LETS
Journal of Linguistics and English Teaching Studies
ISSN (print) : 2715-4408
ISSN (online) : 2715-4416
Homepage : stainmajene.id/index.php/lets

Educational Speaking Technology Tools in English Pronunciation

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Abstract
Pronunciation is essential for effective oral communication, yet it is often underemphasized in EFL classrooms due to teachers' limited time, confidence, and resources. Digital tools such as YouGlish and Merriam-Webster provide authentic pronunciation models and phonetic sopport that can enhance students' pronunciation learning. This study investigated the effectiveness of educational speaking technology in pronunciation instruction and examined the perceptions of English language learners in using the technology during their learning process. A mixed-methods design was employed involving 21 students enrolled in the Speaking for Informal Interaction course. Data were collected through pronunciation pre- and post-tests and questionnaires, including open-ended items, to capture students' perceptions. Quantitative data were analyzed using SPSS, while qualitative data from open-ended responses were examined through thematic analysis. The findings indicated a significant improvement in students' pronunciation performance after using the educational technology tools. Students also reported gains in overall speaking ability, especially in pronunciation, vocabulary use, and confidence. The tools' authentic pronunciation examples and phonetic guides contributed greatly to these improvements. The results lead to the conclusion that incorporating educational speaking technology into language teaching can substantially enhance pronunciation skills. A balanced approach that combines technology with guided practice is recommended to maximize learning benefits and minimize potential confusion for learners.
Keywords: *Educational technology tools, EFL, Merriam-Webster, Pronunciation instruction, YouGlish*

1. Introduction

Pronunciation is a crucial aspect of spoken communication, yet it remains a challenge for many EFL learners who must master both the phonological and grammatical systems of English to communicate proficiently (Hwang et al., 2024; Jendli & Albarakati, 2024; Khaleghi et al., 2020). While these systems function as distinct elements of meaning-making, inaccurate pronunciation significantly impairs verbal communication (Almusharraf, 2022; Berry, 2021; Tsunemoto & McDonough, 2020). Although pronunciation is included in many EFL curricula, it is still frequently neglected due to teachers' limited confidence, time constraints, and restricted access to effective resources (Gilakjani, 2012; Gilakjani & Sabouri, 2016; Wang et al., 2025). Harmer (2003) posited that teachers' failure to prioritize English pronunciation is also attributed to a paucity of pertinent, excellent-quality educational and instructional resources and opportunities for practice.

In teaching, pronunciation instruction requires attention not only to linguistic features but also to the cognitive and social processes through which learners internalize them. However, classroom practice often reduces pronunciation to isolated drills that overlook widely accepted theoretical principles. Although Krashen's (1985) Input Hypothesis

highlights the need for sustained exposure to comprehensible and authentic input, many EFL contexts provide limited phonological input. Likewise, Sociocultural Theory (Vygotsky, 1978) emphasizes the importance of guided interaction and feedback within the zone of proximal development, but such developmental scaffolding remains inconsistent in practice. This practice surely will boost positive language attitude among EFL learners (Uswatunnisa, 2025). In addition, Little's (1991) work on learner autonomy underscores the necessity of promoting noticing, self-regulation, and reflective control over learning processes, yet these metacognitive dimensions are rarely incorporated into pronunciation instruction. The multidimensional nature of pronunciation described by Pennington & Richards (1986) through segmental, voice-setting, and prosodic features is also insufficiently reflected in instructional practice, where segmentals tend to dominate despite evidence that prosody is central to intelligibility. Complementing this view, Burns (2003) communicative goals of intelligibility, comprehensibility, and interpretability further stress that pronunciation teaching should support meaning-making, yet instructional materials, assessment practices, and teacher preparation rarely operationalize these goals effectively. Although Figure 1 conceptualizes pronunciation as an integrated system that unites segmental and suprasegmental features, limited instructional time and inadequate pedagogical preparation continue to hinder the implementation of holistic pronunciation instruction, resulting in learners being encouraged to focus primarily on basic intelligibility rather than more comprehensive communicative effectiveness. (Jarosz, 2019; Tergujeff, 2013; Tran & Nguyen, 2020).

