



# Exploring Dentistry Students' Mastery of Speaking English Using Artificial Intelligence

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## Abstract

Mastering speaking for dentistry students is essential both for academic and professional purposes. While technology is widely integrated into the English learning process, limited study exists on the use of Artificial Intelligence (AI), in this case SmallTalk2Me, in English as a Foreign Language classroom. Thus, this study aims to elaborate on the use of AI to enhance dentistry students' speaking skills and to investigate its benefits on students' mastery of speaking English. Using the descriptive qualitative method, this study seeks a deeper understanding of students' speaking skills reflected in their interaction with the AI. 78 dentistry students were asked to do the speaking level test on SmallTalk2Me. The findings indicated that the majority of the students were in the intermediate level (30 students), followed by an upper intermediate level (27 students). In terms of speaking elements, the students demonstrated advanced proficiency in fluency (37 students) and grammar use (32 students). However, there is a need for improvement in terms of students' pronunciation (29 students) and vocabulary mastery (28 students), indicated by their intermediate level performance. The detailed as well as instant feedback provided by the AI highlights the AI's role in assisting the students in improving their speaking proficiency level. Additionally, it helps teachers in developing suitable lesson plans aligned with the student's proficiency level. In summary, this study emphasizes the benefits of integrating AI into the English and learning process, particularly for enhancing speaking skills among dentistry students.

**Keywords:** artificial intelligence; dentistry students; speaking skill,

## **Introduction**

Language is a vital tool for communication that helps us to understand one another's ideas and express our own. Language is applied in various contexts, including face-to-face lectures, phone conversations, asking for directions, and so on. Each of these situations demands a specific register that is compliant with the form. For instance, those who work in the medical sector or professional environments need accurate, fluent, and effective communication skills to interact with colleagues (Sada et al., 2023).

Moreover, foreign languages, especially English, will always exist in the age of globalization. It is becoming common to hear someone speak more than one language (Sada et al., 2023). Every region, but especially cities, tends to have a metropolitan style, which is a modernist style that includes language adoption. People's reorientation due to external events can also contribute to changes in language use and comprehension (Hidayat et al., 2021). Therefore, speaking is the most important skill to develop in order to master a language for effective communication.

Speaking is a useful ability that is different from other skills. It involves not only producing sounds but also translating ideas into meaningful expression, which is not merely an output. In the context of language learning, speaking is a skill that requires effort as it involves not just producing sounds but effectively communicating thoughts. Therefore, the primary topic to be investigated in the research is the student's speaking abilities. Accordingly, a key component of teaching and learning a foreign language should be speaking. However, many students find it difficult to express themselves in English orally. It becomes one of the issues arising from speaking difficulties experienced by undergraduate students even though language learning lecturers, writers, and faculty members pay close attention to speaking in the context of English as a foreign language. Students typically struggle while trying to successfully communicate in a foreign language (Anggraini et al., 2022). One common source of annoyance for Indonesian students studying English for years is that they still struggle to communicate well in English, particularly when speaking it aloud (Nggawu & Thao, 2023; Sada et al., 2023). Speaking is therefore frequently seen as the most significant and difficult of the four skills for the learners. Thus, in higher education, particularly, students should be encouraged to use the language by practising their speaking English

inside and outside the classroom. Speaking is the language skill which is first to be demonstrated to see the ability of one to master the language.

Speaking is important in general for higher education students, especially dentistry students. The demands for Dentistry students derive from the need for a broader chance to work abroad, collaborate with foreigners, or present their competency in international seminars or other occasions where English serves as a medium for communication. Students understand the consequences of avoiding public speaking engagements for their future employment and social lives. Feelings of worry, rumination, frustration, hopelessness, and depression are brought by this (Drajat et al., 2023). Adding to the complexity, English lecturers in Indonesia face challenges in creating and designing effective learning objectives for speaking skills due to the diverse range of students in their classes. These students have distinct personalities, native languages, and learning styles. Thus, in order to accomplish the goals, English lecturers may find it useful to recognize the disparities in the qualities of their students (Nggawu & Thao, 2023).

Therefore, knowing students' speaking abilities one by one seems impossible for the common challenges faced in Indonesian classroom settings is that the class is too big, or attended by too many students. At Institut Ilmu Kesehatan Bhakti Wiyata, for example, English class for dentistry students is held in a big classroom setting where each class is attended by around 75 to 100 students. Consequently, it is hard for students to practice their speaking skills inside the class. Broadly speaking, in such a big class setting, lecturers dominantly lead the lessons and limit students' participation. This clearly demonstrates how oral skills are often underappreciated, which leads to students' deficiencies and poor oral communication skills (Sada et al., 2023). Furthermore, it is hard for students to get decent feedback in a big classroom.

