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Exploring the Barriers and Challenges in Utilizing Technology for Enhancing Speaking Skills among English Department Students in Pekanbaru.

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ABSTRACT

Technology is full of opportunities to facilitate EFL speaking skills, but how students implement them and the challenges they meet have not been well examined in Indonesian higher education context. This research investigated which technologies the fifth semester English Department students used to practice speaking, what problems they experienced, and what strategies they suggested. The descriptive qualitative research design was utilized. Thirteen purposively chosen participants from two Indonesian universities of Pekanbaru filled out a qualitative open-ended questionnaire consisting of ten questions. The analysis was conducted according to Braun & Clarke's (2006) six-stage thematic framework and self-determination theory served as the theoretical framework. These results suggest that the usage of technology is self-directed and occurs mostly outside class, using online video, generative AI chatbots, language learning and translation apps, and social media platforms primarily to listen, imitate and practice pronunciation and vocabulary; real-time speech production with other individuals is not common. Four major barriers were identified: technical and infrastructural barriers, including unstable internet connection mentioned by all participants; lack of interaction and feedback; motivational and affective barriers, primarily boredom and loneliness while studying on one's own; and digital literacy and selection of content barriers. Participants stressed the need for lecturers' assistance and recommendations for application use, more speaking activities, prompt feedback, and stable internet connection. This research indicates that the successful integration of technology calls for pedagogical guidance of practice, institutional support in access to technology, improvement of digital literacy, and motivation of learners.

KEYWORDS

EFL speaking skills; technology integration; self-directed learning; digital literacy.

ABSTRAK

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INTRODUCTION

The development of digital tools has brought about a transformation in the way languages are taught and acquired, with speaking being one of those skills that could be positively affected (McCarthy & O'Keeffe, 2005). There are numerous tools available for language learning such as language applications, websites, and media content that offer additional practice outside of classes (Beatty, 2010; Chapelle & Sauro, 2017). Recent technological developments involving AI-based chatbots have added new options to the list (Kohnke et al., 2023). In addition, there is experimental evidence indicating that the use of AI can enhance speaking ability of EFL students and their willingness to communicate (Fathi et al., 2024).

In Indonesian contexts, the EFL teachers frequently resort to easily accessible technologies like presentation software, web sites, shared files, and video conferencing when teaching their speaking classes (Lokollo & Mali, 2024), and recent research highlights the employment of web sites, Telegram, and YouTube in speaking instruction (Wahid et al., 2026). In Pekanbaru, the integration of ICT through a systematic approach contributed to the improvement in speaking abilities of first-semester students (Idayani & Sailun, 2017). The vast majority of technology-based practices, nonetheless, occur outside of the classroom, and their effectiveness is determined by the learner's accessibility to them, as well as his/her strategies (Lai et al., 2015; Reinders & Benson, 2017).

Speaking through the use of technology is not without challenges. Some of the challenges have been reported to include inequitable access and poor internet connection (Pilu et al., 2025; Satriani et al., 2025); inadequate digital literacy skills in the use of technologies like ChatGPT (Kohnke et al., 2023; Mahmud et al., 2025); and affective aspects like speaking self-efficacy which determines learners' readiness to interact with AI (Tang et al., 2026). Previous studies indicated that students had the gadgets and internet connection but limited interaction with intructors and fellow learners (Asmah & Idayani, 2022).

Self-Determination Theory (SDT) provides an integrated theoretical framework for understanding the learner's experience of self-directed and technologically mediated practice. According to SDT, sustained high quality motivation arises from the satisfaction of three basic psychological needs: autonomy, the sense of willfulness and ownership; competence, the sense of effectiveness and progress; and relatedness, the sense of connectedness with others. The learning environment may either facilitate or impede the needs (Ryan & Deci, 2000), and SDT has been increasingly used in relation to learners' willingness to communicate with generative AI (Tang et al., 2026). This theoretical framework is relevant to this study since learners who engage in self-directed practice outside of class have a high level of autonomy but rely on feedback and tools to develop competence and on interaction to develop relatedness. In this study, the themes emerged inductively and were then conceptualized within the SDT framework: autonomy (self-directed practice and self-regulation), competence (feedback, digital literacy, and comprehension of input), and relatedness (interaction with others). The infrastructural conditions can be considered as the enabling conditions for need-supportive practice.