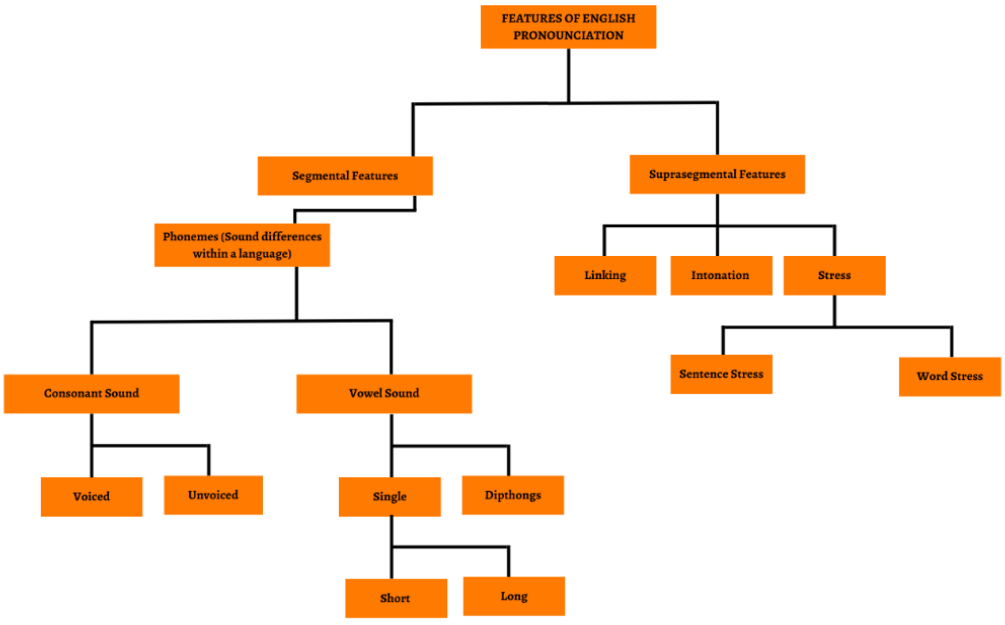

Figure 1. Various Features of English Pronunciation

Lecturers or EFL instructors need to be aware of the elements that affect students' learning of new language elements. Several factors contribute to pronunciation difficulties, including age, L1 influence (Almusharraf, 2024; Rosyid, 2016; Zhang & Lu, 2024), and lack of target language exposure. In the Indonesian EFL context, appropriate pronunciation is still based on General American (GA) and the British Broadcasting Corporation Pronunciation (RP) since English is taught in formal schools and treated as a foreign language. Different from “outer circle” countries where English functions as lingua franca,

take an example in Singapore, there is a clear trend toward the acceptance of local pronunciations as the target norm (Bettoni & Rizzi, 2020; Brinton, 2012; Nazari et al., 2022). English is considered a foreign language in Indonesia, and it is influenced by American or British English. Those EFL students need to have sufficient language exposure to the "standard" English. Teachers are therefore encouraged to adopt varied instructional strategies that accommodate learners' needs.

Pronunciation instruction remains essential for EFL learners because intelligible communication depends on learners' ability to coordinate sounds, rhythm, and intonation (Fadillah, 2020; Khanh, 2021; Sonia & Lotfi, 2016). Although Gilakjani (2012) notes that active engagement and proactive instructional support are necessary, many teachers continue relying on imitation and reading aloud (Tergujeff, 2013), and conventional resources such as printed texts and teacher modeling offer limited exposure and inadequate opportunities for sustained practice(Sherine et al., 2020). These constraints are compounded by restricted instructional time and insufficient materials, contributing to recurring pronunciation errors and communicative breakdowns, which indicate that traditional approaches often fail to meet learners' developmental needs (Ochoma, 2019). Such persistent limitations highlight a widening gap between the demands of pronunciation learning and the capacity of conventional pedagogy to support it, thereby underscoring the need for more responsive and data-rich instructional alternatives. Modern educational technologies offer solutions by providing authentic models, expanded practice opportunities, interactive feedback, and enhanced learner autonomy, positioning CALL as a pedagogically superior environment for addressing pronunciation challenges that remain unresolved in traditional EFL classrooms.

Prior studies show that CALL tools such as dictionaries, pronunciation platforms, and speech-recognition systems can enhance learners' pronunciation and autonomy. Asratie et al. (2023) identified key factors of communication performance, including proper pronunciation, natural speech patterns, coherent ideas, and correct grammar, and demonstrated how tools such as the Oxford Advanced Learners' Dictionary, FORVO, and YouGlish enhance speaking abilities through audiovisual input. Similarly, Topal (2022) emphasized Tureng's user-friendly audiovisual features and its integration with YouGlish, which provides contextualized pronunciation practice and skill-testing functions. Automatic speech recognition tools like Google Web Speech contribute to learner autonomy through transcription-based self-evaluation, as shown by Wallace (2015). Furthermore, Ferrett & Dollinger (2021) reported that digital dictionaries such as Merriam-Webster, despite issues related to advertising and content consistency, remain valuable because of their accessible phonetic and lexical resources.

