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Research Article

STUDENTS' ATTITUDES TOWARD UTILIZING AI-BASED TECHNOLOGIES TO IMPROVE THEIR SPEAKING PROFICIENCY

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ABSTRACT

This study aims to explore the attitudes of students at the tertiary level toward the efficacy of Artificial Intelligence (AI)-assisted websites and applications in encouraging the advancement of speaking capacity. It examines both positive aspects, such as increased learners' engagement with the assistance of AI technology in self-regulated learning, and potential factors that disrupt their active learning. One hundred and eight sophomores majoring in English engaged in six experimental weeks with carefully designed guidelines to utilize two AI-based websites: app.smalltalk2.me and voicetube.com. After that, the questionnaire was delivered to investigate learners' perceptions and engagement levels throughout the period. The analysis of data reveals that students express a preference for incorporating AI technologies into their English-speaking practice regarding the usefulness of the apps in correcting grammatical and pronunciation mistakes, providing timely feedback, and a wide variety of topics relevant to class learning. However, several internal and external factors constrain students' engagement in self-regulated learning, such as the commitment and motivation for long-term usage. The results suggest further studies into implementing some forms of assessment on students' progress in applying technological tools which potentially increase learners' motivation and get them actively engaged in the learning path.

Keywords: AI-based technologies; engagement; learners' attitudes; speaking proficiency

1. Introduction

The advancements in technology have brought about precious opportunities for incorporating technological tools in educational contexts. Research focusing on information and communication technologies (ICT) explores the significant impact of technological tools in boosting learner motivation (Schoepp & Erogul, 2001), and learners' autonomy (Ghasemi & Hashemi, 2011). Studies in Thailand (Binsaleh & Binsaleh, 2013), Taiwan, and Singapore (Looi et al., 2010) demonstrate the successful implementation of software programs in class

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settings. Apps like ELSA Speak have shown positive effects on pronunciation in learners from Indonesia (Samad & Ismail, 2020; Kholis, 2021; Anggraini, 2022). Duolingo's approach to providing level-appropriate assignments and test reviews (Garcia, 2013; Munday, 2015) has been recognized for its effectiveness in building vocabulary. Quizlet's use of flashcards is a popular method for memorizing new words, advocated by various educational organizations by using flashcards. AI features integrated into those applications have increased the prominence and popularity of their usage (Yingsoon, 2021).

Empirical investigations have identified the capacity of AI tools to foster the interactive learning environment of speaking skills (Yingsoon, 2021), provide opportunities for deliberate practice and constructive feedback in English, and enhance English-speaking proficiency when integrating Information and Communication Technology (ICT) (Yingsoon, 2021). In addition, an AI-driven teaching and learning language approach has been proposed as a viable remedy for language learners, providing accurate analysis, immediate feedback, and personalized training (Rusmiyanto et al., 2023). These research findings suggest that AI tools have the potential to develop speaking skills in the language learning process. The advancements in artificial intelligence (AI) technology empower educational websites or applications to provide a more engaging and meaningful virtual learning environment. They are prominent in promoting self-study engagement among learners when it allows students to practice speaking on their own and have their work corrected by AI, instead of waiting for teachers' feedback and corrections. AI technology has demonstrated considerable potential in facilitating the cultivation of oral proficiency within the context of English language acquisition.

Several case studies conducted in the Vietnam context have shown that the utilization of technological tools in the language teaching and learning process has had a positive impact on students' engagement and motivation and enhanced EFL learners' speaking abilities, as well as the potential drawbacks of the utilization (Le & Vo, 2014; Vo, Nguyen & Vo, 2022; Phan, 2021; L.T.H. Nguyen, 2021; Vo & Vo, 2020; Nguyen, 2022; Nguyen, 2020a, 2020b, 2020c, 2023a, 2023b, 2023c, 2023d, 2024a, 2024b; T.T.H. Nguyen, 2021).