Most of the literature available has concentrated on perceptions and effectiveness instead of highlighting the obstacles encountered by the learners during the process of acquiring speaking skills through technology, and not many studies have explained these barriers within a motivational context. This paper attempts to bridge the gap through the use of the written answers provided by fifth-semester students enrolled in the English Department in two universities in Pekanbaru to an open-ended qualitative questionnaire. The study will focus on three aspects: (1) the technology used by the students to learn speaking; (2) the barriers faced by the learners; and (3) some practical solutions to be proposed based on the information obtained.

METHOD

Research design and participants

The research adopted the descriptive qualitative approach to describe and interpret the experiences of the respondents as opposed to testing hypotheses. Data collection was done through a qualitative open-ended questionnaire. Thirteen fifth semester English Department students were recruited from two universities located in Pekanbaru (seven from University 1 and six from University 2) based on their experience with using technology for speaking practice and willingness to take part. Fifth semester students were considered appropriate to be studied in order to have enough experience in practicing their speaking skills using technology within their course. Sample size was determined through data saturation and consistency (Somekh, 2018). Informed consent and confidentiality were respected during the research: Participation was voluntary, the name of the universities was not disclosed, and the identities of the participants were coded (S1-S7 for University 1 and S8-S13 for University 2).

Instrument and data collection

The instrument utilized was an open-ended qualitative questionnaire with ten questions, which were modified based on previous literature on digital language learning (Hubbard et al., 2011; Davis, 1989). The questions addressed three dimensions relevant to the objectives of the study (Table 1). In order for the participants to complete the questionnaire as they were situated in two different institutions, the questionnaire was provided online. During 20 to 22 September 2025, the participants entered their answers in English. Participants responded

freely according to their speed; however, probing was not possible.

Table 1. *Open-ended qualitative questionnaire*

Area	No.	Question
Technologies used (Objective 1)	Q1	What types of technology do you use to improve your English speaking skills?
	Q2	How do you usually use technology to practice your speaking skills?
	Q3	What benefits do you experience when using technology for speaking practice?
Barriers and challenges (Objective 2)	Q4	What difficulties do you experience when using technology to improve your speaking skills?
	Q5	What technological problems do you encounter during speaking practice?
	Q6	What challenges do you face when using digital platforms or applications for speaking practice?
	Q7	How do internet connection and access to technological devices affect your speaking practice?
	Q8	What challenges do you experience in maintaining motivation when practicing speaking through technology?
Support and suggestions (Objective 3)	Q9	What support or assistance do you need to use technology more effectively for improving your speaking skills?
	Q10	What suggestions do you have for improving the use of technology in English speaking learning?

Data analysis and trustworthiness

Thematic analysis was conducted according to the six-step process of Braun & Clarke (2006). Inductive codes were assigned to the participants' answers regarding the tool(s), practice(s), and benefit(s) of questions Q1–Q3, the barriers to questions Q4-Q8, and the need(s) for support and suggestion(s) for questions Q9-Q10. Candidate themes were then formed, checked against the entire data set, and named. Self-determination theory by Ryan & Deci (2000) was used in the interpretation stage, as a way to prevent the application of the framework from limiting the coding process. The number of participants contributing to each code indicates how common this experience was and whether it was reported by participants from both universities, without making any generalization about the population. Questions were not coded when the participants' answers had nothing to do with the questions asked.

The trustworthiness of the study (Lincoln & Guba, 1985) was ensured through two strategies. First, member checking was performed by giving back to the participants an interpretation of their responses and preliminary interpretations for verification, clarification, or correction. Second, peer debriefing was performed by colleagues who did not participate in data collection and evaluated the coding, emerging themes, and interpretations. The feedback from these two processes helped in the development of final themes. Quotations are given verbatim and cited by the codes of participants (e.g., S3).