Despite the individual popularity of YouGlish and Merriam-Webster, little research has explored how these tools function together to support pronunciation development and vocabulary awareness. This research therefore investigates their combined pedagogical value. This research seeks to fill the current research disparities by thoroughly investigating the processes that determine how these two tools can enhance the pronunciation and vocabulary understanding of EFL students. Despite the popularity of YouGlish as a pronunciation tool through the presentation of genuine videos from different situations, and Merriam-Webster as a comprehensive digital dictionary, there is a lack of research investigating the integration of these two tools and their impact on EFL students' speaking and vocabulary acquisition.

Against this backdrop, the present study is guided by the following research questions:

1. To what extent do educational speaking technologies (YouGlish and Merriam-Webster) improve EFL learners' pronunciation performance?
2. How do EFL learners perceive the integration of YouGlish and Merriam-Webster in pronunciation learning?

2. Method

2.1. Research Design

This investigation employed a mixed-methods design that combined both quantitative and qualitative approaches to examine students' use of educational speaking technology. The quantitative phase involved administering pronunciation pre and post-tests to measure students' performance improvement after using YouGlish and Merriam-Webster. The qualitative phase explored students' perceptions and learning experiences through open-ended questionnaire items and direct quotations. Following (Creswell & Clark, 2018), verbatim excerpts from student responses were included to provide thick, descriptive insights with minimal researcher interpretation (Greaves, 2024; Kahlke, 2014). Data were collected from multiple sources during regular classroom instruction to ensure that the learning environment remained authentic and unobstructed.

2.2. Sample

The present study implemented an approach to non-probability sampling known as convenience sampling. When conducting convenience sampling, individuals who are easily accessible or readily available are selected. In this research, twenty-one (21) EFL students in higher education were involved. They were concentrating on the English Language Education Department. These individuals were in their first year of academic pursuits. A consent form and a summary of the study details were provided to the selected participants before they participated in the study. The participants finished their speaking course for intermediate level, the *Speaking English for Informal Interactions course,* in a semester. During sixteen meetings, the course coordinator or the lecturer in charge already asked students to use educational technology tools with web-based tools such as Merriam-Webster online dictionary and YouGlish (website) to check their pronunciation individually. Finally, the researcher distributed the Google Form to the respondents.

2.3. Data Collection

Ethical approval and participant consent were obtained prior to data collection. The researchers informed the subjects of the research objective and guaranteed that the assessments would not affect their grades. Since the experimental studies were one-group pre-test-post-test, the achievement pre-test materials were distributed to all participants as a pre-test. The examination was divided into 2 parts and required approximately 7 minutes to complete. The students were enrolled in a Speaking class every 8 weeks during the treatment phase. They used Youglish and Merriam-Webster online dictionaries to acquire different training techniques connected to their pronunciation. The students also requested to have personal pronunciation drills throughout the class. Participants took the accomplishment post-test after the treatment program.

2.4. Instrument

Data were acquired by employing tests and questionnaires. The pronunciation test functioned as both a pre-test and a post-test to obtain quantitative data on learners' pronunciation performance, particularly in their speaking skills. Two elements define pre- and post-test pronunciation assignments: a short text and vocabulary pronunciation. The second data collection implemented was a questionnaire that evaluated the degree to which

students view the integration of instructional speaking technology to enhance their speaking abilities, particularly in the realm of pronunciation. The survey comprised 15 closed-ended items that were adjusted from (Asratie et al., 2023) and designated with Likert scale measurements, which follow the scale from Strongly Disagree (1) to Strongly Agree (5). Two open-ended questions also assessed the students' experiences with the Merriam-Webster online dictionary and YouGlish and instructional speaking technologies.

2.5. Data Analysis

Both quantitative and qualitative analyses were conducted. Quantitative data from the pre-test and post-test were analyzed using paired-sample t-tests (Hodges et al., 2022) in SPSS version 26, to determine whether there was a significant improvement in learners' pronunciation performance following the intervention. Descriptive statistics, including means and standard deviations, were used to summarize learners' perceptions based on questionnaire responses. Qualitative data from the open-ended questions were analyzed through thematic analysis to identify recurring themes related to learners' experiences, perceived benefits, and challenges encountered when using YouGlish and Merriam-Webster.