The conducted studies suggest that the use of technological tools can enhance the learning and teaching of English-speaking skills providing positive results on the successful application of ICT at all educational levels and the premises for replicating these models in the education system in Vietnam.

Table 1 below summarizes some of the positive points about using technology tools in Vietnam to improve speaking skills.

Table 1. *Advantages of using technological tools in Vietnam to improve speaking skills*

Nº	*Content*
1	**Personalized learning:** Technology tools enable personalized instruction tailored to each student's needs and interests. This targeted approach allowed students to focus on their specific weaknesses in speaking, leading to more efficient and effective improvement.
2	**Interactive activities:** Technology injects excitement and engagement into language learning through interactive activities. These activities not only motivate students to practice their speaking skills but also make the learning process more enjoyable and, ultimately, more effective.
3	**Access to resources:** Technology offers students great access to resources to enhance their speaking skills. With a wide range of authentic English materials available, students can immerse themselves in real-world English through news articles, podcasts, and videos, expanding their vocabulary and exposure to natural speech patterns.

While Vietnamese teachers of the English language demonstrate a positive attitude toward integrating technology into their teaching a crucial need exists for the development of appropriate methods and resources for both teachers and learners. (See Table 2)

Table 2. *Disadvantages of using technological tools in Vietnam to improve speaking skills*

Nº	*Content*
1	**Lack of access to technology:** A significant challenge to implementing technology for improving speaking skills is unequal access to technology, especially in rural areas. This can be a barrier to using technology to improve speaking skills.
2	**Inadequate training for teachers:** While Vietnamese educators are increasingly embracing technology, a skills gap exists in effectively integrating these tools in the classroom. Without proper training, technology use can become counterproductive, hindering rather than promoting progress.

Previous studies have shown the potential of AI tools to enhance language skills, but have not yet detailed enough about their effectiveness for speaking skills in self-regulated learning environments. This study follows and extends those results, focusing on how AI tools can be integrated into students' self-regulated learning to speak English. The current experimental research that integrates web-based learning tools in speaking activities has been conducted to get more students engaged in extra speaking tasks as their self-regulated learning to enhance their motivation as well as their confidence in speaking performance. Two fundamental research questions will be addressed in the study: (1) What are the students' attitudes towards the use of technological platforms as part of a self-study tool to improve their English-speaking skills? (2) What are the students' engagement levels with the speaking tasks conducted on the guided technological platforms? The study strives to investigate students' usage of AI technology and examine how other factors impact their perspectives and their engagement in self-regulated speaking learning activities on AI-based learning websites. The findings could contribute to the future application of AI-based technologies in big-sized speaking classes to maximize students' engagement and improve their proficiency in speaking skills.

- ***An introduction to App.smaltalk2.me***

Created in 2020, App.smalltalk2.me plays as a website deploying artificial intelligence to enhance speaking skills and build up vocabulary range for its users. It employs a unique approach based on bite-sized daily tasks fostering autonomous learning habits (Cheon et al.,

2012). The app suggests a couple of speaking practice activities relevant to an individual's level and interests, which focus both on fluency and language range (Khameis, 2007). Moreover, the website incorporates the shadowing technique, a well-established learning method (Brown, 2001; Chung, 2010; Nguyen, 2020a, 2020b, 2020c, 2022, 2023a, 2023b, 2023c, 2023d, 2024a, 2024b; L.T.H.Nguyen, 2021; T.T.H. Nguyen, 2021) to create more personalized practices suitable for different needs. One unique feature of SmallTalk2Me is the comprehensive progress tracking system, which analyzes your progress and identifies positive developments or areas for improvement. This data-driven approach suggests learners the most suitable tasks for continuous improvement.