Nevertheless, a non-native speaker frequently makes errors in the target language. The lecturer should, however, carefully fix those mistakes. In a university classroom, lecturers need to take feedback into account as a tool to help students learn more, whether it is given orally or in writing. One technique to help students become more proficient in utilizing English is to provide them with feedback, especially corrective feedback. To make sure that the students genuinely comprehend the proper use of English, the lecturer should provide concise corrective feedback (Muslem et al., 2021). However, in reality, due to time limitations and the number of students attending the class, an activity of students speaking one by one in front of the class and giving corrective feedback from the

lecturer is almost impossible to do in one meeting. A previous study suggested that in order to increase students' speaking fluency, especially in a big classroom setting, EFL Classroom lecturers should employ self-conversation recordings (Islam, 2022). Yet, even though the speaking activity can be done in a group, the lecturer will find it hard to control, and their peers tend to be subjective and not reliable enough in giving feedback.

Fortunately, the lecturer doesn't need to correct every error made by students when using the target language. A lecturer ought to be alerted to errors that could obstruct clear communication (Muslem et al., 2021). Furthermore, the current development of technology, especially the emergence of artificial intelligence can actually be utilized in this matter. Numerous academic studies have examined the significance of technology in providing feedback on students' work, given its ability to facilitate asynchronous discussions, rich information, convenience, timeliness, and social presence. One of them is a study conducted by Saputra et al. (2023) which proves that students are able to feel involved in the learning process thanks to the efficient use of audio feedback, which is well-received for being comprehensive, specific, and personal. They even encourage the use of technology in giving feedback during the teaching process since it can encourage students to participate more actively in their English learning process. Artificial intelligence which supports students' speaking skills, such as SmallTalk2Me, is claimed to have objective feedback which can boost students' confidence in speaking. A previous study conducted by

Based on the aforementioned description, this study aims to portray dentistry students' speaking skills by categorizing their level of mastery and addressing any common issues during the small talk using a technology, an artificial intelligence, called SmallTalk2Me. This information can be very beneficial for various parties such as the lecturer, academics, as well as the students themselves. By knowing where the students stand on their speaking ability, the lecturer can design proper fit materials to be given to the students. Furthermore, academics can study more about the benefits gained from it to either develop instructional design fit for a big class or get into details on students' perspectives on the use of the technology. At last, the students themselves not only can be more engaged in the learning process but also can get proper feedback which is helpful for them to improve not only their speaking skill but also their English competency in general.

## **Method**

This study is a descriptive study which describes the natural phenomena descriptions that occur naturally without manipulated circumstances of the subject of the study using a descriptive qualitative method design (Silverman, 2011). The existing evidence was then strengthened and elaborated using a case study technique (Stake, 2010). Since this study focused on describing the dentistry students' speaking ability, this study involved 78 dentistry students of Institut Ilmu Kesehatan Bhakti Wiyata Kediri enrolled on the odd Semester English class 2023/2024. The data were obtained from the feedback given by SmallTalk2Me on their speaking level test during active conversation meetings. The obtained data were then analyzed qualitatively and were categorized in detail to get the most used of it. This is because the nature of qualitative study is to describe how to understand social life and use words rather than numbers to analyze the facts (Patton & Cochran, 2002).

## **Results**

Nearly every aspect of human existence has benefited greatly from today's technological breakthroughs, including the educational system. Smartphones, tablets, and other portable electronic with internet access are examples of mobile technology that are becoming essential to modern human life (Putra et al., 2023). However, prior research indicated that learners of English as a foreign language (EFL) have a number of challenges, particularly with regard to speaking the language fluently. Accordingly, the existence of technology is expected to help students to improve their speaking skills.

The 'SmallTalk2Me' is one of artificial intelligence which might help students to speak by providing decent feedback. The features of this application are meant to be used for training intonation, accent, expressiveness in suitable situations, pronunciation, and even language learning. One of its features is to assess English Speaking skills using CEFR Level to see one's language competence. CEFR stands for Common European Framework of Reference for Language used for assessing foreign language competence agreed upon by Uni European countries. Students' speaking skill is presented in the form of levels from A1, beginner, to C2, Proficient. SmallTalk2Me assess speaking skills according to their fluency, grammar usage, pronunciation, vocabulary, and interaction in their speaking by the test taker to

answer and discuss several issues presented.