3. Results

3.1. Findings

3.1.1. The result of students' pronunciation performance after using educational speaking technology

To examine whether students' pronunciation performance improved after the instructional intervention, a descriptive analysis and normality test were first conducted. The data met the assumptions for parametric testing; therefore, a Paired Samples T-Test was used to compare the pre-test and post-test scores. The results showed a statistically significant increase in pronunciation performance at the 0.01 significance level. The results are presented in the following tables.

Table 1. Student Paired Samples T-Test of pre-test and post-test

Measure 1	Measure 2	T	df	p
Pre-test	Post-test	-10.791	20	<.001

Table 2. Descriptive statistics of pre-test and post-test

	N	Mean	SD	SE	Coefficient of variation
Pre-Test	21	78.831	2.941	0.642	0.038
Post-Test	21	85.190	0.602	0.131	0.007

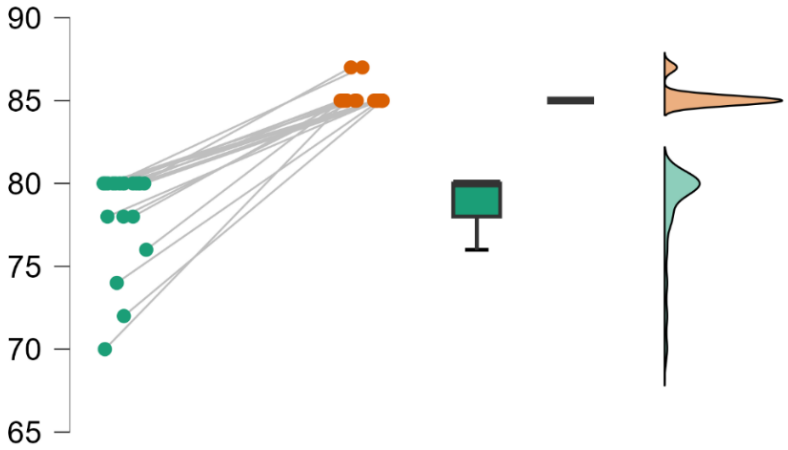

Figure 2. Distribution of items between the pre-test and post-test

Table 1 shows that the pre-test and post-test scores are statistically significantly different. The significant difference can also be seen from the mean value in the descriptive analysis, where the students' pronunciation test was 78.381. After being given treatment, it had a mean of 85.190 (see Table 2). The disparity in the mean result of the pre-test (M=78.831, SD=2.941) and experimental (M=85.190, SD=0.602) groups is meaningful as the p-value shows <0.01. Additionally, the raincloud plot (Figure 2) provides visual confirmation of this pattern. Every participant demonstrated an upward shift from pre-test to post-test, with no extreme deviations or irregular score movements. The distribution in the post-test is more condensed and slightly higher in central tendency, indicating reduced variability and overall performance gains. The combined visualization of raw paired scores, distribution shapes, and summary statistics aligns with the inferential output, reinforcing that the instructional intervention effectively enhanced students' pronunciation performance.

3.1.2. Students' Perception of Educational Speaking Technology

This research examined English Language learners' perspectives on using new technologies to enhance their speaking skills. Semi-structured interviews and questionnaires were implemented to garner and evaluate the students' perspectives regarding the experiment. The results demonstrated that the learners thought well of the usage of instructional speaking technology to enhance their oral abilities.

Table 3. Student's interest on educational speaking technology.

	1. I enjoy using educational speaking technology in my speaking class	**2. Using educational speaking technology enhances speaking**	**3. I would like to use educational technologies to do speaking activities**	**4. I become a better English speaker when I use educational technologies.**	**5. Using educational technologies helps me to make my speech clearer, for my pronunciation as well.**	**6. I look forward to educational speaking technologies in speaking classes**
aValid	21	21	21	21	21	21
Missing	0	0	0	0	0	0
Mean	**4.122**	**4.306**	**4.245**	**4.184**	**4.245**	**4.245**
Std.	**0.600**	**0.466**	**0.434**	**0.635**	**0.560**	**0.434**

	1. I enjoy using educational speaking technology in my speaking class	2. Using educational speaking technology enhances speaking	3. I would like to use educational technologies to do speaking activities	4. I become a better English speaker when I use educational technologies.	5. Using educational technologies helps me to make my speech clearer, for my pronunciation as well.	6. I look forward to educational speaking technologies in speaking classes
Deviation						
Minimum	3.000	4.000	4.000	3.000	3.000	4.000
Maximum	5.000	5.000	5.000	5.000	5.000	5.000