- ***An introduction to Voicetube.com***

Originating from Taiwan, Voicetube provides users with video sources to train English pronunciation and speaking skills. This website and app (available on iOS, Android, and the web) boasts a massive library of over 40,000 videos, classified into various topics and difficulty levels (A1 - C2) to suit users learning goals. Moreover, users can freely choose to practice with American, British, or Australian accents according to their preference (Jin, 2017). This method reduces learners' anxiety and stress compared to peer practice, leading to more effective language acquisition (Hamada, 2014). With personalized tasks and improvements, users' access to various realistic learning materials encourages learning autonomy and confidence (Chapelle, 2001). While VoiceTube offers a wealth of authentic learning materials, one potential area for improvement is the tracking progress system, which further motivates learners in their learning path (Chen, 2016). Overall, VoiceTube provides a comprehensive and engaging platform to develop confidence and fluency in spoken English through the power of video and personalized practice.

- ***An Overview of the ABC Model of Attitudes***

First proposed by psychologist Leon Frestinger in 1957, the ABC Model of Attitude develops a psychological framework that suggests attitudes are comprised of three key components: Affective, Behavioral, and Cognitive.

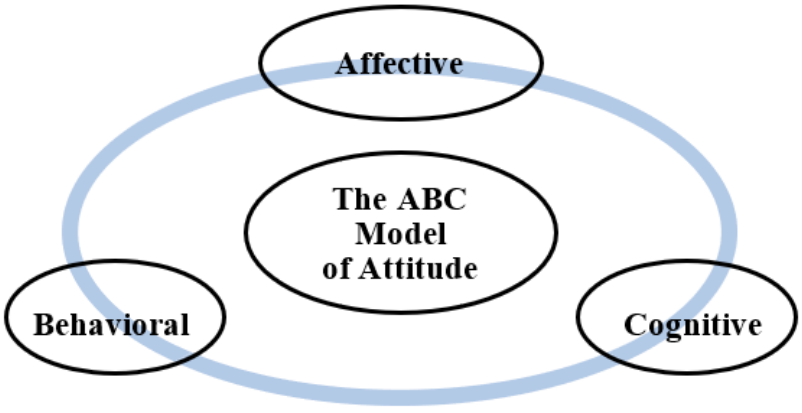

Figure 1. *ABC Model of Attitudes*

The **affective component** refers to emotional feelings a person has toward learning a language which can be positive (excitement, enjoyment), negative (anxiety, frustration), or neutral. The **behavioral aspect** represents the outward actions or behaviors a person exhibits toward language learning such as attending classes, participating in speaking practice, or utilizing language learning apps. The **cognitive component** refers to the beliefs or perceptions of a language learner toward the difficulties in learning a language, the effectiveness of different learning methods, or the usefulness of a learning application. The ABC model suggests that all three components interact with each other to influence a person's overall attitude toward something (Edupulapati et al., 2023; Omar & Umehara, 2010; Looi et al., 2010; Hoang et al., 2021).

2. Methods

The research was conducted at a public university in Ho Chi Minh City, Vietnam. One hundred and eight second-year students enrolling in the Speaking classes were the participants who joined an experimental period in seven weeks. They had taken one speaking course in the previous semester, which ensured that they were familiar with the learning process and environment at the tertiary level. In the first week of the semester, students were introduced to two websites: https://smalltalk2.me/, and https://voicetube.com with a guideline for utilization of these web-based learning tools in seven weeks. Each student was required to create an account to record their learning progress on the websites and follow the guidelines for the procedures. Each week, learners completed an assigned task that aimed to support their class learning activities with vocabulary, structures, and speaking expressions. Their speaking performance was recorded as the instruction for shadowing technique and was analyzed by AI features of the web-based technologies for further comments and feedback, which resulted in their improvements in speaking competence.

Before the study, participants were fully provided with research information, detailed guidelines, and withdrawal rights and then invited to join a Zalo group for more support during the experiment. After a seven-week project, a semi-structured questionnaire was delivered to the students to investigate students' attitudes towards the implementation of web-based learning tools and their engagement levels during the tasks carried out using these applications.

