

**EXPLORING EFL STUDENTS' COGNITION AND PRACTICES IN
APPLYING ENGLISH SPEAKING THROUGH THE USE OF AI
(ARTIFICIAL INTELLIGENCE)**

ARTICLE

*Submitted In Partial Fulfillment of the Requirements
For the Degree of Sarjana Pendidikan (S.Pd)
English Education Program*

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Assalamu'alaikum Warahmatullaahi Wabarakaatuh

Dengan hormat kami sampaikan bahwa tim redaktur telah menerima artikel ID 4908 yang berjudul "**Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)**" dan dinyatakan layak diterbitkan pada jurnal ideas tahun 2024, Volume 12 nomor 1.

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Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

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Abstract

AI (Artificial intelligence) is a design of technology that has been significantly useful for human in all aspects, particularly in education. In education systems, AI has become essential in providing the needs of students especially in english speaking skills. The development of AI (Artificial Intelligence) technology has enhanced the cognition and practices of EFL students in applying english speaking skills. This current study attempts to unleash the extent to which the speaking skills obtained by the EFL students with the use of AI. 15 EFL students in SMA N 10 Medan participated in this study. The research design employed mix method included qualitative and quantitative method. Pre-test and post-test was employed as an instrument of collecting data. The technique of analyzing data involved descriptive statistics and paired sample t-test were conducted to achieve the quantitative analysis. Meanwhile, thematic analysis was conducted to acquire the qualitative analysis. The result revealed that the majority of participants believed their cognition and practice in english speaking skills have improved with the assistance of AI. The findings also revealed that AI considered as fun, easy and practical alternative to practice english speaking proficiency. Therefore, it is suggested to all students could access AI as a tool that supports continuity of learning.

Keywords: *Artificial Intelligence, EFL Students, Speaking Skills*

Introduction

In the past few years, technology has significantly become an alternative to give an assistance in our daily lives, especially in education. In education systems, most of the students were using technology in order to help find learning materials or completing assignments both at school and at home. One of the most technology that EFL students have used recently is AI (Artificial Intelligence). The use of AI (Artificial Intelligence) plays an important and bigger role in education (Khosravi et al., 2022). Artificial Intelligence (AI) is becoming a more significant part of everyday life, so it's critical to comprehend its processes and applications. Consequently, the initial phases of education are incorporating principles of artificial intelligence (Kim & Kwon, 2023).

When discussing artificial intelligence (AI), it is worth nothing that this technology has found extensive application in the realm of education, namely in the context of English as a foreign language (EFL) instruction. One of the challenges encountered by English as a Foreign Language (EFL) learners pertains to oral communication skills or speaking skills. Speaking has taken a very vital part in english language learning. Speaking is a skill that considerably increases the communication knowledge of EFL learners to the outside world. Teaching speaking is a useful talent that is typically thought to be challenging to acquire since it requires a lot of practice and perseverance to reach a high level of competency (Masuram & Sripada, 2020). Nowadays, speaking was mostly taught as a covert curriculum that was not included in official schooling (Hulsbergen et al., 2022). We might probably frequently witness some learnears using their speaking skills in the wrong way. For example, how to say greetings and goodbye, how to ask and offer for help, how to ask or offer for suggestions, how to pronounce a good vocabulary, how to deliver a news, etc. In fact, it is evident that students have not effectively utilized technology, such as social media, despite the significant role these platforms play in enhancing speaking proficiency.

As we commonly understood, while considering the enhancement of speaking abilities in English as a Foreign Language (EFL) learners, AI (Artificial Intelligence) is a technological system that was designed to guide our works more neatly. Artificial intelligence (AI) has been employed for numerous years to assist in diverse tasks such as voice recognition, handwriting analysis, image recognition, and natural language processing (Southworth et al., 2023). Students encounter numerous challenges in their pursuit of improving their speaking skills. The utilization of artificial intelligence (AI) in the realm of speaking skills is anticipated, as it holds promise for addressing many challenges associated with verbal

communication. Therefore, AI (Artificial Intelligence) has the competency to lead students to get a good speaking skill.

Discovering the knowledge about artificial intelligence (AI) can enhance students' employability and provide them with valuable insights to prepare for emerging job opportunities and potential mentorship (Southworth et al., 2023). Recent studies have shown that AI has an impact to led the EFL learners to create a sophisticated intelligent real-time feedback in writing skills (Gayed et al., 2022). Moreover, AI has been successfully created a program called "AI Across the Curriculum" which aims to provide each undergraduate student a chance to interact with and learn about AI in the context of their field and more crucially, in an interdisciplinary approach is frequently more representative of the actual workplace (Southworth et al., 2023). Speaking through the use of AI as a means of communication might enable English as a Foreign Language (EFL) learners to effectively express information and comprehend the intended significance of their statements.

The integration of artificial intelligence (AI) in language learning is anticipated to foster the engagement of English as a Foreign Language (EFL) learners in the acquisition of speaking abilities, encompassing both foundational and advanced proficiencies. With the aid of AI, EFL learners are able to encourage their ability and skills in speaking. AI (Artificial Intelligence) was invented to test the level of their speaking such as, fluency, tone, vocabulary, etc. However, there has been a little development on how AI works for this skill. In addition, limited study has been conducted on the utilization of Artificial Intelligence (AI) for enhancing speaking skills among English as a Foreign Language (EFL) learners. Regarding this issue, this study endeavors to explore the extent to which the speaking abilities and skills obtained by EFL learners and what cognition that EFL Students achieved when using AI in speaking skills. With the support of AI, EFL learners could maximize and optimize the performance of their speaking skills.

Method

The researcher used mix method namely, quantitative and qualitative methods.

In order to shed insight into the depth of students' comprehension and proficiency in speaking skills, this study employs quantitative research methods.

Quantitative research is a valuable approach that enables the analysis of variables in relation to one another (Creswell, 2014). In order to accurately assess students' speaking abilities, it is crucial to employ effective measurement techniques. On the other hand, researchers also employ qualitative research as a method to delve into and comprehend the significance that individuals or groups attribute to a social human problem (Creswell, 2012) in which this study will examine the process and implementation of AI, as well as the advantages and challenges encountered by EFL students. In order to uncover this information, researchers will conduct interviews with multiple English as a Foreign Language (EFL) students, focusing on the method, advantages, and challenges associated with utilizing artificial intelligence (AI) technology to enhance speaking skills.