In this study, 78 dentistry students were assigned to do a speaking level test on SmallTalk2Me. The results of the test were in the form of a recording of the test along with its analysis. The average time spent by the students in doing the test was 8.5 minutes with the average words mentioned of 776 words. The final results ranged from A2, pre-intermediate, to C1, advanced, with most students (30 students) possessing Intermediate competency in speaking, B1, followed by upper intermediate level (27 students).

Pronunciation, vocabulary, fluency, comprehension, and grammatical precision are some of the components of speaking (Ilinawati et al., 2023). Accordingly, this study also focused on the 5 elements such as fluency, grammar, pronunciation, vocabulary, and interaction or engagement as assessed by the 'SmallTalk2Me'. Most of the student has advanced level (C1) in their fluency (37 students) and grammar use (32 students), but only intermediate level (B1) in terms of pronunciation (29 students) and vocabulary (28 students) as well as upper intermediate level (B2) in interaction (36 students). This indicates that our education system which emphasizes teaching grammar to students does not fail. Instead, there is room for improvement in terms of the teaching of pronunciation and vocabulary, indicating that students need to practice using the language more. The details of students' speaking skill level is presented in the following table.

*Table 1. The results of dentistry students' speaking level test on 'SmallTalk2Me'*

CEFR	Fluency	Grammar	Pronunciation	Vocabulary	Interaction	Final Result
A1	0	1	1	1	0	0
A2	0	4	5	5	3	4
B1	14	9	29	28	10	30
B2	19	12	20	24	36	27
C1	37	32	13	16	23	17
C2	8	20	10	3	6	0

SmallTalk2Me also provided meticulous feedback for the students in terms of

what they had nicely done and what things needed to improve. Most of the students used 5 to 8 advanced grammar constructions such as reported speech, relative clauses, passive voice, tenses, conditionals, modals, and phrasal verbs, with very few grammatical errors. Most of them were experts at using phrasal verbs such as clean up, find out, go on, break up, eat out, go out, and many others. The system also showed that students had great usage of linking words such as also, so that, and whether.

In terms of things to improve, SmallTalk2Me suggested the student use more complex structure for most of them only use 24% to 35% complex structure in their sentences. It also encouraged the students to use more variety of synonyms as well as to expand their vocabulary mastery because there were too many repetitions of words. For example, the words happy, photo, day, trip, bear, friend, good, taxi, driver, family, and many others were used too often when talking about the same thing. Several typical linking verbs were also suggested for several students such as besides, to start with, in spite of, to my mind, in case of, and therefore. Lastly, some dentistry students need to work on their speaking rate because their speaking rate and pausing were below native level.

## **Discussion**

This part conveys two sections related to the practices of online speaking tests using 'SmallTalk2Me' on dentistry students. The first section will explore dentistry students' speaking ability presented by the results and feedback from speaking level test provided by 'SmallTalk2Me', while the second section will elaborate more on the use of technology, especially artificial intelligence such as 'SmallTalk2Me' on the teaching and learning process, focusing on the speaking skill.

### ***Dentistry Students' Speaking Ability***

Grammar measures accuracy, whereas fluency generates words instantly without hesitation or superfluous pauses. In this study, dentistry student spoke fluently might be caused by their precision in speaking. Because speaking fluently is related to word comprehension, proper grammar and structure, a wide range of language meanings and messages, and error avoidance (Pebiana & Febria, 2023). Thus, no wonder that dentistry students not only obtained advanced levels of fluency but also grammar elements since they go hand in hand. Furthermore, this study was in contrast to the findings of several previous studies which mentioned that many students experience difficulties, feel afraid, and lack self-confidence in speaking English due to their poor grammar competence (Anggraini et al., 2022; Wene & Vantaosen, 2023). The subjects of this study, dentistry students, were

confident with their fluency in speaking skills by performing good grammar accuracy. Speaking is a challenging skill to acquire, but due to habit, it appears that dentistry students may be proficient in the language because they use it frequently (Wene & Vantaosen, 2023).

The ability to articulate or pronounce sounds or words in order to communicate and express ideas, feelings, and thoughts is known as speaking. If a language learner knows how to pronounce concepts through language, how to do it appropriately using the target language's rules, and what vocabulary to employ, they will be able to understand and communicate effectively (Drajat et al., 2023). Unfortunately, this study found that dentistry students possessed an intermediate level of pronunciation and vocabulary mastery. This supports a previous study which found that speaking performance issues among students are mostly related to vocabulary, comprehension, and pronunciation, which lead to students' lack of confidence in speaking (Anggraini et al., 2022).