3. Results and discussions

3.1. Demographic Information

Table 3 below demonstrates the percentage of students' level through their self-assessment.

Table 3. *Participants self-assessed speaking level*

Participants self-assessed speaking level							
Which year?	**A1**	**A2**	**B1**	**B2**	**C1**	**Total**	**Percent**
Second year	4	34	4	17	0	96	**88.9**
Third year	0	0	2	3	0	5	4.6
Fourth-year	0	1	1	4	1	7	6.5
Total	4	35	44	22	1	108	100%
Percent	3.7	**32.4**	**40.7**	22.2	0.9	100%	

The experiment and survey participants were primarily second-year students, comprising roughly 89% of the total. The remaining were third-year and final-year students seeking to improve their scores. Interestingly, the data indicates that a majority of the participants, around 41%, self-assessed their speaking level as B1. The second largest group, at 32.4% belonged to the A2 level. The third group made up more than 20% of the respondents assessing their ability at the B2 level while a small percentage fell into the A1 (3.7%) and C1 (0.9%) categories. Overall, the data suggests that the participants' speaking ability varies substantially, with their levels being mostly A2 and B1, which mainly belonged to the respondents in the second year.

Table 4. *Estimated weekly usage time for two applications*

	Frequency	**Percent**
15 minutes to less than 30 minutes	61	56.5
30 minutes to less than one hour	42	38.9
One hour to less than 1 hour 30 minutes	3	2.8
More than 1 hour 30 minutes	2	1.9
	108	100

Table 4 reveals the estimated weekly usage time spent on two applications by participants. Over half (56.5%) reported that they spent less than 30 minutes on the given tasks within the applications. Additionally, nearly 39% browsed the applications for completing the speaking tasks from 30 minutes to one hour each week. A small number of respondents dedicated more than one hour per week to the communicative tasks on the applications.

Table 5. *Comparison of efficiency ratings for two applications*

	App.smalltalk2.me		**Voicetube.com**	
	Frequency	**Percent**	**Frequency**	**Percent**
Poor	2	1.9	2	1.9
Fair	10	9.3	15	13.9
Good	50	46.5	46	42.6
Very good	38	35.2	40	37
Excellent	8	7.4	5	4.6
	108	100	108	100

Table 5 highlights the students' perceptions of the effectiveness of two language learning applications. A majority (approximately 80%) of participants agreed that these technological tools are generally good and very good for language learning. This indicates a positive overall impression of the applications' efficacy in supporting language development. A smaller percentage (12%) rated both applications as excellent for speaking development suggesting that these tools can be valuable for speaking practice. Only a small portion (less than 10%) found the applications to be not very effective. In conclusion, the data suggests that these AI-based websites and applications are perceived positively by students and seen as effective tools with the potential to improve their English speaking ability.

3.2. Students' attitudes toward utilizing AI technology-based applications

1: Totally disagree 2: Disagree 3: Neutral 4: Agree 5: Totally agree

Table 6. *Students' attitudes toward the effectiveness of two language learning applications*

No.	Statement	Level of agreement						
	PART A: COGNITIVE ATTITUDES							
	A1-8: Attitudes towards effectiveness							
		1	**2**	**3**	**4**	**5**	**Mean**	**Std. Deviation**
A1	Learning to speak with these applications widens my vocabulary range	2 1.9	0 0.0	39 36.1	59 54.6	8 7.4	3.66	0.699
A2	Learning to speak with these applications improves my pronunciation considerably	4 3.7	0 0	45 41.7	47 43.5	12 11.1	3.58	0.833
A3	Learning to speak with these applications minimizes my grammar mistakes	4 3.7	6 5.6	36 33.3	46 42.6	16 14.8	3.59	0.938
A4	Learning to speak with these applications improves my fluency	4 3.7	4 3.7	31 28.7	55 50.9	14 13	3.66	0.888
A5	These applications help me organize and develop ideas for my speech better	2 1.9	4 3.7	31 28.7	61 56.5	10 9.3	3.68	0.771
A6	Learning to speak with these applications enhances my learning autonomy	4 3.7	6 5.6	33 30.6	54 50	11 10.2	3.57	0.888
A7	These applications offer a wide range of topics and lessons for practicing speaking skills	2 1.9	0 0	29 26.9	52 48.1	25 23.1	3.91	0.815
A8	I believe that regular use of these applications improves my English-speaking skills	4 3.7	4 3.7	24 22.2	57 52.8	19 17.6	3.77	0.913