The study sample comprised a 11th-grade class, with participants ranging in age from 16 to 17 years old by using a simple random sampling method. Simple random sampling is a widely employed sampling technique in scientific research (Tajik & Golzar, 2022). To conduct this sampling, the researcher will select a population consisting of 15 pupils in the 11th grade class. The determination of the sample size for this study will be made by the researcher. Subsequently, the researcher will employ a random selection method to choose volunteers from the entire population.

This research instrument was conducted with experiments or trials in the form of one group pre-test and post-test design. The one-group pre-test and post-test design were expected to be given before and after practicing English speaking through the designated artificial intelligence (AI) programs. A one-group pretest-posttest design is a quasi-experimental research design that involves measuring the same dependent variable in a set of subjects both before (pretest) and after (posttest) administering a treatment. According to (Zou et al., 2023), Moreover, these tests were conducted to determine whether there were any alterations in their proficiency in spoken English. This research employs Campbell and Stanley (1963) model as the data collecting technique. Campbell and Stanley state that quasi-experiments strive to achieve the same level of rigor as true experiments, while recognizing the constraints imposed by real-world conditions.

This procedure of the study consisted in three stages. The first stage, researcher instruct the participants on enhancing their speaking skills accurately and effectively, without using the technology of AI. In the second stage, the participants were required to volunteered in the one group pre-test and post-test. The students will obtain insight into their abilities and capabilities through the scores in speaking skills. There are three steps that participants should follow in the one group pre-test and post-test. Firstly, before starting the teaching process, a pre-test was administered to assess their competence level, fluency, pronunciation, vocabulary usage, and overall communication skills. Secondly, interventions are implemented. The interventions or treatments that researcher conducted was using AI. By utilizing the technology of AI, it can encompass a range of activities, including interactive speaking exercises, role-plays, conversations, presentations, language games, and feedback sessions. Finally, the researcher will utilize a post-test to assess the individuals' proficiency in spoken English. The identical evaluation criteria utilized in the initial examination are employed to measure any enhancements in their spoken communication abilities. In the last stage, students will be faced with several questions through interviews regarding the process, benefits, and difficulties in carrying out speaking skills using AI. The research's success will be determined by the oral proficiency rating categories outlined by Brown (2001).

Score	Aspects					
	Grammar	Vocabulary	Comprehension	Fluency	Pronunciation	Task
1	Grammar errors are common, yet a native speaker accustomed to interacting	Speaking vocabulary is insufficient to convey anything beyond basic necessities.	He can comprehend basic inquiries and assertions when presented with slow speech, repetition, or	The fluency description is not specified. Consult the remainin	Common pronunciation errors can be understandable to a native speaker accustomed to interacting with non-native	Can inquire and respond to inquiries on subjects

	with non-native speakers can still understand the speaker.		paraphrasing due to his restricted language skills.	g four language categories to determine the implied degree of proficiency.	speakers trying to speak their language.	he is well knowledgeable about. Capable of meeting basic travel needs and minimum civility expectations. Should possess the ability to order a basic meal, inquire about and provide basic directions, make transactions, and tell time.
2	Can accurately handle basic	Possesses a verbal vocabulary	I can comprehend the main idea of	Can confidently	The accent is understandable yet frequently	Capable of meeting

	<p>constructions but needs more complete and confident control of grammar.</p>	<p>that allows him to communicate himself clearly, albeit with considerable use of indirect language.</p>	<p>most discussions on non-technical topics. (e.g., subjects that do not necessitate specific expertise)</p>	<p>navigate most social situations, including introductions, casual chats about current events, jobs, family, and personal information.</p>	<p>flawed.</p>	<p>regular social expectations and job responsibilities; need assistance managing any complexities or challenges.</p>
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3	Grammar control is excellent. Capable of speaking the language accurately enough to engage effectively in a wide range of formal and informal discussions on practical, social, and professional subjects.	Proficient in the language with a broad vocabulary to engage effectively in a wide range of formal and informal discussions covering practical, social, and professional subjects. His vocabulary is extensive enough that he often needs help finding the right term.	Understanding is thorough when communication is delivered at a standard pace.	Can easily discuss specific areas of expertise . Rarely struggles to find words.	Mistakes do not hinder comprehension and seldom bother native speakers. The accent may indicate a foreign origin.	Capable of engaging proficiently in formal and casual discussions covering practical , social, and professional subjects.
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4	Proficient in using language accurately at all levels required for professional purposes. Grammatical errors are infrequent.	Can comprehend and engage in conversations within his realm of knowledge using a precise and extensive vocabulary.	Can comprehend any dialogue within the scope of his familiarity.	Proficient at utilizing the language at a professional level. Can engage in discussions within this field with a high level of fluency.	Pronunciation errors are uncommon.	It may not be mistaken for a native speaker, but it can answer well in unusual circumstances. Proficient in informal interpreting from and into other languages.
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5	Comparable to that of a well-educated native speaker.	Educated native speakers readily accept speech at all levels, including vocabulary, idioms, colloquialisms, and cultural references.	Comparable to the proficiency level of a well-educated native speaker.	He is fluent in the language to the extent that his speech is completely accepted by educated native speakers.	Equivalent to and widely acknowledged by well-educated native speakers.	Fluent in spoken language at a level comparable to a well-educated native speaker.
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The focus of this study was analyzed based on the research questions. The data was obtained through a quantitative analysis. This study employs descriptive statistics as a technique to analyze the data of EFL learners in improving or understanding their speaking skills. Descriptive statistics are employed to succinctly present data by illustrating the connection between variables in a sample or population (Kaur et al., 2018). To explore the development of AI in speaking skills, several paired sample t-tests were conducted. Meanwhile, to acquire a thorough quantitative analysis the statistical software IBM SPSS19 was employed to calculate various statistical measures including the mean, median, standard deviation, significance, lower, and upper. On the other hand, the qualitative data was analyzed by using an interview. Interview data was recorded and transcribed. In order to gather qualitative data for this research, the method of thematic analysis was employed. Thematic analysis refers to the systematic approach of identifying and analyzing patterns or themes that emerge from qualitative data (Maguire & Delahaunt, 2017). The technique being discussed in this article involves the analysis of data to identify, analyze, and interpret qualitative data patterns. These patterns are derived from the results of interviews that have been conducted previously. This research employs Braun and Clarke (2006) data analysis technique. Braun and Clarke's thematic analysis method is a sequential procedure comprising six iterative steps: The process involves six steps:

(1) acquainting oneself with the data, (2) creating codes, (3) identifying themes, (4) examining the identified themes, (5) defining and labeling the themes, and (6) finding examples that represent the themes (Mihās, 2023)

Results

The Improvement of Practice English Speaking Skills Through the Use of AI (Artificial Intelligence)

After administered all the steps above, the researcher formulated the findings. 15 participants have volunteered to participate in pre-tests and post-tests in practicing English speaking skills. The participants were students from second grade year in SMA N 10 Medan. The results from paired-sample t-tests to compare the mean scores of the pre-test and post-test confirmed participants improvement in applying different speaking skills.