As shown in Table 3, the students indicate a particular enthusiasm for engaging in educational speaking technology. The statistics indicate that the students (M= 4.12, SD= 0.600) believe that the English learning experience was enhanced by the increase in enjoyment. Additionally, the table further demonstrates that the students (M = 4.30, SD = 0.466) had employed educational speaking tools to enhance their oral abilities, which shows that they have a positive view. Furthermore, they have an interest in applying it to develop speaking skills (M= 4.24, SD= 0.602). The learners also responded that they get better English speakers when using English communication educational tools (M= 4.18, SD= 0.635). In this way, it is possible to observe through the table that the students' responses (M = 4.57, SD = 0.598) revealed that using instructional speaking technology helps make their speech better. Eventually, the students agreed (M = 4.24, SD = 0.434) that they would seek out educational speaking technology in speaking courses

Table 4. Students' views on educational speaking technology

	1. Educational speaking technology improves fluency.	2. Educational speaking technology develops lexical resources.	3. Educational technology increases accuracy.	4. Educational speaking technology enhances pronunciation.
Valid	21	21	21	20
Missing	0	0	0	1
Mean	**4.122**	**4.245**	**4.184**	**4.271**
Std. Deviation	**0.600**	**0.434**	**0.527**	**0.644**
Minimum	3.000	4.000	3.000	3.000
Maximum	5.000	5.000	5.000	5.000

Table 4 indicates that students have (M: 4.12, SD= 0.600) perspectives on the utilization of instructional speaking technology. This means that it ought to raise language fluency. The following data illustrates students' views on educational speaking technology, which they agree can create a lexical resource that offers essential insights into language development (M: 4.24 SD= 0.434). Likewise, the students believed (M = 4.18, SD = 0.527)

that educational technology increased their public speaking skills in terms of accuracy. Furthermore, the students perceived (M = 4.27, SD = 0.644) that using educational speaking technology enhanced pronunciation. Thus, the results proved that the students evaluated the usage of educational speaking technology to be effective in increasing speaking performance.

Table 5. Students' view of the roles of educational speaking technology

	YouGlish serves me enhance my speaking performance, especially my pronunciation.	**https://www.merriam-webster.com/ helps to develop speaking skills, especially my pronunciation.**
Valid	20	21
Missing	1	0
Mean	**4.083**	**4.367**
Std. Deviation	**0.539**	**0.487**
Minimum	3.000	4.000
Maximum	5.000	5.000

Table 5 demonstrates that students are also familiar with some educational speaking technologies, such as YouGlish and the website platform https://www.merriam-webster.com/, that are essential in improving their speaking performance. Accordingly, students had (M=4.08, SD=0.539) perspectives on YouGlish that it will improve their speaking production generally and pronunciation abilities, in particular, through hearing native pronunciation online. Likewise, the students confirmed (M = 4.36, SD = 0.487) that utilizing YouGlish in the speaking class helped them improve their spoken pronunciation.

When 16 student respondents were asked what the advantages of using YouGlish and Merriam-Webster online dictionaries, especially in learning pronunciation, 7 respondents (1; 2; 6; 8; 10; 11; 15) replied that both of them were useful in their own way, YouGlish for practical pronunciation and context, and Merriam-Webster for comprehensive definitions and detailed linguistic information. One (10) that represents the majority answered:

> *"For YouGlish, the video search feature based on a word or phrase is very useful, as I can instantly see and hear how the word is used in real conversations. As for Merriam-Webster, I really appreciate the "Word of the Day" feature, which helps me add vocabulary consistently. Both are really helpful for learning English."* — **Student (10)**

The conclusion is designed to address the stated objectives or issues of the research. It clarifies for the readers why, after reading the paper, your study should be relevant to them. It is not merely a summary of the primary topics or a reiteration of the research problem; rather, it is a synthesis of the most significant points and, if pertinent, the areas in which it suggests future research.

