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STIMULATION OF STUDENTS ENGLISH SPEAKING SKILL IN USING ARTIFICIAL INTELLIGENCE (AI) FOR GRADE X SENIOR HIGH SCHOOL PABA BINJAI

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ABSTRACT

This research aims to investigate the stimulation of students' English speaking skills through the utilization of Artificial Intelligence (AI), specifically using the ELSA Speak application, among Grade X students at SMA PABA Binjai. The background of the study is rooted in the low speaking performance of students, who often lack confidence, fluency, and sufficient vocabulary when speaking English. The integration of AI in language learning is expected to create more personalized, interactive, and effective learning experiences. This qualitative descriptive research involved two classes (X-1 and X-2) as the subjects and focused on observing changes in students' motivation, confidence, and pronunciation skills before and after the use of the ELSA Speak application. Data were collected through pre-tests, post-tests, interviews, and observations during a four-week learning period. The findings revealed significant improvements in students' speaking performance. Students became more motivated and actively engaged in practicing English speaking through the app's interactive features. Verbal confidence increased, as seen from louder voice projection, reduced hesitation, and better pronunciation. Non-verbal aspects such as eye contact and body posture also improved, indicating increased self-confidence. Moreover, the instant feedback and structured exercises provided by ELSA Speak effectively supported students in correcting pronunciation errors and improving fluency. The research concludes that AI-based learning tools like ELSA Speak can be highly beneficial in enhancing students' English speaking skills, especially in terms of motivation, confidence, and pronunciation accuracy. This study also highlights the potential of AI to transform traditional English learning into a more dynamic and student-centered experience.

Keywords: Speaking skills, ELSA Speak, English learning

I. INTRODUCTION

Traditional learning tends to favor a one-way teaching approach, where teachers provide information to students with little interaction or active involvement from the students themselves. This often negatively impacts students' interest, motivation, and understanding of the subject matter. This system also tends to be less flexible and unable to accommodate individual differences in learning styles, learning speed, and learning interests.

Traditional classroom learning has an advantage in helping students develop important social skills such as teamwork, direct communication, and conflict resolution. These skills are essential in everyday life and the world of work. In addition, learning in a traditional classroom provides easier routines and controls than online learning. Direct interaction allows for effective verbal and non-verbal communication, which is often difficult to achieve through digital media. Face-to-face learning also allows students and teachers to understand each other better through facial expressions, voice intonation, and body language (Abimanto & Mahendro, 2023).

Today, however, dramatic changes in technology and access to information have created a need to develop more innovative and effective learning methods. The students now have easy access to a wide range of learning resources via the internet, and they are familiar with advanced technology. However, traditional learning methods tend to lag behind in harnessing the potential of this technology to improve the learning experience (Halawa et al., 2022).

Artificial Intelligence (AI) technology is able to produce adaptive learning systems that can adjust teaching materials and methods based on student performance directly. This ensures that each student faces challenges that match their level of understanding. With the integration of AI in the curriculum, students can develop digital and technical skills relevant to the future of work, including an understanding of how AI technology works and its applications in various fields. AI can also help automate administrative tasks such as assignment grading and student data management, allowing teachers to focus more on teaching and direct interaction with students (Madhavi et al., 2023).

The previous study "Kahoot Application as a Media in the Evaluation of English Learning for High School Teachers in Sukabumi", Kahoot was used as an evaluation tool in Indonesian language learning. This application allows teachers to get student evaluation results faster and more efficiently, as well as make it easier for students to assess their learning abilities. Therefore, AI technology can play a role in improving the quality of language learning and students' language skills (Saraswati et al., 2023).

Therefore, the study provides an overview as well as a foundation for the author in using AI as a learning medium in improving students' English speaking skills. In addition, the importance of non-academic skills, such as critical thinking, communication, collaboration, and problem-solving skills, is increasingly recognized as an essential component of education. Traditional learning often does not give enough focus on developing these skills (Yang et al., 2022).

Thus, the background of this problem underscores the need for transformation in traditional learning methods in order to meet the needs and demands of 21st century education. These changes will lead to more interactive, personalized, adaptive, and relevant learning, which can motivate students to learn better and develop the skills needed to succeed in this ever-changing world. Therefore, there is a need for an in-depth review of outdated traditional learning practices and measures to implement better changes in the education system, especially in English language learning (Dr.P.Hathiram, et al., 2023). For many years, speaking instruction has been underappreciated, and English language instructors have persisted in teaching speaking as nothing more than memorizing dialogues or repeating drills (Indari, 2020).