FINDINGS AND DISCUSSION

Participants and Data Source

There were thirteen participants in total (S1-S7 from University 1; S8-S13 from University 2), who provided answers of between 60 and 520 words to the ten questions asked. Table 2 provides a summary of the participants and technologies used by them. Since all the information was gathered exclusively from learners, this study gives insight into students' point of view.

Table 2. *Participants and the technologies they reported (Q1–Q2)*

Code	University	Technologies reported (Q1–Q2)
S1	University 1	YouTube/online video, ChatGPT/AI tools, social media, language-learning apps
S2	University 1	random video-chat sites, English films
S3	University 1	YouTube/online video, ChatGPT/AI tools, language-learning apps, translation tools, self-recording
S4	University 1	YouTube/online video, ChatGPT/AI tools, English films
S5	University 1	YouTube/online video, social media, random video-chat sites
S6	University 1	social media, self-recording
S7	University 1	YouTube/online video, social media, language-learning apps, translation tools
S8	University 2	YouTube/online video, ChatGPT/AI tools, language-learning apps, translation tools
S9	University 2	YouTube/online video, ChatGPT/AI tools, self-recording
S10	University 2	YouTube/online video
S11	University 2	YouTube/online video, social media, translation tools
S12	University 2	language-learning apps
S13	University 2	YouTube/online video, ChatGPT/AI tools, language-learning apps, translation tools, self-recording

Technologies Used for Speaking Practice

The use of technology was self-directed and took place outside the classroom setting. None of the participants reported any speaking activity assigned via a learning management system, video-conferencing class, or any other type of classroom environment. Coursework was mentioned only when it came to the participants' suggestions, since the questions asked were not related to activities inside the classroom. The technologies used by the participants can be categorized in five categories:

a) Online video (n = 10). YouTube was the resource that was mentioned the most often, as it allowed for watching English videos, listening to native speakers, and repeating what they were saying. One participant said it best: "Learn by watching content creator native speaker" (S10).
b) Generative AI chatbots (n = 6). These respondents except one reported having engaged in

conversation with the bot, as mentioned by one respondent: "I also use ChatGPT to practice conversations and sometimes record my voice to check my pronunciation" (S13).

c) Language-learning and translation applications (n = 6 and n = 5). For instance, another interviewee practiced "speaking drills daily in Duolingo" (S1).
d) Short-video and social media platforms (n = 5). Social media such as TikTok and Instagram provided idiom learning, vocabulary building, and speaking tests.
e) Random video-chat websites (n = 2) and self-recording (n = 4). Two students made contacts with strangers while abroad; one participant explained, "I use a website that helps me contact with people from another country like ome.tv or uhmegle" (S2). The remaining four made recordings of themselves to assess pronunciation.

The two most common activities were watching or listening followed by repetition (n = 7) and chatting with AI-powered chatbots (n = 5). Only three participants mentioned the interaction with others in real time. In accordance with self-determination theory, this activity is extremely autonomous, because students decided for themselves the medium, materials, and speed of learning.

The participants appreciated the technology most of all as a way of practicing vocabulary (n = 9), gaining confidence (n = 7), developing pronunciation (n = 6), and practicing anytime anywhere (n = 6). The following two examples of participants' statements highlight the importance of private practice: "Without being nervous or intimidated" (S1), and "It also gives me more opportunities to practice because I don't always need a conversation partner" (S13).

Barriers and Challenges in Utilizing Technology for Speaking Skills

Four barriers-related themes were identified, which were common to both the institutions (see Table 3). Numbers indicate the number of people sharing that particular idea among the thirteen individuals.