Since the results of the speaking skill test showed there is room for improvement in terms of pronunciation, a decent strategy is required in teaching pronunciation. Few of the students are still at the beginner level on this matter. A prior study found that L1 significantly affects both the segmental and suprasegmental feature adaptation of the target language (Sales, 2022). In order to educate students on how to use the appropriate language in the appropriate situation, it is advised that language teachers or lecturers possess a thorough understanding of both the first and second language standards. Through consistent exposure to this language, students must be aware of the distinct suprasegmental elements of both languages.

### ***The Use of Artificial Intelligence in Speaking Class***

The development of technology has impacted every sector of human existence, including education. Through an application, teachers and students can communicate at anytime and anywhere. The idea of the use of technology for online learning is not new. It describes a technique of learning that makes use of cutting-edge information and technology, especially the Internet (Wardani & Zakiah, 2021). Teachers may now more easily distribute instructional materials, and students can more simply access them thanks to technology. Comparing interactive multimedia to boring textbooks or e-books is a deep way to simplify learning materials. In this situation, MALL (mobile-assisted language learning) can be applied to improve



students' English competence, particularly in English-speaking classes (Pebiana & Febria, 2023).

Advanced technology currently offers technology in the form of artificial intelligence to be used in language teaching. The artificial intelligence for language teaching, specifically English speaking, mostly can be accessed through websites such as [www.english-improve.com](http://www.english-improve.com), [smalltalk2.me](http://smalltalk2.me), [talkpal.ai](http://talkpal.ai), [elsaspeak.com](http://elsaspeak.com), and many others. Thus, there is a need for a deeper understanding of the opportunities, problems, and challenges artificial intelligence or AI provides in the particular sector of teaching and learning English (Edmett et al., 2023).

This study proves that artificial intelligence is useful to improve dentistry students' speaking skills by providing feedback. Unlike a teacher or lecturer, artificial intelligence responds and provides input instantly. Therefore, the benefit is always present. One advantage of AI-based learning is immediate feedback. This allows for quick correction in the event that a student makes mistakes. Nonetheless, increasing fluency of delayed feedback has significant advantages since it frees up learners to focus on meaning rather than accuracy. A very good teacher can instantly assess the value of delayed versus immediate feedback. Yet, AI may be taught to act in a similar manner (Edmett et al., 2023). Moreover, in this study, dentistry students were fluent enough in speaking English. Thus, immediate feedback from the artificial intelligence, SmallTalk2Me is preferred to improve their lack of pronunciation and vocabulary mastery. Finally, this is in line with a previous study which concluded that the use of artificial intelligence accessed on websites for mobile-assisted language learning has a positive impact on students' English-speaking ability. Because of the available learning resources, the use of artificial intelligence is appropriate and successful in addressing the issues of students who lack motivation to learn (Pebiana & Febria, 2023). Another study also found that the students believe that by using technology to practice speaking, they would be able to pick up vocabulary, phrases, and pronunciation of English that is similar to that of a native speaker (Putra et al., 2023). Thus, it is advised that English teachers use artificial intelligence for mobile-assisted language learning because it has improved the speaking abilities of their students.

## **Conclusion**

To conclude, this study presents dentistry students' level of mastery in speaking English along with feedback given by an artificial intelligence called SmallTalk2Me. In general, most students were in the intermediate level of speaking

with an advance level of fluency and grammatical use. However, there is room for improvement in terms of students' vocabulary and pronunciation, as their levels in these sections were intermediate. The feedback served by the SmallTalk2Me was instant and helpful to improve students' speaking skills. Thus, it is beneficial to use any artificial intelligence (AI), especially SmallTalk2Me, to practice and enhance students' speaking skills, as proven by numerous previous studies, anytime and anywhere.

The researchers suggest several recommendations based on the results of this study. The students are encouraged to independently use advanced technology, including artificial intelligence such as SmallTalk2Me, to improve their English mastery, especially their speaking skills outside the class, as practice makes perfect. Additionally, teachers are recommended to incorporate this technology, to make their teaching and learning interactive, interesting, and helpful since it provides instant feedback, which may be challenging for the teachers to provide. Specifically, for the teacher/lecturer of dentistry students, feedback given by artificial intelligence is expected to help design good lesson plans that accommodate the learning process suitable for students' English level. Lastly, while there is increasing research on the use of technology for EFL students, there is little literature specifically addressing the use of artificial intelligence. Accordingly, future researchers are suggested to conduct more studies on the use of artificial intelligence in various other skills of English such as listening, writing, and reading. Future researchers can also explore similar studies on speaking to different research subjects using different AI programs.

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