Table 1. The Results of Paired-Sampled t-Tests for Speaking Skills

					95% CI	
	M	SD	t	Sig	Lower	Upper
Grammar						
Pre-test	2.46	1.06	-11.000	.000	-1.752	-1.180
Post-test	3.93	798				
Vocabulary						
Pre-test	3.13	833	-11.225	.000	-1.429	-970
Post-test	4.33	816				
Comprehension						
Pre-test	3.00	845	-16.000	.000	-1.209	-923
Post-test	4.06	798				
Fluency						
Pre-test	2.93	798	-10.693	.000	-1.680	-1.119
Post-test	4.33	723				
Pronunciation						
Pre-test	3.06	883	-12.475	.000	-1.328	-938
Post-test	4.20	861				
Task						
Pre-test	2.86	743	-12.475	.000	-1.328	-938

Post-test	4.00	755				
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As indicated in Table 1, the mean grammar score for speaking has increased. The scores increased from the pre-test (M= 2.46, SD= 1.06) to the post-test (M= 3.93, SD= .798). The increase showed statistical significance (p <.000) with a 95% confidence interval (CI) between -1.752 and -1.180. Similarly, the mean vocabulary score has risen. From the pre-test (M= 3.13, SD= .833) to the post-test (M= 4.33, SD= .816). The increase showed statistical significance (p <.000) with a 95% confidence interval (CI) between -1.429 and -.970. The comprehension score significantly increased from the pre-test (M= 3.00, SD= .845) to the post-test (M= 4.06, SD= .798). The increase was statistically significant (p <.000) with a 95% confidence interval (CI) from -1.209 to -.923. Additionally, there was a notable improvement in fluency from the pre-test (M= 2.93, SD= .798) to the post-test (M= 4.33, SD= .723). The increase showed statistical significance (p <.000) with a 95% confidence interval (CI) between -1.680 and -1.119. The pronunciation score significantly increased from the pre-test (M= 3.06, SD= .883) to the post-test (M= 4.20, SD= .861). The increase was statistically significant (p <.000) with a 95% confidence interval (CI) ranging from -1.328 to -.938. Ultimately, the average task score also increased. The scores increased from the pre-test (M= 2.86, SD= .743) to the post-test (M= 4.00, SD= .755). The score increased dramatically with a 95% confidence interval (CI) ranging from -1.328 to -.938. In conclusion, the average scores for various speaking skills showed a significant increase compared to the original scores. The scores for grammar, fluency, and pronunciation showed the most improvement. The findings showed that AI significantly enhanced participants' various speaking skills.

Table 2. The Results of Descriptive Statistics for Speaking Skills

	N	Minimum	Maximum	Mean	Std. Deviation
Pre Grammar	15	1.00	4.00	2.4667	1.06010
Post Grammar	15	3.00	5.00	3.9333	.79881
Pre Vocabulary	15	2.00	4.00	3.1333	.83381
Post Vocabulary	15	3.00	5.00	4.3333	.81650
Pre Comprehensi	15	2.00	4.00	3.0000	.84515

on					
Post Comprehension	15	3.00	5.00	4.0667	.79881
Pre Fluency	15	1.00	4.00	2.9333	.79881
Post Fluency	15	3.00	5.00	4.3333	.72375
Pre Pronunciation	15	2.00	4.00	3.0667	.88372
Post Pronunciation	15	3.00	5.00	4.2000	.86189
Pre Task	15	2.00	4.00	2.8667	.74322
Post Task	15	3.00	5.00	4.0000	.75593
Valid N (listwise)	15				

According to the descriptive statistics presented in Table 2, there has been an increase in both the minimum and maximum grammar scores in speaking. There was an improvement from the pre-test scores (Min= 1.00, Max= 4.00) to the post-test scores (Min= 3.00, Max= 5.00). The range of vocabulary scores saw a significant increase. The scores increased from the pre-test (Min= 2.00, Max= 4.00) to the post-test (Min= 3.00, Max= 5.00). Likewise, the minimum and maximum comprehension scores have been raised. From the pre-test scores (Min= 2.00, Max= 4.00) to the post-test scores (Min= 3.00, Max= 5.00). The range of scores on the fluency test has been raised. From the pre-test (Min= 1.00, Max= 4.00) to the post-test (Min= 3.00, Max= 5.00). Furthermore, there has been a significant increase in the minimum and maximum scores on the pronunciation test. There was an improvement from the pre-test scores (Min= 2.00, Max= 4.00) to the post-test scores (Min= 3.00, Max= 5.00). Finally, the task score range has been raised. Comparing the scores before and after the test showed an improvement. From the pre-test (Min= 2.00, Max= 4.00) to the post-test (Min= 3.00, Max= 5.00). The study uncovered significant enhancements following the implementation of AI as a learning tool for practicing English speaking skills.

Overall, the findings of this study revealed that AI technology has significantly enhanced the English speaking skills among the EFL students. These results highlighted the potential of AI as a learning tool in speaking skills positively impact language learning outcomes, motivation, and foster the development of abilities and skills among EFL students.

Discussion

Thematic analysis was employed to investigate the EFL student's cognition in applying speaking skills through the use of AI (Artificial Intelligence) by semi-structured interview. 3 participants were selected in view of willingness to take part in the interviews regarding this study. Interviewees were coded P1, P2, P3, and so on. The qualitative data from the interviews provided more information and support for the findings above.

AI (Artificial Intelligence) has been familiar for the EFL students before. Ling (2023) revealed that participants expressed great enthusiasm for the impact of AI-mediated language training, frequently describing it as a stimulating and engaging learning experience. The users described how the AI platform's interactive exercises, dynamic language games, and instant feedback created an immersive ambiance that kept their attention and made learning pleasurable. This study is aligned with (Terzioglu et al., 2022) stated that, several technologies have been employed by the researcher to overcome the difficulties in speaking where the number of students are encouraged to express themselves openly and embrace the opportunity to learn from their mistakes. The study's findings revealed that students experienced heightened motivation and enhanced self-confidence when interacting in English conversations due to having more opportunities for online practice. In addition, the utilization of speaking skills by English as a Foreign Language (EFL) learners has proven to be a very efficacious learning method. This approach facilitates successful communication among individuals and may be perpetually honed and refined throughout one's lifetime. Crucially, the acquisition of speaking skills is essential for English as a Foreign Language (EFL) learners due to its potential to enhance their oral communication abilities and foster confidence. Moreover, this technology advancement has brought about the advantages in almost all aspects of lives for any almost all ages or young to old generation (Iftanti et al., 2023). EFL students believed AI technology provides assistance and has a positive impact on learning.