The survey reveals a strong preference among students for AI-based language learning platforms. Over half (56.5) agreed that these applications empower them to effectively structure and develop ideas for speech. Additionally, it is notable that vocabulary expansion emerged as the primary benefit, endorsed by 54.6% of the participants. Furthermore, more than half (52.8%) believed that regular use of these apps enhanced their overall speaking proficiency. The positive impact extends beyond vocabulary and organization. Roughly 50% of the respondents confirmed that the utilization of these AI-assisted applications significantly improved their pronunciation and fluency. The data also suggests that the technological tools foster learner autonomy, minimize grammar errors, and provide a wealth of speaking topics contributing to their improved speaking ability.

Table 7. *Students' attitudes towards the ease of use of two language-learning applications*

	Attitudes towards the ease of use	**1**	**2**	**3**	**4**	**5**	**Mean**	**Std. Deviation**
A9	I can use these applications to test my Speaking competency easily	4 3.7	6 5.6	30 27.8	51 47.2	17 15.7	3.66	.939
A10	These applications are user-friendly and provide clear instructions	2 1.9	4 3.7	26 24.1	64 59.3	12 11.1	3.74	.778
A11	These applications are easy and convenient to use on different devices	4 3.7	0 0	31 28.7	58 53.7	15 13.9	3.74	.836
A12	I don't have any difficulties in using these applications	4 3.7	2 1.9	44 40.7	45 41.7	13 12.0	3.56	.868

The table provides insights into students' perceptions of the applications' ease of use. A significant majority of the survey respondents (59.3% and 53.7% respectively) found the applications to be user-friendly with clear instructions and accessible on a variety of devices.

Table 8. *Students' affective attitudes towards two language learning applications*

PART B: AFFECTIVE ATTITUDES								
		1	**2**	**3**	**4**	**5**	**Mean**	**Std. Deviation**
B13	I feel more relaxed doing the speaking test with these apps	4 3.7	0	38 35.2	47 43.5	19 17.6	3.75	.787
B14	I am curious and eager to commence utilizing these applications in my study time	2 1.9	2 1.9	35 32.4	55 50.9	14 13	3.71	.786
B15	I enjoy practicing speaking with these apps because their content is individualized	4 3.7	2 1.9	32 29.6	58 **53.7**	12 11.1	3.67	.843
B16	I enjoy learning to speak with these applications because their contents are relevant and useful to course content	2 1.9	0	38 35.2	56 51.9	12 11.1	3.72	.681
B17	I enjoy learning to speak with these applications because I can receive unbiased automated feedback and instant results	4 3.7	4 3.7	32 29.6	44 40.7	24 22.2	3.74	.970
B18	I enjoy learning to speak with these applications because they offer several tasks to practice speaking skills	4 3.7	2 1.9	30 27.8	59 54.6	13 12.0	3.69	.848
B19	I feel more confident in joining speaking activities in class after utilizing these applications	4 3.7	2 1.9	35 32.4	52 48.1	15 13.9	3.67	.875

The data reveals students' positive affective attitudes towards two language learning applications. It is notable that, over half of the participants (50.9%) displayed an eagerness to start utilizing these platforms. This enthusiasm was reflected by a similar number of students (53.7) expressing their satisfaction with the app's ability to provide individualized or personalized learning experiences. Following the diagnostic test taken before the project commencement, a significant portion (54.6%) gained access to a variety of speaking tasks (54.6%) contributing to their confidence in other speaking activities (48.1%). Furthermore, 51.9% of students appreciated the feature of accessing relevant content on the applications, which effectively prepared them for speaking activities conducted in class. Notably, unbiased feedback and instant results were positively reported by 48.1% of participants.