In the context of learning English, learning itself is often faced with several challenges. The main challenge is the complexity of English itself, especially for non-native learners of the language. The process of learning English requires a strong understanding of grammar, sentence

structure, broad vocabulary, and good speaking and listening skills. In addition, English teaching is often faced with the problem of learning effectiveness, the limitation of competent human resources in teaching this language, and the expansion of access to English education at various levels of society, even in a course environment that is actually an environment that focuses on the study of English (Hapsari & Wu, 2022).

In the era *of Society* 5.0, with the rapid advancement of science and technology, English learning must adapt to technological developments and the demands of an increasingly complex and dynamic society. *Society* 5.0 is an era where humans and machines can work together harmoniously, using artificial intelligence (AI) as a tool (Kirkby et al., 2023).

Artificial intelligence (AI) technology has undergone rapid development and offers great potential to improve the English learning process. The existence of various applications, *e-learning* platforms, and AI-based learning tools can help in solving some of the challenges faced in English teaching. For example, the *ELSA Speak* application. The app is well-known for using advanced speech recognition technology to identify and analyze user pronunciation, provide detailed feedback, and provide practice exercises tailored to each user's needs. *ELSA Speak* is very popular in many countries, including Indonesia, because it can help users speak English with a more natural accent (Nushi & Sadeghi, 2021). English language learners practice speaking English correctly with the help of ELSAs (English Language Speech Assistants). English language learners can also assist in studying the language for ESL programs as well as for the TOEFL, TOEIC, and IELTS examinations. Learn the fundamental words and phrases in English. To boost your job, practice English relevant to your industry (Aswaty & Indari, 2022).

AI can be used to create automated language learning systems, such as language learning virtual tutors. This helps students learn languages more efficiently and get feedback in real-time. AI technologies such as automatic translation machines have also changed the way we communicate in different languages. This is especially useful in the context of globalization and international business, and AI-powered speech and text recognition systems allow students to practice speaking and listening in the language they are learning, as well as translate foreign language texts into the target language (Almalki et al., 2022).

But in fact, the speaking skills of students in high school are still relatively low. As the results of observations in the PABA Binjai High School class at the time of the pre-research observation, students' English speaking skills are still relatively low as seen from several things, including most students are still shy and lack confidence when coming forward to tell the knowledge they have in front of other students. Students have difficulty in stringing sentences that will be retold, vocabulary is used repeatedly, and the intonation of students' voices is also unclear and small. The learning media used by teachers at SMA PABA Binjai is still less varied and only sourced from student books so that it does not facilitate the needs of student development. Students are not given more opportunities to practice speaking and are not used to retelling in front of the class because the presentation of material is still using the lecture method. In the grade X senior high school PABA Binjai, when students encounter a grammatical construction they are unclear about, a lexical phrase they are unfamiliar with, or the realization that they are unable to articulate what they mean, they struggle with communication. Students' speech problems might sometimes be a sign of anxiety and a lack of confidence. They may exhibit the usual feelings of insecurity, shyness, nervousness, anxiety, and worry when speaking in English. Those are substantial challenges that college students encounter nowadays.

The use of AI in English teaching can provide several advantages, including: helping students gain a deep understanding of English and being able to endure by offering learning experiences tailored to individual learners, having the capacity to produce interactive and diverse learning materials that improve the standards and effectiveness of their education, allowing educators to deliver content more effectively

and meaningfully while recognizing and meeting the unique needs of each student, and flexible and easy use. On the other hand, one of the aspects of the Independent Learning Curriculum policy program is to improve and optimize the use of technology. Educators are given directions to have the ability to master the digital aspect.

Definition of Speaking Skills

Etymologically, the word expertise comes from English which means prowess. In terms, expertise is a person's ability to complete a task or job whose results are observable. According to KBBI, expertise is the ability to complete tasks. Expertise is also considered the ability of a person to use intelligence in producing something of value. The definition of expertise varies according to experts. For example, Zulki Zulkifli Noor stated that expertise is the ability to do something correctly and easily. While Jamaluddin & Andi Hajar called expertise an activity that needs to be practiced directly (Parmawati & Inayah, 2019) .

Artificial Intelligence (AI)

Artificial Intelligence (AI) is a branch of computer science that aims to develop systems and machines to be able to perform tasks like humans (Sabri & Hamid, 2023). AI uses algorithms and mathematical models to help systems learn from data and make smart decisions. Some of the key concepts in AI include machine learning and natural language processing. Advances in AI have played a crucial role in voice recognition, facial recognition, autonomous vehicles, and more (Fathi et al., 2024).