As mentioned by P1:

"I believe AI technology can make a positive contribution to language learning by providing personalized feedback."

P2 also added that:

"In my opinion, this technology can help us in learning, especially in English, right? For those who are less likely to speak English, AI can help with the work."

P3 additionally noted that:

"I think this technology really helps me in learning because it is easier, more practical, and can be studied anywhere. For example, if you have free time at home, you can use it for studying."

The findings from the semi-structured interviews revealed that AI technology has the role to help EFL Students in learning English language, specifically in speaking skills. EFL students found AI to be an effective and efficient in enhancing their English-speaking skills. AI technology improved participants' cognitive abilities and English-speaking skills. One of (Rahmawati et al., 2021) study showed that the way of speaking can be seen through the cognitive strategy. Researchers found data cognitive strategies have a good impact on students. First, practice helps them become more confident in asking for words or commands. Second, the receiving and sending message strategy also positively impacts students, especially in speaking. Third, students learning to speak also carry out analysis and reasoning strategies. Lastly, the strategy of creating a structure for input and output. The results align with prior study on the effects of AI on improving speaking skills (Qiao & Zhao, 2023).

According to the semi-structured interviews, the majority of participants concurred that AI had enhanced their cognition in speaking skills including fluency, grammar, pronunciation, vocabulary, comprehension, and task performance. The three participants experienced significant changes before and after using AI. Keong et al., (2015) investigated speaking competence of Iraqi EFL undergraduates of Garmiyah University. The findings of the study indicated that participants faced some challenges in relation to their linguistics competences, such as vocabulary,

grammar, and pronunciation. The study also revealed that the lack of English-speaking practice, the tendency of mixing the language, and the absence of speaking activity in the course program are the main reasons leading to EFL students' speaking difficulties. Before using AI, the EFL students realized that they found difficulties in applying english speaking skills.

As indicated by P1:

"Before using AI, you could only learn by reading, playing games, and listening to music in English."

As stated by P2:

"Before using AI, it was possible to understand about english, but it still needs more practice."

The participant stated that before using AI, she was able to understand english. However, she couldn't really understand.

P3 added that:

"Before using AI, I only use simple methods such as speaking in front of the teacher."

This indicated that participants could only accessed minimal methods to practice speaking skills before using AI technology. Normawati et al., (2023) demonstrated that there are three main difficulties faced by the students in developing their English-speaking skills. The first difficulty deals with the aspect of grammar, which is caused by the differences between the students' first language and English, the language being learnt. The second issue is difficulty with pronunciation in English due to the inhibition of the English pronunciation system. Therefore, it is crucial for EFL students to apply another alternative method to develop their cognition in english speaking skills.

In contrast, most participants asserted that significant improvements have been observed in utilizing AI for English speaking. Previous study has shown that, AI severs as a valuable and enjoyable educational tool for enhancing english language proficiency (Agustini, 2023). EFL students have acquired several cognitive skills through the use of AI such as grammar, vocabulary, fluency, comprehension, pronunciation, and tasks. However, The EFL students were most adept at understanding pronunciation and fluency in terms of speaking skills. For instance,

P1 stated that:

"After using AI, my knowledge has expanded through significant understanding."

For example, I came to know the extent of my abilities in pronunciation, fluency, and so on. We are also given the correct answer if the AI detects the wrong answer."

P2 also added that:

"Because after using AI, I can understand English language better. Because, AI can help too. Like, it could improve my pronunciation. Such as pronunciation, intonation or grammar."

Furthermore, P3 pointed out that:

"After using AI, I know more about the extent of my speaking skills in using English, including the accurate pronunciation"

The participants specifically thought that pronunciation and fluency were the skills that made the most progress in. The EFL students were most adept at understanding pronunciation and fluency in terms of speaking skills. According to a recent study, most participants rely on technology to enhance their English skills, including pronunciation (Adara et al., 2023). Mulyani & Sartika (2019) emphasized that pronunciation is crucial for attaining communication competence. One study suggests that AI can offer immediate feedback on pronunciation accuracy, assisting learners in improving their spoken language skills (Saraswati et al., 2023). The current research aligns with the findings of Karim et al. (2023), highlighting that most participants believe that AI can assist students in pronouncing words accurately, boosting their confidence during speaking sessions, and recognizing their mistakes. Dealing with the fluency skills, a study by Iswara et al. (2012) found that creating short turns in communication improved students' fluency skills. This led to better questioning, responding, answering questions, and exchanging ideas. Being fluent means being able to speak without any interruptions (Murti et al., 2022).

To investigate a further answer regarding the utilization of AI in English speaking skills, the participants added their opinion about the cognition of AI improvements' in English speaking skills. The understanding of the enhancements in speaking skills that EFL students have acquired greatly advanced.

As stated by P1:

"So, the use of AI can provide improvement to my speaking skills to target practice and feedback that help improve my skills. OK, so I have had many

weaknesses until now. It's just that over time I've been using AI, it's like, for example, those verbs. If AI helps, it's starting to get easier now. There are judgments too. For example, the AI tells you the tone should be like this, then uses this, saying the intonation is not this one, but this one. There is improvement in pronunciation, fluency, etc."

P2 additionally noted that:

" There is improvement. Maybe you can improve your pronunciation, you can repeat it, but not yet intonation. My improvement in speaking is more pronunciation skills."

Furthermore, P3 noted that:

"I am capable to pronounce the sentence correctly. What was previously incorrect means I could say it better. There is also improvement in grammar and vocabulary."

From the interviews above, this means that AI has the ability to help the improvements of speaking skills to the EFL students. AI can provide assistance to facilitate EFL students' learning in speaking skills. It was shown that technology including AI is capable of improving English language proficiency. Many individuals acknowledged significant enhancement in their ideas after practicing spoken English with the AI. Rusmiyanto et al., (2023) assert that AI (Artificial Intelligence) could give the positive impact for EFL students on improving communication skills and pronunciation skills.