Table 9. *Student's behavioral attitudes towards two language learning applications*

PART C: BEHAVIORAL ATTITUDES								
		1	**2**	**3**	**4**	**5**	***Mean***	***Std. Deviation***
C20	I follow the given instructions to complete weekly tasks	8 7.4	12 11.1	42 38.9	34 31.5	12 11.1	3.28	1.049
C21	I would like to continue learning to speak with these applications	2 1.9	2 1.9	39 36.1	48 44.4	17 15.7	3.70	.823
C22	I would like my teacher to integrate these applications into speaking activities in class	2 1.9	4 3.7	38 35.2	46 42.6	18 16.7	3.69	.861
C23	I would like to introduce these applications to my friends	4 3.7	6 5.6	29 26.9	39 36.1	30 27.8	3.79	1.033

The table demonstrates the behavioral attitudes of students on the utilization of two technology-based learning platforms. While a well-designed guideline was provided at the project's outset, just one-third of the respondents consistently completed the weekly tasks, reflecting the data in Table 9 where only half completed 3 and 4 tasks out of 7 given tasks. Nonetheless, a brighter outlook emerged regarding future use. Participants expressed positive intentions for continued engagement and advocated for integrating these applications into classroom activities. Over 63% of students recommended the introduction of the platforms to their peers.

Student's engagement in applying web-based tools

Table 10. *Tasks completed during the seven-week project*

	Frequency	Percent
1 task	18	16.7
2 tasks	14	13.0
3 tasks	22	20.4
4 tasks	31	28.7
5 tasks	8	7.4
6 tasks	7	6.5
7 tasks	8	7.4
	108	

Table 11. *Students' engagement in applying web-based tools (data from the report on Teams)*

	Number of turned-in assignments every week	Percent
Week 1	66	70.2%
Week 2	37	39.4
Week 3	31	32.9
Week 4	19	20.2
Week 5	16	17%
Week 6	15	16
Week 7	11	11.7

Table 10 indicates the distribution of tasks completed by students throughout the seven-week project, which included seven speaking tasks. Out of the total tasks, the largest group of students (28.7%) completed four tasks illustrating the most productive groups of participants. A considerable portion (20.4%) completed three tasks demonstrating a strong level of engagement of learners. Nearly equal portions of students finished one task (16.7%) and two tasks (13.0%). A smaller group (under 10%) was able to complete between five to seven tasks throughout the experimental period. This data suggests a variation in the number of tasks students were able to finish reflecting varying levels of engagement with the assigned speaking tasks within the project timeframe.

Table 11 illustrates the engagement of students in a speaking practice experiment utilizing web-based tools for self-study throughout the period of seven weeks. In the first week, more than 70% of students completed their test of speaking competence on the website www.smalltalk2.me.com demonstrating their enthusiasm for this new diagnostic tool. Engagement remained steady in the following two weeks with over 30% of students actively practicing their speaking skills on the two provided websites. However, the rate of participation dipped in the subsequent week, dropping to around half of the initial level (approximately 30-40%). The final weeks of the experiment saw a further decrease, with only 10-20% of participants submitting reports on their learning progress.

Tables 10 and 11 consistently show a decline in students' participation in self-study activities using the two web-based tools over the experimental period. This dropping rate suggests that external factors hindered students' motivation in their self-regulated speaking practice. The data is a favorable premise for further studies on the magnitude of teachers' grade students' technology-based activity performance to stimulate their engagement.