ELSA Speak Application

ELSA (English Language Speech Assistant) is an AI application that helps students learn and measure English pronunciation. Designed by Vu Van from Vietnam, ELSA can be downloaded on Play or App Store. ELSA technology can detect pronunciation errors with up to 95% accuracy and offers more than 1,200 lessons. In addition, the app provides an interactive dictionary to help users figure out the correct pronunciation. ELSA's founder, Vu Van, stated that pronunciation is the biggest challenge in learning English (Aswaty & Indari, 2022).

II. RESEARCH METHODOLOGY

This study uses a quantitative method and lasts for about two months, namely one month for data collection and one month for data processing. The location of the research is PABA Binjai High School, North Sumatra. The subjects of the study were class X students who were indigenous people and had difficulty speaking English. The object of the study included all students at SMA PABA Binjai which amounted to 120 students from 8 classes. The research instrument used oral tests in the form of pre-test and post-test. The data collection technique includes several tests to assess students' speaking skills before and after using the ELSA application, as well as documentation. The study also analyzed students' grammar, content, pronunciation, vocabulary, and fluency. There are three activities in qualitative data analysis: data reduction, data presentation, and conclusion or verification.

III. RESULT AND DISCUSSION

Result

In this section, the researchers presents qualitative data collected through observations of two student groups: Class X-1 and Class X-2. The observations were conducted to identify patterns and changes in students' motivation, self-confidence (verbal and non-verbal aspects), and English pronunciation skills while interacting with the ELSA Speak application.

Observations of Class X-1 (Population: 10 Students)

The observations of Class X-1 were conducted over a four-week period, focusing on students' interaction with the ELSA Speak application and the changes in their language behavior. The researcher noted students' behaviors and responses to the application's use, as well as their interactions with each other and with the learning materials.

No.	Name	Pronunciation	Listening	Fluency	Word Stress	Intonation	Score
1	AR	88%	92%	89%	90%	87%	89.2%
2	AS	85%	89%	86%	87%	84%	6.2%
3	ARS	90%	94%	91%	92%	89%	1.2%
4	BAS	82%	86%	83%	84%	81%	83.2%
5	FNA	92%	96%	93%	94%	91%	93.2%
6	KS	87%	91%	88%	89%	86%	88.2%
7	HA	84%	88%	85%	86%	83%	85.2%
8	IBP	89%	93%	90%	91%	88%	90.2%
9	ADL	81%	85%	82%	83%	80%	82.2%
10	AAC	91%	95%	92%	93%	90%	92.2%
Mean	-	87.9%	91.9%	88.9%	89.9%	86.9%	89.16%

Table 1 Scoring Elsa for Class X-2

1. Motivation of Class X-1 Students in Using the ELSA Speak Application

At the beginning of the observation period, the motivation of Grade X-1 students in learning English, especially speaking skills, varied. Most students (about 7 out of 10) show a passive attitude and lack of initiative when asked to practice speaking English. They often wait for direct instruction from the teacher and are reluctant to start a conversation or practice pronunciation on their own. Only a few students (about 3 out of 10) show early enthusiasm, but this has not yet become the dominant pattern in the classroom.

After the ELSA Speak app was introduced in the first week, the motivation changes began to be noticeable. In the first few days of use, most students still need encouragement and guidance to use the app and start practicing. However, entering the second week, the increase in student engagement is noticeable. The researchers noted that students began to open the ELSA Speak app independently, even outside of class hours, such as during breaks or before lessons started.

A strong indicator of increased motivation is the frequency of discussions between students about progress in ELSA Speak. Some students can often be heard comparing their "pronunciation scores" or sharing tips on how to pass certain levels in the app. Enthusiasm is especially evident when they try out new features, such as "Speech Analyzer" or "Course Finder." The classroom atmosphere became more lively, and it was not uncommon for students to be heard practicing their pronunciation with small laughter while trying to imitate the accent or intonation provided by ELSA Speak.

2. Confidence of Class X-1 Students in Speaking English

Before the intensive use of the app, almost all students (about 8 out of 10) had a low level of confidence when speaking English. This can be seen from both verbal and non-verbal aspects. Verbally, students tend to speak in a very low voice and are often hesitant. After a few weeks of using ELSA Speak, significant improvements in the verbal aspect were seen, with students speaking more clearly and confidently.

3. Pronunciation Skills of Class X-1 Students Through ELSA Speak

On the non-verbal aspect, many students initially avoid eye contact and show anxious facial expressions. Over time, positive changes are seen, with students starting to make eye contact more consistent and show more relaxed expressions. Observations show that the instant feedback and structured practice features of the ELSA Speak app are very effective in helping students improve their pronunciation skills. After practicing, students show consistent progress in pronunciation accuracy, including sensitivity to word stress and sentence intonation variations.