In addition, empirical evidence from pre-test and post-test studies has demonstrated significant improvements in the speaking skills of EFL students, involving grammar, vocabulary, fluency, comprehension, pronunciation, and tasks. The paired sample t-test data indicates a significant discovery that is both theoretically and practically important (Al-Khresheh, 2024). This discovery aligns with prior studies investigating the extent to which EFL students can comprehend and enhance different speaking skills by utilizing AI (Madhavi et al., 2023). Zou et al., (2023) assert that AI helped students to practice speaking performance such as grammar, vocabulary, fluency, and pronunciation. Another intriguing finding indicated that the majority of participants had positive responses towards AI as a learning tool in speaking skills independently (Li & Zou, 2022). Similarly, Obari et al., (2022) research explored that AI improved the EFL students' overall English ability. It was also discovered that the post-training survey findings showed that participants found employing an AI to be an enjoyable, user-friendly, and effective method for enhancing their English speaking and vocabulary skills. According to

(Ericsson and Johansson, 2023), in their research about “English speaking practice with conversational AI: Lower secondary students’ educational experiences over time”, a conversational AI was utilized where students conveyed that the exercises provided in the system were effectively interconnected and relevant to the topic. The students began to gain expertise and found it increasingly effortless to operate within the system. In order to serve the growing demand for education, it is imperative that we create and use artificial intelligence solutions to support the learning requirements of our students. Integrating AI into education is essential for implementing a well-planned method to deliver high-quality education (Kumar, 2023).

Conclusion

This study explored the utilization of Artificial Intelligence (AI) to improve English speaking skills and enhance the cognitive abilities of EFL students. The findings indicated that AI serves as an educational tool that can assist students in strengthening various speaking abilities. There was a notable improvement in each skill related to English speaking. The most improved skills were grammar, fluency, and pronunciation. EFL students identified pronunciation and fluency as the most commonly highlighted qualities in speaking throughout the semi-structured interview. Moreover, AI was seen as a proficient and efficient tool aiding English communication. The findings showed that AI is viewed as an enjoyable, convenient, and effective option for improving English speaking skills. There are limitations in the current study. The investigation lasted only 2 weeks and was conducted during teaching and learning activities. Furthermore, students had limited opportunity to engage in this experiment as it only lasted 2 hours of learning. Most students' gadgets cannot contact the AI due to limited memory capacity. Hence, the sample size needed to be increased to represent the results adequately.

Future research endeavors may benefit from an extended duration and the utilization of a substantial sample size for the experiment. This work may offer valuable knowledge and perspectives for EFL students seeking to utilize AI for educational purposes. The results of this study can offer useful insight into the efficacy of utilizing AI to enhance English speaking abilities in EFL students. This research aims to provide recommendations and guidance for developing more effective AI technology in English language learning in the future by studying how students use AI technology. All students from various fields are encouraged to

use AI as a supporting tool in their learning activities.

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Namira Fasya Khailifa , Pirman Ginting

Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

Zou, B., Du, Y., Wang, Z., Chen, J., & Zhang, W. (2023). An Investigation Into Artificial Intelligence Speech Evaluation Programs With Automatic Feedback For Developing EFL Learners' Speaking Skills. Sage Open, 1-9. <https://doi.org/10.1177/21582440231193818>

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Appendix 1. Hasil Data

A. Lembaran Data

Table 1. The Results of Paired-Sampled t-Tests for Speaking Skills

	M	SD	t	Sig	95% CI	
					Lower	Upper
Grammar						
Pre-test	2.46	1.06	-11.000	.000	-1.752	-1.180
Post-test	3.93	798				
Vocabulary						
Pre-test	3.13	833	-11.225	.000	-1.429	-970
Post-test	4.33	816				
Comprehension						
Pre-test	3.00	845	-16.000	.000	-1.209	-923
Post-test	4.06	798				
Fluency						
Pre-test	2.93	798	-10.693	.000	-1.680	-1.119
Post-test	4.33	723				
Pronunciation						
Pre-test	3.06	883	-12.475	.000	-1.328	-938
Post-test	4.20	861				
Task						
Pre-test	2.86	743	-12.475	.000	-1.328	-938
Post-test	4.00	755				

Table 2. The Results of Descriptive Statistics for Speaking Skills

	N	Minimum	Maximum	Mean	Std. Deviation
Pre Grammar	15	1.00	4.00	2.4667	1.06010
Post Grammar	15	3.00	5.00	3.9333	.79881
Pre Vocabulary	15	2.00	4.00	3.1333	.83381
Post Vocabulary	15	3.00	5.00	4.3333	.81650
Pre Comprehension	15	2.00	4.00	3.0000	.84515
Post Comprehension	15	3.00	5.00	4.0667	.79881
Pre Fluency	15	1.00	4.00	2.9333	.79881
Post Fluency	15	3.00	5.00	4.3333	.72375
Pre Pronunciation	15	2.00	4.00	3.0667	.88372
Post Pronunciation	15	3.00	5.00	4.2000	.86189
Pre Task	15	2.00	4.00	2.8667	.74322
Post Task	15	3.00	5.00	4.0000	.75593
Valid N (listwise)	15				

B. Wawancara

1. What do you think about AI technology used in speaking learning?

P1: *"I believe AI technology can make a positive contribution to language learning by providing personalized feedback."*

P2: *"In my opinion, this technology can help us in learning, especially in English, right? For those who are less likely to speak English, AI can help with the work."*

P3: *"I think this technology really helps me in learning because it is easier, more practical, and can be studied anywhere. For example, if you have free time at home, you can use it for studying."*

2. What is your cognition or understanding regarding learning to speak before using AI, especially AI for speaking?

P1: *"Before using AI, you could only learn by reading, playing games, and listening to music in English."*

P2: *"Before using AI, it was possible to understand about English, but it still needs more practice."*

P3: *"Before using AI, I only use simple methods such as speaking in front of the teacher."*

3. What was your cognition or understanding regarding learning to speak after using AI, especially AI for speaking?

P1: *"After using AI, my knowledge has expanded through significant understanding. For example, I came to know the extent of my abilities in pronunciation, fluency, and so on. We are also given the correct answer if the AI detects the wrong answer."*

P2: *"Because after using AI, I can understand English language better. Because, AI can help too. Like, it could improve my pronunciation. Such as pronunciation, intonation or grammar."*

P3: *"After using AI, I know more about the extent of my speaking skills in using English, including the accurate pronunciation"*