Table 3. *Themes and sub-themes of barriers (N = 13)*

Theme	Sub-theme	n/13	Participants
Technical and infrastructural constraints	Unstable or slow internet connection	13	All
	Device and hardware limits (microphone, audio, storage, battery, performance)	10	S1, S2, S3, S4, S5, S6, S7, S8, S9, S13
	Application errors and glitches	10	S1, S2, S3, S4, S5, S6, S7, S8, S9, S13
	Cost: limited free features, mobile data	7	S1, S3, S4, S5, S7, S10, S13
Limited interaction and feedback	One-way input; little real-time human interaction	5	S1, S2, S3, S5, S7
	Lack of timely, detailed feedback	5	S1, S3, S4, S5, S13
	Tools unable to simulate human interaction (AI, speech recognition)	3	S1, S5, S8

Motivational and affective barriers	Boredom, loneliness, inconsistency when practising alone	9	S2, S3, S4, S5, S6, S7, S8, S9, S13
	Distraction by other content and notifications	4	S1, S3, S8, S13
	No visible progress	3	S5, S7, S13
	Shyness, nervousness, or unsafe online encounters	3	S5, S6, S9
	Competing academic workload	2	S9, S12
Digital-literacy and content-selection challenges	Difficulty operating application functions	5	S3, S4, S6, S9, S13
	Difficulty selecting suitable applications and materials	3	S3, S8, S9
	Difficulty understanding fast native speech	6	S4, S6, S7, S8, S9, S13
	Over-reliance on translation/AI; self-regulation	3	S3, S8, S10

Note. n = number of participants whose responses contributed to the sub-theme.

Theme 1: Technical and infrastructural constraints

Unreliable or slow internet was the only constraint mentioned by each participant, from either university, and twelve had brought it up prior to any questioning about internet access. One said, “Sometimes, when the internet connection is unreliable or slow, it distracts me from my practice and prevents me from learning efficiently” (S9), while for another the issue was not only that of speed but also that of price: “Internet is really important because if I don’t have quota or Wi Fi, I can’t learn speaking practice on YouTube.” (S10). There were ten cases of technical problems with devices, such as bad microphone, lack of storage or battery, and poor performance. Ten others mentioned issues with applications or crashes. One of them said, “For instance, if I don’t have a proper phone or laptop with a good microphone, then this application may not be able to identify my pronunciation, and therefore will be a source of frustration for me” (S5). There were seven mentions of budgetary constraints, such as restricted features of free applications, mobile data, and monetary burden; one of them said, “Some applications have limited features or are paid” (S13). Such conditions do not themselves fulfil or deny a psychological need, but determine the possibility of autonomous learning.

Theme 2: Limited interaction and feedback

Five participants experienced practice that was one-sided or could not imitate genuine conversation. One participant stated: “The content of social media is generally one-sided, hence I am unable to receive genuine real time feedback on my spoken English” (S1); another stated “Technology can never guarantee the same level of interaction as face to face interaction with another person” (S3); and yet another pointed out “Speaking to a camera does not allow real time audience feedback” (S5). Five participants lacked immediate or specific feedback and one participant explained: “I am sometimes unsure about my pronunciation

since there is no teacher around me who will give me immediate feedback" (S13). Limitations in the technology tools also added to this problem for three participants; one participant reported that "Speech recognition tools generally fail to interpret different accents" (S5); and another participant felt "confused when technology provides many different explanations" (S8). Only two participants interacted through people at random video chatting websites and one participant found them "rude and unreliable for practice" (S5).

One-way practice, in terms of SDT (Ryan & Deci, 2000), provides little relatedness, and the lack of specific feedback decreases the sense of competence. One-way practice based on listening, imitation, and self-recording helps develop input and pronunciation but does not help negotiate meaning (Richards, 2006). In order to be useful, feedback must tell the learner where he or she is heading, where the learner stands, and what is to be done next (Hattie & Timperley, 2007). The automated feedback discussed above was immediate but not necessarily accurate or detailed. The absence of any data on lecturers shows that, as experienced by students, technology practice is largely mediated.

Theme 3: Motivational and affective barriers

Motivation problems were more significant than any anxiety. Nine participants felt that practicing on their own became dull, isolating, and difficult to maintain, as stated: "Practicing on your own without another person present is lonely because there is nobody there to motivate you or to keep you consistent" (S5). Others stated that "the lack of immediate results may lead me to becoming unmotivated" (S7), while the lack of noticeable improvements was stated by three participants altogether. Four others were distracted by non-educational materials and notifications, while one participant stated that "losing my daily streak in Duolingo could be demotivating" (S1). The two mentioned competing academic priorities, as one said, "sometimes I do not have enough time since my lecture schedule is full and I have many assignments" (S12).

