chia sẻ ý tưởng và tài nguyên một cách dễ dàng)	21,05%	66,17%	9,02%	3,76%
4	Padlet motivated my group to interact and complete tasks together (Padlet thúc đẩy nhóm tôi tương tác và hoàn thành nhiệm vụ cùng nhau)	26,32%	65,41%	5,26%	3,01%
5	After using Padlet, I was more engaged in my learning (Sau khi sử dụng Padlet thì tôi đã hứng thú hơn trong việc học)	20,30%	67,67%	8,27%	3,76%
6	I felt comfortable to be given feedback on Padlet. (Tôi cảm thấy thoải mái khi nhận được phản hồi trên Padlet.)	24,06%	64,66%	7,52%	3,76%
7	I felt more motivated to complete the task when I saw others submit their assignment on Padlet (Tôi cảm thấy có động lực hơn để hoàn thành bài tập khi thấy các bạn khác nộp bài tập trên Padlet)	22,56%	69,17%	5,26%	3,01%
8	Padlet enabled me to express my ideas and thoughts (Padlet cho phép tôi bày tỏ ý tưởng và suy nghĩ của mình)	19,55%	74,44%	4,51%	1,50%
9	I could learn from my peers' videos and recordings in other groups on Padlet (Tôi có thể học hỏi từ các video và bản ghi âm của các bạn trong các nhóm khác trên Padlet)	18,80%	73,68%	5,26%	2,26%
10	I could learn the use of words from my peers' and my teachers' feedback on Padlet (Tôi có thể học cách sử dụng từ vựng qua phản hồi của bạn bè và giáo viên trên Padlet)	24,06%	69,92%	3,76%	2,26%
11	I could learn from the ideas from my peers' and my teachers' feedback on Padlet (Tôi có thể học hỏi từ những ý tưởng từ phản hồi	21,80%	71,43%	3,76%	3,01%

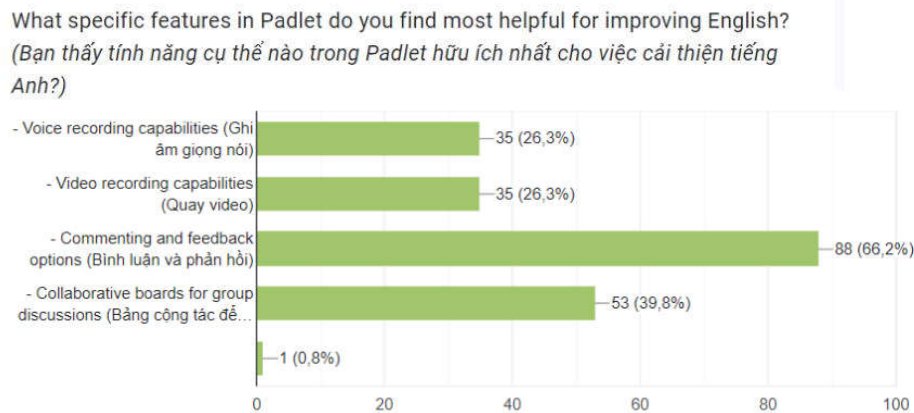
	của bạn bè và giáo viên của tôi trên Padlet)				
12	I felt more motivated to complete the assignment together with my peers (Tôi cảm thấy có động lực hơn để hoàn thành nhiệm vụ cùng với các bạn cùng lớp)	22,56%	69,92%	6,02%	1,50%

These findings suggested that Padlet can effectively enhance collaborative learning and student interaction. By providing a platform for active participation, idea sharing, and peer feedback, Padlet addresses several challenges associated with traditional language instruction, which was similar to the results in Amer et al.'s (2024) and Wahidin et al.'s (2024) research. The high levels of student engagement and motivation indicated that Padlet can be a valuable tool for creating a more interactive and supportive learning environment. The ability to engage students in meaningful interactions and provide real-time feedback could significantly improve language proficiency, which is essential for medical

professionals. Moreover, the increased confidence and comfort in receiving feedback suggest that such platforms can create a more positive and encouraging learning atmosphere.

#### 4.2.2. The effectiveness of Padlet in improving students' English Proficiency

Regarding the specific features in Padlet that students found most helpful for improving their English, a majority of 66.2% of the 133 respondents indicated that the commenting and feedback options were the most beneficial feature. This was followed by 39.8% who found that collaborative boards for group discussions were helpful. Both voice recording capabilities and video recording capabilities were equally valued, each being selected by 26.3% of the respondents (Graph 5).



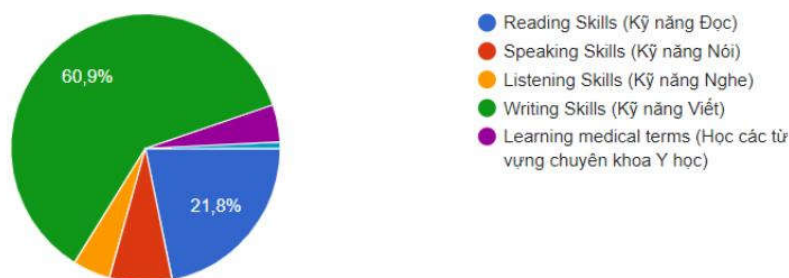
Graph 5. Most useful features in Padlet

When examining the aspects of English proficiency that students felt were most improved by using Padlet, a substantial 60.9% reported that their writing skills benefited the most. Speaking skills were the second most

improved area, according to 21.8% of students. Reading skills and listening skills were improved for 9.8% and 5.3% of students, respectively. A smaller segment (2.3%) found Padlet useful for learning medical terms (as in Graph 6).

What aspects of English do you find most beneficial to practice using Padlet?

(Bạn thấy khía cạnh nào của tiếng Anh đã được cải thiện nhất khi thực hành sử dụng Padlet?)



Graph 6. English aspects found to be most improved

The data suggested that Padlet's interactive features, such as commenting, feedback, and collaborative boards, play a significant role in enhancing students' writing and speaking skills. These features facilitate active learning and provide opportunities for practical language use, which are crucial for language acquisition. The ability to receive real-time feedback and learn from peers' contributions further reinforces the learning process.

In summary, Padlet has proven to be an effective tool for improving students' English proficiency, particularly in writing and speaking. The most valued features were the commenting and feedback options, as well as collaborative boards. These tools provide a dynamic and interactive learning

environment that supports language development and enhances overall student engagement.

## 5. CONCLUSIONS

This study demonstrates the potential of Padlet as an effective tool for enhancing English proficiency through collaboration and engagement among medical students in the Central Highlands of Vietnam. By fostering active participation, peer interaction, and reflective learning, Padlet contributes to improved language skills and increased confidence. The findings highlight the importance of integrating innovative educational technologies into language instruction, particularly in specialized fields like medicine.

Future research should explore the long-term impacts of using Padlet and other AI-embedded tools in language learning. Additionally, further studies could examine the effectiveness of these tools in different educational contexts and with diverse student populations. Practical implementation strategies should also be developed to support educators in creating dynamic and collaborative language learning environments.

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