4. Is there any improvements in your speaking skills?

P1: *"So, the use of AI can provide improvement to my speaking skills to target practice and feedback that help improve my skills. OK, so I have had many weaknesses until now. It's just that over time I've been using AI, it's like, for example, those verbs. If AI helps, it's starting to get easier now. There are judgments too. For example, the AI tells you the tone should be like this, then uses this, saying the intonation is not this one, but this one. There is improvement in pronunciation, fluency, etc."*

P2: *"There is improvement. Maybe you can improve your pronunciation, you can repeat it, but not yet intonation. My improvement in speaking is more pronunciation skills."*

P3: *"I am capable to pronounce the sentence correctly. What was previously incorrect means I could say it better. There is also improvement in grammar and vocabulary.*

Appendix 2. Permohonan Persetujuan Judul Artikel



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
Jl. Kapten Mukhtar Basri No. 3 Telp. (061) 6619056 Medan 20238
Website: <http://www.fkip.umma.ac.id> E-mail: fkip@umma.ac.id


PERMOHONAN PERSETUJUAN JUDUL SKRIPSI

Dengan ini saya:

Nama Mahasiswa : Namira Fasya Khailifa

NPM : 2002050075

Prog. Studi : Pendidikan Bahasa Inggris

Judul	Diterima
Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)	

Bermohon kepada Dosen Pembimbing untuk mengesahkan Judul yang telah diajukan kepada Prodi Pendidikan Bahasa Inggris.

Disetujui oleh
Dosen Pembimbing



Pirman Ginting, S.Pd, M.Hum.

Medan, 25 Januari 2024
Hormat Pemohon,



Namira Fasya Khailifa

Appendix 3. Format K-1



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
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 Jl. Kapten Mukhtar Basri No. 3 Telp. (061) 6619056 Medan 20238
 Website: <http://www.fkip.umsu.ac.id> E-mail: fkip@umsu.ac.id

Form : K - 1

Kepada Yth: Bapak Ketua & Sekretaris
 Program Studi Pendidikan Bahasa Inggris
 FKIP UMSU

Perihal : **PERMOHONAN PERSETUJUAN JUDUL SKRIPSI**

Dengan hormat yang bertanda tangan di bawah ini:

Nama Mahasiswa : Namira Fasya Khailifa
 NPM : 2002050075
 Prog. Studi : Pendidikan Bahasa Inggris
 Kredit Kumulatif : 115 SKS

IPK= 3.81

Persetujuan Ket./Sekret. Prog. Studi	Judul yang Diajukan	Disahkan oleh Dekan Fakultas
<i>[Handwritten signature]</i>	Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)	<i>[Handwritten signature]</i>
<i>[Handwritten signature]</i>	The Impact of Using AI (Artificial Intelligence) as A Guide to Teach English Speaking for EFL Learners in Junior High School	<i>[Handwritten signature]</i>
	Junior High School English Teaching Reform and Innovative Method Under the New Media Platform Based on the IoT (Internet of Things)	

Demikianlah permohonan ini saya sampaikan untuk dapat pemeriksaan dan persetujuan serta pengesahan, atas kesediaan Bapak saya ucapkan terima kasih.

Medan, 8 Januari 2024
 Hormat Pemohon,

[Handwritten signature]
Namira Fasya Khailifa

Keterangan:

- Dibuat rangkap 3 :- Untuk Dekan/Fakultas
 - Untuk Ketua/Sekretaris Program Studi
 - Untuk Mahasiswa yang bersangkutan

Appendix 4. Format K-2



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
Jl. Kapten Mukhtar Basri No. 3 Telp. (061) 6619056 Medan 20238
Website: <http://www.fkip.umsu.ac.id> E-mail: fkip@umsu.ac.id

Form K-2

Kepada : Yth. Bapak Ketua/Sekretaris
Program Studi Pendidikan Bahasa Inggris
FKIP UMSU

Assalamu 'alaikum Wr, Wb

Dengan hormat, yang bertanda tangan dibawah ini:

Nama Mahasiswa : Namira Fasya Khailifa
NPM : 2002050075
Prog. Studi : Pendidikan Bahasa Inggris

Mengajukan permohonan persetujuan proyek proposal/risalah/makalah/skripsi sebagai tercantum di bawah ini dengan judul sebagai berikut:

Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

Sekaligus saya mengusulkan/ menunjuk Bapak/ Ibu:

Pirman Ginting, S.Pd., M.Hum

[Handwritten signature]
8 Januari 2024

Sebagai Dosen Pembimbing Proposal/Risalah/Makalah/Skripsi saya.

Demikianlah permohonan ini saya sampaikan untuk dapat pengurusan selanjutnya. Akhirnya atas perhatian dan kesediaan Bapak/ Ibu saya ucapkan terima kasih.

Medan, 8 Januari 2024
Hormat Pemohon,

[Handwritten signature]

Namira Fasya Khailifa

Keterangan

Dibuat rangkap 3 :
- Untuk Dekan / Fakultas
- Untuk Ketua / Sekretaris Prog. Studi
- Untuk Mahasiswa yang Bersangkutan

Appendix 5. Format K-3

**FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA**
Jln. Mukhtar Basri BA No. 3 Telp. 6622400 Medan 20217 Form : K3

Nomor : 0072/IL.3/UMSU-02/F/2024
Lamp : ---
Hal : **Pengesahan Proyeck Proposal
Dan Dosen Pembimbing**

Bismillahirrahmanirrahim
Assalamu'alaikum Wr. Wb

Dekan Fakultas Keguruan dan Ilmu Pendidikan Universitas Muhammadiyah Sumatera Utara menetapkan Perpanjangan proposal/risalah/makalah/skripsi dan dosen pembimbing bagi mahasiswa yang tersebut di bawah ini .

Nama : **Namira Fasya Khailifa**
N P M : 2002050075
Program Studi : Pendidikan Bahasa Inggris
Judul Penelitian : **Exploring EFL Students' Cognition and Practice in Applying English Speaking Through The Use of AI (Artificial Intelligence).**

Pembimbing : **Pirman Ginting, S.Pd., M. Hum.**

Dengan demikian mahasiswa tersebut di atas diizinkan menulis proposal/risalah/makalah/skripsi dengan ketentuan sebagai berikut :

1. Penulis berpedoman kepada ketentuan yang telah ditetapkan oleh Dekan
2. Proyeck proposal/risalah/makalah/skripsi dinyatakan **BATAL** apabila tidak selesai pada waktu yang telah ditentukan.
3. Masa kadaluwarsa tanggal : **09 Januari 2025**

Medan 27 Jumadil Akhir 1445 H
09 Januari 2024 M




Dr. H. Syamsyurnita, MPd.
NIDN : 0004066701

Dibuat rangkap 5 (lima) :