Anxiety was less explicit. Three of the participants expressed shyness, nervousness, or stress; one of them "was shy and nervous about talking" (S6), and another "shy when I had to record my voice or talk to others" (S9). These descriptions stand alongside the contradictory ones, as one of the participants appreciated technology for the opportunity to practice without getting stressed or criticized. From the perspective of self-determination theory, the presence of such factors as boredom, loneliness, and lack of progress is indicative of poor relatedness and competence, while streak-based rewarding can undermine autonomy.

Theme 4: Digital-literacy and content-selection challenges

The participants were generally able to carry out basic operations, but there were some who found difficulties in using the applications in an effective manner. Five respondents said that they had problems using application functions, as one mentioned that "sometimes i do not understand how to use all of their functions" (S4). There were three participants who had difficulty in selecting suitable applications or material, as one stated that "I also find it difficult to find suitable speaking practice materials" (S9). Authentic input was difficult for six respondents to understand due to the speed at which native speakers talked: "Sometimes I have difficulty understanding the pronunciation of native speakers because they speak too fast" (S13).

The problems are related to competency, where it is not the issue of lack of motivation but rather the inability of the students to make use of the sources competently. The fact that the majority of the practice was done using original video implies that the problem of not

being able to follow native language is limiting the imitation practice.

Participants' Suggestions and Proposed Strategies

The last two questions were those regarding the required support and recommendations. The following strategies are formulated by taking into account participants' recommendations and interpreting them in relation to the identified barriers; the strategy is associated with the psychological need it aims at fulfilling.

a) Guided and curated technology use (competence). Eleven participants sought advice regarding effective use of technology, seven of whom specifically from lecturers or teachers, while eight participants requested suggestions regarding applications and resources. One participant requested "clear instructions from the lecturer and suggestion for helpful applications" (S2), while another one requested "prompts to guide usage with Chatgpt" (S1). Lecturers can compile a brief list of helpful tools, demonstrate their proper use (such as AI prompts which produce verbal rather than translation practice), and conduct short training sessions, including those related to generative AI literacy (Kohnke et al., 2023).
b) Interactive, course-linked speaking tasks (relatedness). Seven requested interactive activities, while seven asked for further opportunities to speak via technology. As one participant said, "It's important to integrate technology into interactive speaking activities, but not limit it just to individual activities" (S3). Another student proposed "Regular speaking exercises with the use of technology, such as chatting on-line, voice recording and video presentation" (S13). Some wanted practical use in "something useful, such as presentation in class" (S5). Also, there was a proposal to "make it into a project" (S12). The lecturer can transform individual activity into a joint task, which will include speaking projects, discussion via video call, AI-assisted rehearsal before presentations, all of them having a communicative function (Richards, 2006). The application of digital social media has been applied to design dialogue with feedback in Indonesian classes (Wahid et al., 2026).
c) Timely and specific feedback (competence). Six participants requested feedback from lecturers, peers, or improved applications. The lecturer can use the feedback from automation together with brief feedback on completed tasks, plus peer review, so the learner knows how to proceed (Hattie & Timperley, 2007).
d) Motivation and self-regulation support (autonomy and relatedness). Since boredom, loneliness, distraction, and lack of progress visibility were the most common affective barriers, it is necessary to make practice social and visible: group study (one participant requested "safe online study groups" (S5)), goal setting, small projects, monitoring of progress, and notification management.
e) Institutional support for access (enabling conditions). Five participants requested stable internet connections, while one participant suggested "easy-to-use and free learning platforms" (S9). Organizations could offer their students stable Wi-Fi on campus, recording facilities with loan microphones or headphones, authorized free or licensed software, and offline materials, as is done in related research (Pilu et al., 2025; Satriani et al., 2025).