Observations of Class X-2 (Population: 10 Students)

Observations of Class X-2 were also conducted over a four-week period, with similar focus on students' motivation, self-confidence, and pronunciation skills.

No.	Name	Pronunciation	Listening	Fluency	Word Stress	Intonation	Score
1	RS	87%	90%	88%	89%	86%	88.0%
2	PA	88%	89%	87%	88%	85%	87.4%
3	PB	90%	91%	89%	90%	87%	89.4%
4	SF	84%	85%	83%	84%	81%	83.4%
5	EN	92%	93%	91%	92%	89%	91.4%
6	AR	87%	88%	86%	87%	84%	86.4%
7	AA	88%	89%	87%	88%	85%	87.4%
8	DS	90%	91%	89%	90%	87%	89.4%
9	AG	84%	85%	83%	84%	81%	83.4%
10	A	92%	93%	91%	92%	89%	91.4%
Mean	-	88.2%	89.4%	87.5%	88.5%	85.4%	87.88%

Table 2. Scoring Elsa for Class X-2

1. Motivation of Class X-2 Students in Using the ELSA Speak Application

At the beginning of the observation period, the motivation of Class X-2 students varied, similar to Class X-1, but with a slightly different pattern of adaptation. About 6 out of 10 students showed a fairly good interest, while 4 students were more passive and took longer to adapt to the application. They tend to observe their friends before trying on their own. After the first week of using ELSA Speak, motivation in Class X-2 began to increase. Students show a keen interest in the "Speech Analyzer" feature, which allows them to practice conversations. They often challenge each other to get a higher "pronunciation score," although these interactions are more common in small groups or pairs than in large class discussions seen in Class X-1.

Although not as enthusiastic as Class X-1 in group discussions, Class X-2 students showed a strong individual dedication to practicing. They look diligent at practicing on their own, often using earphones to focus on pronunciation feedback. The learning atmosphere in Classes X-2 was calmer but highly focused, showing that the ELSA Speak app meets personal learning needs and triggers intrinsic motivation for students who are more comfortable learning independently.

2. Confidence of Class X-2 Students in Speaking English

At the beginning of observation, the confidence level of Class X-2 students when speaking in English tended to be low, similar to Class X-1. About 7 out of 10 students show signs of lack of confidence. In the verbal aspect, Class X-2 students also initially show low self-confidence, with unclear volume of voices and inconsistent speech speed. However, over time and the use of ELSA Speak, their fluency and clarity of speech increased. The volume of the voice becomes more proportional and sounds more confident.

3. Pronunciation Skills of Class X-2 Students Through ELSA Speak

The non-verbal aspect also showed improvement. Eye contact becomes more frequent and persists when interacting with friends or researchers, indicating increased comfort. These improvements reflect that the repractice and constructive feedback from ELSA Speak help Class X-2 students feel more secure and confident in verbally expressing themselves.

Discussion

This section provides a comparative analysis of the observational findings of both classes (X-1 and X-2) and relates them to three research problems/objectives: motivation, confidence, and pronunciation skills.

1. The Process of Stimulating Students' English Speaking Skills by Using Artificial Intelligence (AI) for Class X of PABA Binjai Senior High School

Observational findings from both classes showed that the ELSA Speak application had a positive impact on student motivation, albeit with slightly different manifestations. In Class X-1, the increase in motivation can be seen from the students' high enthusiasm and independent initiative in practicing, even outside of class hours. The phenomenon of students voluntarily opening

the application during breaks or before class starts shows the existence of an intrinsic motivation formed. Discussions between students about their progress on ELSA Speak, such as comparing 'pronunciation scores', show that gamification features successfully spark a spirit of competition and achievement.

In Class X-2, although initial adaptation was a little slower and required encouragement from the researcher, motivation also increased after the first week of use. Students show a high interest in the 'Speech Analyzer' feature, which provides a more personalized and hands-on learning experience. Although interactions occur more in small groups than large class discussions, the individual's dedication to practice shows that ELSA Speak is capable of meeting personalized learning needs. The findings of both classes suggest that the use of ELSA Speak can address the low motivation problems identified in the previous chapter.

2. The main factor of Stimulating students' English speaking skills by using AI for class X of PABA Binjai Senior High School is the increase in student confidence

Prior to the use of the ELSA Speak app, the majority of students showed a lack of confidence in communicating in English. This increase in confidence can be explained through the instant feedback mechanism of ELSA Speak. This technological support is important for building a sense of security and reducing students' anxiety when practicing the language, thereby increasing their desire to speak in class.