1. Fakultas (Dekan)
2. Ketua Program Studi
3. Pembimbing Materi dan Teknis
4. Pembimbing Riset
5. Mahasiswa yang bersangkutan :

WAJIBMENGIKUTISEMINAR



Appendix 6. Berita Acara Seminar Artikel



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
Jl. Kapten Mukhtar Basri No. 3 Medan 20238 Telp. 061-6622400 Ext. 22, 23, 30
Website: <http://www.fkip.umh.ac.id> E-mail: kip@umh.ac.id

BERITA ACARA SEMINAR ARTIKEL

Pada hari ini Rabu Tanggal 8 Bulan Mei Tahun 2024 diselenggarakan seminar prodi Pendidikan Bahasa Inggris mengenai bahwa :

Nama Lengkap : Namira Fasya Khsilifa
NPM : 2002050075
Program Studi : Pendidikan Bahasa Inggris
Judul Skripsi : Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

No	Masukan dan Saran
Title	<i>Pay attention to publication and capitalization</i>
Introduction	<i>fix the coherence between each paragraph, add more theory to support the background.</i>
Method	<i>Please clarify the number of participants and the instrument to collect the data.</i>
Result & Discussion	<i>Show the table and figure to display the data, complete the discussion by referring the research question</i>
Conclusion	[<input checked="" type="checkbox"/>] Disetujui [<input type="checkbox"/>] Ditolak [<input type="checkbox"/>] Disetujui Dengan Adanya Perbaikan

Dosen Pembahas

(Dr. Pirman Ginting, S.Pd., M.Hum)

Dosen Pembimbing

(Dr. Pirman Ginting, S.Pd., M.Hum)

Panitia Pelaksana

Ketua

(Dr. Pirman Ginting, S.Pd., M.Hum)

Sekretaris

(Rita Harisma, S.Pd., M.Hum)

Appendix 7. Surat Keterangan Seminar Artikel



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
Jl. Kapten Mukhtar Basri No. 3 Medan 20238 Telp.061-6619056 Ext. 22, 23, 30
Website: <http://www.fkip.umstu.ac.id> E-mail: fkip@umstu.ac.id



SURAT KETERANGAN

Ketua Program Studi Pendidikan Bahasa Inggris, Fakultas Keguruan dan Ilmu Pendidikan, Universitas Muhammadiyah Sumatera Utara, menerangkan di bawah ini:

Nama Lengkap : Namira Fasya Khailifa
NPM : 2002050075
Program Studi : Pendidikan Bahasa Inggris
Judul Skripsi : Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

benar telah melakukan seminar Artikel proposal pada hari Rabu, tanggal 08, Bulan Mei, Tahun 2024.

Demikianlah surat keterangan ini dibuat untuk memperoleh surat izin riset dari Dekan Fakultas. Atas kesediaan dan kerjasama yang baik, kami ucapkan terima kasih.

Medan, 9 Mei 2024

Ketua,

Dr. Pirman Ginting, S.Pd., M.Hum

Appendix 8. Lembar Pengesahan Hasil Seminar Artikel



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
Jl. Kapten Mukhtar Basri No. 3 Medan 20238 Telp. 061-6622400 Ext. 22, 23, 30
Website: <http://www.fkip.umsu.ac.id> E-mail: fkip@umsu.ac.id



LEMBAR PENGESAHAN HASIL SEMINAR ARTIKEL

Artikel yang sudah diseminari oleh mahasiswa di bawah ini:

Nama Lengkap : Namira Fasya Khailifa
NPM : 2002050075
Program Studi : Pendidikan Bahasa Inggris
Judul Skripsi : Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

Pada hari Rabu, tanggal 08, bulan Mei, tahun 2024 sudah layak menjadi Artikel skripsi.

Medan, 9 Mei 2024

Disetujui oleh:

Dosen Pembahas

(Dr. Pirman Ginting, S.Pd., M.Hum)

Dosen Pembimbing

(Dr. Pirman Ginting, S.Pd., M.Hum)

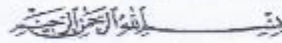
Diketahui oleh
Ketua Program Studi,

(Dr. Pirman Ginting, S.Pd., M.Hum)

Appendix 9. Berita Acara Bimbingan Artikel



MAJELIS PENDIDIKAN TINGGI
UNIVERSITAS MUHAMMADIYAH SUMATERA UTARA
FAKULTAS KEGURUAN DAN ILMU PENDIDIKAN
 Jl. Kapten Mukhtar Basri No. 3 Telp. (061) 6619056 Medan 20238
 Website: <http://www.fkip.umsu.ac.id> E-mail: fkip@umsu.ac.id



BERITA ACARA BIMBINGAN ARTIKEL

Perguruan Tinggi : Universitas Muhammadiyah Sumatera Utara
 Fakultas : Keguruan dan Ilmu Pendidikan
 Jurusan/Prog. Studi : Pendidikan Bahasa Inggris
 Nama Lengkap : Namira Fasya Khailifa
 NPM : 2002050075
 Program Studi : Pendidikan Bahasa Inggris
 Judul Artikel : Exploring EFL Students' Cognition and Practices in Applying English Speaking Through the Use of AI (Artificial Intelligence)

Tanggal	Deskripsi Hasil Bimbingan Artikel	Tanda Tangan
16/05-2024	provide relevant theories	<i>[Signature]</i>
22/05-2024	Elaborate why the kind of research design was supplied.	<i>[Signature]</i>
05/06-2024	elaborate how the data were analyzed	<i>[Signature]</i>
20/06-2024	Display the finding clearly	<i>[Signature]</i>
09/07-2024	Elaborate the discussion with prior related studies	<i>[Signature]</i>
18/07-2024	Add some more update references	<i>[Signature]</i>
25/07-2024	All	<i>[Signature]</i>

Diketahui oleh:
 Ketua Prodi

[Signature]