Discussion

The practice of the participants was quite autonomous, and the result is similar but also different from other Indonesian researches. As the case is similar to teachers in Lokollo and Mali (2024) and Wahid et al. (2026), participants were using a few accessible tools, such as YouTube and social media. However, what differs is who chooses those tools, because in those researches, teachers selected the tools to use during classes while learners did that, and generative AI chatbots and random video-chat websites were widely used. This is consistent with Lai et al. (2015) and Reinders and Benson (2017), who point out that the effectiveness of out-of-class learning is determined by the learners' resources, strategies, and support. This also differs from the previous research done in Pekanbaru, where structured use of ICT enhanced the first-semester students' speaking abilities (Idayani & Sailun, 2017), while in the current study the participants learned independently. Within the Self-Determination Theory framework (Ryan & Deci, 2000), autonomy can be most effectively fostered if choice is coupled with structure; otherwise, the autonomy may become unstructured, which can explain the focus on pronunciation and vocabulary improvements as well as difficulties of regulation of the participants' translation and AI usage.

The barriers to competence was another key theme identified in the findings. The need for timely and specific feedback aligns with the assertions of Hattie and Timperley (2007), who posit that feedback is more effective when it informs the learner of the destination, current status, and the steps to be taken, which were provided only partly by the automated tools. Findings related to the use of AI are partially in agreement with those from the literature review, as some participants appreciated the privacy and continuous availability of practice sessions, in tandem with research findings indicating that AI interaction can enhance enjoyment and willingness to communicate (Fathi et al., 2024; Zhang et al., 2024), although those studies explored structured interventions, as opposed to the unstructured nature of interaction described by the participants. The problems related to the execution of functions, material choice, and following authentic fast speech provide a university level perspective on the issues discussed by Mahmud et al. (2025): in their research they investigated the digital literacy based instruction among Indonesian high school students.

Relatedness became the third identified theme. The lack of real-time interaction was in line with Asmah & Idayani's (2022) findings of interaction with lecturers and peers being very limited and in opposition to the use of social media in class by Wahid et al. (2026) for creating dialogues with feedback, which indicates that the interactive nature of a given platform is utilized when there are interactive tasks designed on the platform. Loneliness and boredom were much more common than anxiety. According to the classic literature, anxiety is one of the major barriers to speaking (Horwitz et al., 1986; MacIntyre & Gardner, 1994); however, it should be noted that only a small number of participants in the present study were feeling shy or nervous, and one of the possible explanations for that is that the literature is about publicly evaluating classroom speaking while students in the current study were practicing privately, which the design could not prove.

All three of the needs were characterized by unreliable infrastructure. Unstable internet, cited by all the respondents, aligns with the findings of Satriani et al. (2025) that revealed that students participating in a Moodle-enhanced class in Pekanbaru were having problems finding locations with stable internet access as well as Pilu et al. (2025) on unreliable internet, discussed from the standpoint of Indonesian EFL lecturers and thus as a structural issue, not a method-specific one. The results refine the research by Asmah and Idayani (2022), revealing that while the availability of devices and connections was not an

issue, their reliability, the audio quality, and the application tier were the latter factors being crucial in speaking. Following the digital divide model (Warschauer, 2004), the digital divide seems to have shifted from access to the quality of access. All in all, autonomy without structure, insufficient feedback and skills, limited interaction, and unreliable access feed into each other, and therefore should be addressed collectively.

CONCLUSION

The current research explored how technology is used by fifth-semester students of the English Department from two universities in Pekanbaru to enhance their speaking skills, the challenges faced by students, and the kind of assistance sought in response to the answers provided by thirteen students via an open-ended qualitative survey. The use of technology was mainly self-motivated and took place outside the classroom, with the main activities being online video watching, use of AI chatbots, use of applications and social media, with the purpose being listening, imitation, vocabulary acquisition, and pronunciation, while the interactive and communicative aspects of the use of technology were not present.

The participants requested advice from the lecturers on tools, interactive and course-related speaking activities, feedback, motivation support, and availability. Integration will need to include approaches that foster autonomy, competence, relatedness, and availability. The future studies can be supplemented with observation of the classroom, perspectives of the lecturers, oral interviews with questions, participation of additional institutions, analysis of the effectiveness of the approaches suggested, and investigation of whether the AI-assisted speaking tools decrease the barriers (Fathi et al., 2024; Xu et al., 2026).

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