Another individual (2) mentioned that using both websites for learning might even cut down on continual pronunciation problems:

> *"We can know how to pronounce words more correctly, thus stopping continuous mistakes in vocabulary pronunciation. YouGlish, for example, helps me hear live conversations from native speakers through videos instead of just single words. This gives me a richer context and makes me more confident when speaking. On the other hand, Merriam-Webster comes in handy when I need to confirm the pronunciation of new words I encounter while reading or writing."*— **Student (2)**

However, the other 8 respondents (4, 5, 9, 11, 12, 13, 14, 16) point heavily to Merriam-Webster rather than YouGlish. saying that it could provide not only translation/definitions,

but also provide audio that explains the pronunciation of the word. Its audio features help students with accurate pronunciation, including phonetic spelling and syllable breaks, which can be vital for memorizing difficult vocabulary. A student (5) who represents the majority replied:

> *"The advantage of using Merriam-Webster is that I can find out the correct pronunciation. In addition, Merriam-Webster also provides clear definitions, examples of usage in sentences, and additional information such as word origins and synonyms. This is very helpful in understanding the word more deeply."*— **Student (5)**

Another respondent (14) also replied:

> *"Merriam-Webster really helps us to speak correctly and fluently and correct grammar mistakes. Merriam-Webster is also a very useful tool. I often refer to this dictionary to check word definitions, synonyms, and antonyms. In addition, the audio feature helps me ensure that I pronounce words correctly,"*— **Student (14)**

Two of the remaining students, specifically 3 and 7, expressed their opinions extensively using the Youglish app. Illustrating the advantages of real-time video-based learning, or providing an example of direct verbal communication. One of the students stated (7):

> *"One of the most effective ways I have found is by using YouGlish and Merriam-Webster. YouGlish has really helped me in listening to the correct pronunciation of words by native speakers. I just need to enter the word or phrase I want to learn, and YouGlish will show me various videos from YouTube where the word is spoken in different contexts. This helped me understand variations in pronunciation as well as proper intonation."*— **Student (7)**

In summary, student feedback on the use of YouGlish and Merriam-Webster underlines their competency and the way they can complement each other in learning pronunciation and vocabulary. YouGlish is adored by students for its practical and context-rich site. The video search feature allows a student to listen to the words of interest and how they are pronounced in real-life conversations, which is an important aspect of learning for most students. It helps learners learn pronunciation variations and contextual usage to feel more native and confident in developing speaking skills. For instance, one student has stated that the YouGlish platform greatly benefits hearing native speakers for the pronunciation in different contexts, which is essential for practical language learning.

Merriam-Webster, on the other hand, receives the most reviews for its wide range of linguistic resources. It gives strong points for providing detailed definitions, phonetic spelling, syllable breaks, and audio pronunciation. According to many learners, this dictionary really helps with studying the word meaning in-depth, and it becomes easy to make sure the pronunciation is perfect. Many students have noted how such added things as "Word of the Day" and other various grammatical helps play quite a role in continuing vocabulary acquisition and usage.

YouGlish and Merriam-Webster play an important but different role. YouGlish offers practical in-context video examples for learning, while Merriam-Webster provides detailed, structured information on the exactness of pronunciation. Using both tools in combination does seem to be the way to really improve on pronunciation and expand vocabulary in English

3.2. Discussion

The findings of this study demonstrate that the integration of speaking technology substantially enhanced EFL students' pronunciation and overall speaking performance. This pattern aligns with research establishing that oral proficiency develops through the interconnected growth of lexical resources, phonological accuracy, fluency, and coherence (Abdi & Davaribina, 2017; Brown, 2007; Fathi et al., 2025). The improvement reported in

this study is especially relevant given earlier evidence showing that many EFL learners struggle to speak effectively as a result of limited vocabulary, insufficient lexical variation, conceptual disorganization, and weak fluency, which collectively heighten speaking anxiety (Hong-Nam & Leavell, 2006; Luoma, 2004; Nur et al., 2021) By incorporating speaking technologies such as YouGlish and Merriam-Webster, the present study shows that these recurring challenges can be addressed through more accessible and diversified pronunciation input.

YouGlish and Merriam-Webster served complementary functions in supporting students' speaking development. YouGlish exposes learners to authentic pronunciation drawn from YouTube videos, allowing them to observe variation in accent, intonation, rhythm, and emphasis. This form of audiovisual input offers contextualized models of how words function in real communicative settings, thereby strengthening learners' perceptual familiarity with natural pronunciation patterns. Merriam-Webster, in contrast, provides structured phonological support through phonetic transcriptions, audio models, collocations, lexical relations, and example sentences. This reference-based guidance assists learners in developing metalinguistic awareness and encourages more accurate self-monitoring. Prior studies indicate that such mobile applications and digital dictionaries can significantly elevate students' pronunciation accuracy, phonological awareness, and overall communicative performance (Bronstein, 2015; Nichols, 2009; Prastyo et al., 2022; Sardegna & Jarosz, 2022; Sukmawati et al., 2024), The present findings reaffirm this position while also demonstrating that the combined use of these tools offers a more holistic learning environment than relying on either tool alone.