4. Conclusions

The study aimed to investigate the student's attitudes towards the applications of two technology-based websites for language learning. The results indicate the positive attitudes of participants toward the effectiveness of the learning platforms in the development and organization of their ideas, vocabulary range, pronunciation, and fluency. The apps' ability to minimize grammar mistakes and provide a wealth of topics contributed to their learning autonomy. The ease of use is another great feature of the applications, which was appreciated by the users. A user-friendly interface with clear instructions and convenient use on various devices attracted the students to utilize the apps. Regarding affective attitudes, students displayed their satisfaction with the improved confidence and better preparation for communicative activities in classrooms after accessing personalized learning paths with formative and timely feedback on the applications. Finally, there was positive intent for continued use and integration of the apps in classroom activities.

Regarding students' engagement in utilizing two AI-based websites, the data showed a decline in their participation, which indicates several external and internal factors hindering their engagement including the commitment and motivation for long-term learning. The data suggests two possibilities for future improvement: integrating the web-based tools into classroom activities and implementing some form of performance evaluation (e.g. scoring) to potentially increase student motivation. Further research could explore the reasons hindering students' inconsistent completion of tasks such as time constraints, intrinsic and extrinsic motivation, content difficulty, or lack of personalized learning guidance. Additionally, studies could investigate the effectiveness of different integrating approaches within the classroom. This might involve individual and group activities, or incorporating gamification elements to boost student engagement in English-speaking practice.

❖ ***Conflict of Interest:*** *Authors have no conflict of interest to declare.*

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THÁI ĐỘ CỦA SINH VIÊN ĐỐI VỚI VIỆC SỬ DỤNG CÁC ỨNG DỤNG CÔNG NGHỆ DỰA TRÊN TRÍ TUỆ NHÂN TẠO AI NHẰM CẢI THIỆN KĨ NĂNG NÓI TIẾNG ANH

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TÓM TẮT

Bài viết này nghiên cứu thái độ của sinh viên đại học đối với tính hiệu quả của các trang web và ứng dụng công nghệ dựa trên nền tảng trí tuệ nhân tạo AI trong việc nâng cao hiệu quả khả năng nói tiếng Anh, đồng thời nghiên cứu những ảnh hưởng tích cực của công nghệ trong việc tăng cường sự tham gia của người học đối với việc học tập tự điều chỉnh thông qua việc trợ giúp của AI và những hạn chế tiềm ẩn gây ảnh hưởng tới việc học tập tích cực. Hơn 100 sinh viên năm thứ hai chuyên ngành tiếng Anh đã tham gia vào 6 tuần thử nghiệm với những hướng dẫn cụ thể để sử dụng hai trang web dựa trên công nghệ AI: app.smalltalk2.me và voicetube.com. Sau đó, bảng câu hỏi đã được sử dụng để khảo sát ý kiến của người tham gia về nhận thức và mức độ tương tác của người học trong thời gian thực nghiệm. Dữ liệu được phân tích cho thấy sinh viên phản hồi tích cực về việc kết hợp các công nghệ AI vào thực hành kĩ năng nói tiếng Anh, về sự hữu ích của công nghệ AI trong việc sửa lỗi ngữ pháp và phát âm, cung cấp những nhận xét kịp thời và sự đa dạng chủ đề nói phù hợp với việc học tập trên lớp. Tuy nhiên, còn tồn tại một số nhân tố ảnh hưởng tới sự tham gia của người học vào việc học tập tự điều chỉnh như sự cam kết và động lực sử dụng công cụ công nghệ lâu dài. Kết quả đưa ra các hướng đề xuất nghiên cứu sâu hơn về những hình thức đánh giá sự tiến bộ của người học trong việc áp dụng các công cụ công nghệ nhằm tăng động lực và khuyến khích sự chủ động của người học trong các hoạt động học tập tự điều chỉnh.

Từ khóa: công nghệ dựa trên trí tuệ nhân tạo AI; sự tương tác của người học; thái độ của người học; năng lực nói tiếng Anh