From a non-verbal point of view, the symptoms of lack of confidence are very striking. Students often avoid eye contact with friends or teachers, bow their heads, and show tense or anxious facial expressions when asked to speak. Their posture tends to be stiff and closed, as if trying to "hide" themselves from attention. The classroom environment, which is supposed to be a safe place to learn, feels intimidating to them, making them reluctant to actively participate in discussions or presentations.

However, after the implementation of ELSA Speak, transformative changes began to occur. The app serves as a non-judgmental 'personal tutor' and provides students with a safe space to practice. They can repeat a word or sentence many times until they get the correct pronunciation without fear of being insulted or criticized. This aspect, which exists in Automatic Speech Recognition (ASR) tools such as ELSA Speak, is important to reduce the anxiety that is common associated with speaking in a foreign language. This supportive practice environment gradually reduces student anxiety.

Students not only improve their technical pronunciation skills but also build their courage. Research shows that AI-based tools like ELSA Speak have a positive impact on various aspects of English language learning, including pronunciation and learning attitudes. This newfound confidence shows up in their ability to speak louder and clearer, with more open postures and facial expressions. These changes show that the personal practice environment and constructive feedback from ELSA Speak have succeeded in reducing students' anxiety and gradually building their confidence in speaking English.

Class X-1 shows that students initially speak with low volume, lots of pauses, and limited in fluency, as well as little eye contact and tense facial expressions. However, after a few weeks of using ELSA Speak, there was a significant change. Students begin to speak with a clearer volume and confidence. Pauses and repetitions are reduced, making sentences flow more smoothly. The non-verbal aspect also showed a drastic improvement; Students dare to make more consistent eye contact, their facial expressions are more relaxed and smile often, and their body movements and postures become more open and upright.

In Class X-2, students also show a gradual increase in confidence. Initially, they spoke with unclear volume, inconsistent speed, and frequent use of fillers. However, after actively using ELSA Speak, especially with the "Real-Life Communication" feature, there was an improvement in fluency and clarity of speech. The volume of their voice became more proportional and sounded more confident. Unnecessary pauses are reduced, and they can form a more complete sentence. Although some students still face challenges with more complex pronunciation of voices, significant improvements are seen in the pronunciation of common words and phrases.

Both Class X-1 and Class X-2 show that the ELSA Speak app effectively creates a

'safe zone' for students to experiment with language. The ability to practice privately and get constructive feedback without fear of being judged is essential in reducing speaking anxiety. Research shows that ASR tools like ELSA Speak provide a non-threatening environment for learners, allowing them to practice pronunciation over and over again without social pressure. These findings are reinforced by a systematic review of the use of AI in language education, showing that apps like ELSA Speak positively impact learners' affection and performance by reinforcing self-paced learning.

Therefore, ELSA Speak proves to be an invaluable tool in addressing the problem of students' lack of confidence, encouraging them to be more active and comfortable in verbal communication. Some of the key factors that affect the improvement of students' speaking skills include the AI features in ELSA Speak, a personal and non-judgmental learning environment, interaction with peers, and guidance from teachers. Observations in both classes confirm that the ELSA Speak app has a significant impact on developing students' pronunciation skills, which is one of the core issues in this study.

IV. CONCLUSION

In Class X-1, students show consistent improvements in vocal accuracy and word emphasis. Their initial difficulties in vocal sounds that do not exist in Indonesian, such as the differences between /iː/ and /ɪ/ or /æ/ and /ɛ/, are slowly resolved through repractice with visual and auditory feedback from ELSA Speak. Students are also becoming more sensitive to word emphasis, making their speech more natural and easy to understand. Meanwhile, in Class X-2, improvements are most noticeable in the accuracy of certain consonant sounds, especially those rarely encountered in Indonesian, such as /v/ and /z/. Students show progress in understanding and applying word emphasis, although it may not be as fast as Class X-1. The "Coach" feature in ELSA Speak helps Class X-2 students by providing exercises according to individual weaknesses.

Both classes show that ELSA Speak functions as an adaptive personal 'pronunciation coach'. The app provides precise and timely feedback, essential for the development of accurate pronunciation skills. The results of the analysis concluded that the use of the ELSA Speak application was effective in improving the English speaking skills of tenth grade students at PABA Binjai, especially in terms of motivation, confidence, and pronunciation accuracy. ELSA Speak increases student motivation, builds confidence, and shows a significant improvement in student pronunciation accuracy.

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