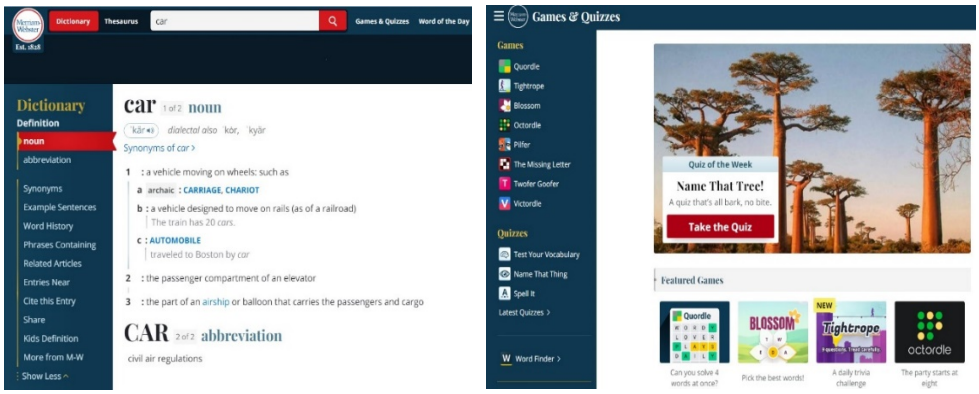

Figure 3. Example of Merriam-Webster dictionary multiple features

Figure 3 illustrates the multimodal features of the Merriam-Webster dictionary that contributed to this improvement. The dictionary interface includes audio pronunciation icons, phonetic spellings, example sentences, collocations, synonym–antonym networks, and additional learning tools such as quizzes and word-of-the-day activities. These components create a comprehensive digital environment that allows learners to examine pronunciation, meaning, and usage in an integrated manner. This multimodal presentation enhances learner autonomy by enabling students to explore pronunciation patterns independently while receiving consistent and reliable feedback.

Within the broader aims of language curricula, effective communication is a central objective. However, many learners receive limited opportunities to practice spoken English or to access high-quality pronunciation models, resulting in persistent gaps in oral proficiency (Hasan, 2022; Jiang & Peng, 2023; Pawlak et al., 2025). The current technological landscape provides promising avenues to address these limitations by making pronunciation and speaking practice more accessible. YouGlish illustrates how exposure to

real speakers facilitates the acquisition of authentic pronunciation cues. As noted by Prastyo et al. (2022) The platform guides learners through a structured process of identifying a target word, reviewing video selections, and analyzing phonetic and contextual information from subtitles and accompanying details. These features enhance learners' ability to internalize pronunciation patterns through repeated and meaningful exposure.

Merriam-Webster further supports this process by offering comprehensive dictionary functions that go beyond simple word definitions. The app includes pronunciation clues, lexical relations, example sentences, study aids, grammar exercises, and topic-based learning resources (Alhatmi, 2023; Lehmkuhl et al., 2025; Tso, 2020). These features extend learning beyond immediate pronunciation practice by enabling students to explore semantic, syntactic, and pragmatic aspects of word usage. Prior findings show that electronic dictionaries are perceived as enjoyable and beneficial for pronunciation by a majority of EFL learners (Alfallaj, 2013). Although some users may underutilize audio models. Zheng & Wang (2016). The present study suggests that when learners are supported through explicit orientation and guided tasks, these limitations can be reduced and the broader advantages of the tool can be maximized.

The results indicate that the use of speaking technology significantly enhanced students' pronunciation and overall speaking performance through several interrelated learning mechanisms. The authentic audiovisual input provided by YouGlish allowed learners to observe pronunciation in real communicative contexts, promoting implicit phonological acquisition and reducing cognitive load during speech production. At the same time, Merriam-Webster's phonetic transcriptions and audio models supported explicit learning by fostering metalinguistic awareness and enabling students to monitor and adjust their articulation. These complementary processes of contextualized input and structured feedback helped learners internalize pronunciation patterns more effectively while developing greater autonomy and confidence in speaking. Furthermore, students indicated that they understood more of the reading comprehension when using speaking technology, which may have also helped enhance their speaking ability. Study by Olivo Camacho et al. (2024) and Shand et al. (2024). This student-centered approach in utilizing digital tools enhances learning English, speaking, and interest in learning. However, studies by Ergasheva et al. (2022) and Kameswara et al. (2023) attest to the challenges presented by limited digital technology in speaking skills due to pronunciation errors and a lack of individual feedback. This difference signals a change in the way we view the influence of speaking tech on learning outcomes, which intuitively indicates that if our use of this tool is intentional, we can avoid its drawbacks and instead focus on enriching student engagement and learning.