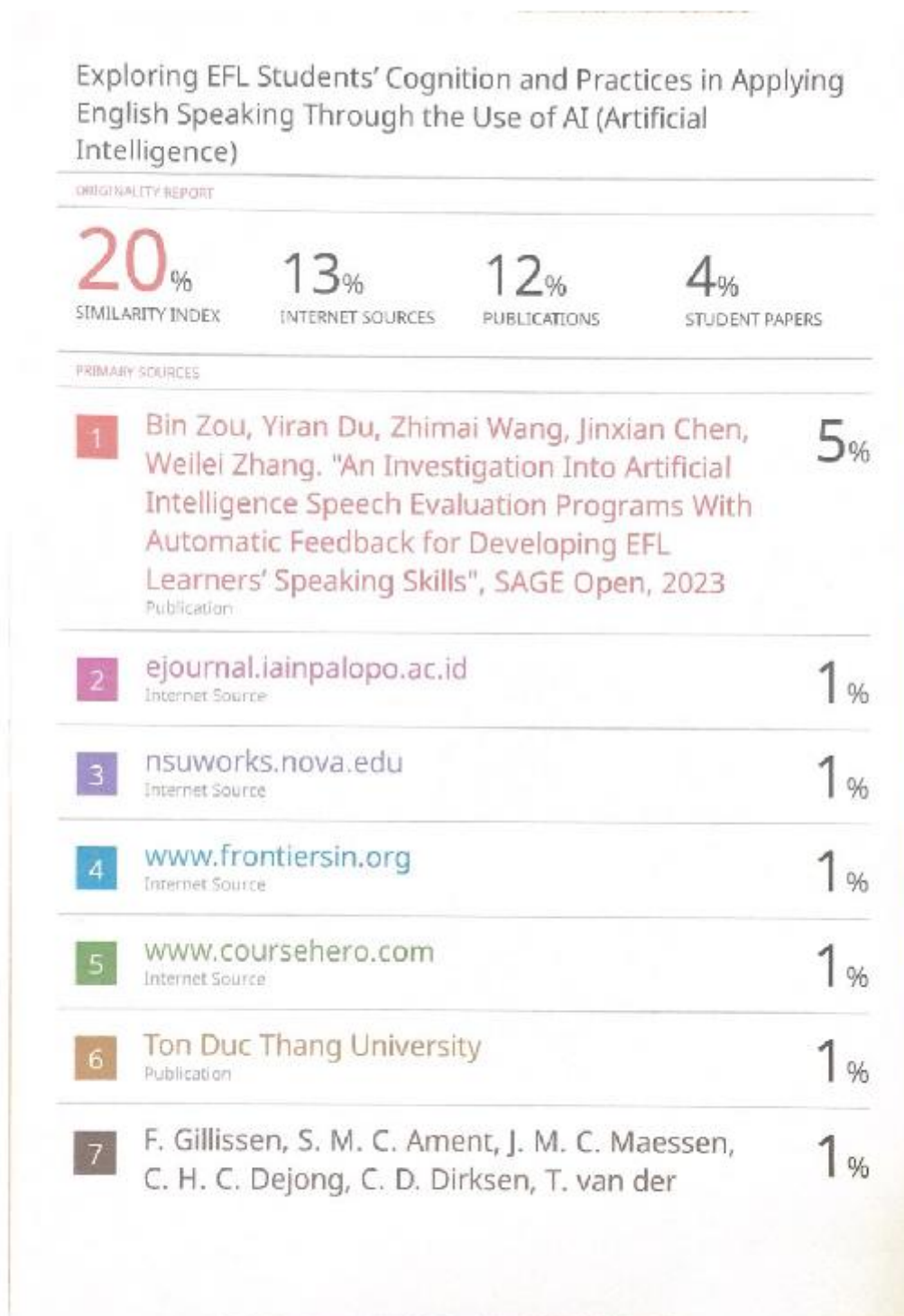
Pirman Ginting S.Pd., M.Hum.

Medan, 31 Juli 2024
 Dosen Pembimbing

[Signature]

Pirman Ginting S.Pd., M.Hum.

Appendix 10. Bukti Turnitin



Appendix 11. Curriculum Vitae



NAMIRA FASYA KHAILIFA

082283495200 | namirafasya1305@gmail.com | <https://www.linkedin.com/in/namira-fasya-8483862b6/>

Ringroad Jl. Gagak Hitam Komplek Bumi Seroja Permai No. 43 Medan Sunggal

I am a graduate student majoring in English Education at the Muhammadiyah University of North Sumatra. I am a disciplined person, like learning new things, have a high interest in English, and committed. I have experience in teaching students while doing internships at schools both inside and outside the city. Apart from that, I also gained the ability to operate Microsoft Office well, such as Ms. word, Ms. Excel, and Powerpoint. I plan the targets that I want to achieve first and do it as hard as possible so that the results I want to acquire are achieved. I am able to work in a team with the aim of providing suggestions, inputs, developing myself, and evaluating myself.

Work Experiences

SMK YPK MEDAN - Jl. Sakti Lubis Gg. Amal. 25

Sep 2022

Internship

YPK Medan Vocational School is a school that has several majors such as accounting and institutional finance, management and office automation, online business and marketing, and computer and network engineering.

- Participate in observing and creating learning tools such as syllabus, semester program, and RPP (Learning Implementation Plan).
- Helping and collaborating with teachers in preparing teaching needs such as preparing materials and implementing English language learning.

SMPN 1 Tukak Sadai - Jl. Raya Sadai, Tiram, Kec. Tukak Sadai, Kabupaten Bangka Selatan, Kepulauan Bangka Belitung

Aug 2023 - Sep 2023

Internship

SMPN 1 Tukak Sadai is a school located in South Bangka Regency, Bangka Belitung Islands.

- Prepare an interesting RPP (Learning Implementation Plan) to increase students' interest and understanding of the material provided.
- Teaching and implementing RPP (Learning Implementation Plan) to students according to the field, namely English.

UMSU - Jl. Kapten Muchtar Basri No. 3, Glugur Darat II

May 2024 - Present

Part Time

UMSU (Universitas Muhammadiyah Sumatera Utara) is the best private campus in Medan. UMSU has been accredited as Superior and has many study programs that can be chosen according to the interests of prospective students.

- Collaborating with lecturers to increase the accreditation of the English education department, namely superior accreditation.
- Helping lecturers to collect information and process valid data.

Education Level

SMAS Harapan 1 Medan - Jl. Imam Bonjol, Suka Damai, Kec. Medan Polonia, Kota Medan

SMA MIPA

Muhammadiyah University of North Sumatra - Jl. Kapten Muchtar Basri No.3, Glugur Darat II

Bachelor of English Education, 3.84/4.00

Skills, Achievements & Other Experience

- **Achievements** (2020): Get an SNMPTN quota
- **Achievements** (2024): Create journal article that have been accredited by Sinta 3
- **Soft Skills**: Able to work well, disciplined with time, able to learn new things, and able to adapt to others
- **Soft Skills**: Able to communicate in English
- **Hard Skills**: Able to work using Microsoft Office including, Ms. Word, Ms. Excel, and Powerpoint
- **Hard Skills**: Able to operate SPSS