In this regard, it was also pointed out that utilizing spoken technologies in learning makes a big difference in students' pronunciation and that a high mean score was obtained (M=4.27, SD=0.644). They found that using talking technology encouraged them to learn more since it made it easier to read and remember. This is consistent with a study conducted by Hakim & Agustina (2022), Kartal & Korucu-Kis (2020), and Ernawati et al. (2024), where the use of talking technology resulted in considerable improvement in pronunciation skills. Moreover, YouGlish was reported to not only improve general listening comprehension but also boost students' pronunciation, as the application had the highest mean value (M=4.36, SD=0.487). This dose-response is probably related to strategies such as adjusting the speed of video clips, skimming information, and inferring subject matter from context. The results are consistent with previous studies. Fu & Yang (2019) and Syunina et al. (2017) proved that video materials from the real-world help improve speaking skills. Despite the

difficulties mentioned by Topal (2023) Using YouGlish as a technological tool, functions as a useful tool for instructing and practicing pronunciation.

Merriam-Webster and YouGlish appear to be instrumental in helping students pronounce words correctly, the participants said. Through honest conversations captured in YouTube videos, YouGlish shows students the fine points of intonation and pronunciation, and Merriam-Webster helps students dig into a definition, phonetic spelling, and audio tools to pronounce words correctly. When combined, these two peer resources create a well-rounded understanding of English, where YouGlish addresses real-life applications while Merriam-Webster handles the fundamental understanding of English, including pronunciation, making sure students learn both the practical and academic sides of the language. These can include research like the following (Carstens, 1995; Dorst & Reijnierse, 2015; Topal, 2023), which highlights that YouGlish supports language learners by providing real-world pronunciation examples and fostering learner autonomy through independent exploration of linguistic nuances, and Merriam-Webster dictionaries enhance overall language proficiency with their comprehensive definitions and effective problem-solving tools. In contrast, authentic examples from YouGlish may not appear to be relevant to specific learning objectives and require explicit guided instruction because they can confuse learners (Carstens, 1995; Kaminska, 2019; Topal, 2023), while dictionaries from Merriam-Webster can be overwhelming for novices who need sophisticated reference skills and do not have them. These varying features highlight the shift in the notion of how the tool contributes to language mastery, acknowledging the unique limitations of both while advocating for an integrated approach that leverages the strengths of both resources to advance education effectively.

4. Conclusion

This study shows that educational speaking technologies such as YouGlish and Merriam-Webster significantly enhance EFL learners' speaking performance, particularly in pronunciation. By providing authentic pronunciation models, contextualized examples, and precise phonetic guidance, these tools effectively bridge the gaps left by traditional pronunciation instruction. Consistent with prior findings, students demonstrated meaningful gains in pronunciation accuracy, vocabulary development, and speaking confidence after engaging with both platforms. While YouGlish exposed learners to real-world speech across diverse accents and communicative contexts, Merriam-Webster offered standardized pronunciation input and detailed lexical information, resulting in a complementary environment for developing fluency, accuracy, and sustained engagement.

The pedagogical implications of these findings underscore the importance of guided integration of technology into pronunciation instruction. Although YouGlish and Merriam-Webster proved beneficial, several learners experienced difficulties with accent variability and extensive phonetic notation, indicating a need for teacher mediation in interpreting and navigating digital content. Educators must therefore scaffold learners' use of technological tools to maximize learning outcomes and prevent cognitive overload. At the same time, this study acknowledges limitations related to the small sample size, short intervention duration, and the focus on only two digital tools. Future research could expand the scope by examining long-term impacts, comparing multiple pronunciation technologies, and exploring effects across different proficiency levels. Even so, the present findings affirm that, when accompanied by appropriate instructional support, these technologies provide a powerful avenue for improving learners' clarity, confidence, and overall communicative competence.

Acknowledgment
This research was conducted in one of the Speaking for Formal Interaction courses at the English Language Education Department, Universitas Muhammadiyah Malang. The researchers would thank their students for participating in this research.

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