

*Eternal: English Teaching Journal*

Vol. 15, No. 2, pp. 229-250, August 2024

<https://doi.org/10.26877/eternal.v15i2.489>

Received Apr 29, 2024; Revised Jul 12, 2024; Accepted Jul 31, 2024

# Remote Speaking Tasks: Amplifying Understanding, Proficiency, and Confidence in English Learners

\*<sup>1</sup>Ahmad Tauchid

<sup>2</sup>Nanin Verina Widya Putri

<sup>3</sup>Edi Suwandi

<sup>1,2,3</sup>Universitas Nahdlatul Ulama Sunan Giri

Bojonegoro, Indonesia

\*[ahmadtauchidmpd@gmail.com](mailto:ahmadtauchidmpd@gmail.com)

[verina@unugiri.ac.id](mailto:verina@unugiri.ac.id)

[edisuwandi@unugiri.ac.id](mailto:edisuwandi@unugiri.ac.id)

**Abstract.** The increasing prevalence of technology has brought about a shift in teaching methods, notably with the rise of remote speaking tasks, utilizing digital platforms to enrich language learning experiences for English learners. In the context of language education, proficiency in English is increasingly recognized as a vital skill for academic, professional, and social success in today's interconnected world. Previous researchers have extensively explored various aspects of language learning, with a predominant focus on conventional classroom-based activities. However, there has been limited investigation into the potential benefits of remote speaking tasks specifically in enhancing understanding, proficiency, and confidence among English learners. The purpose of this study is to investigate the impact of remote speaking tasks on English learners' understanding, proficiency, and confidence. The study used open-ended surveys with 19 English students at Universitas Nahdlatul Ulama Sunan Giri, employing NVivo 12 to examine attitudes towards remote speaking tasks and achieving data saturation with this sample size. The findings emphasize the transformative impact of integrating remote speaking tasks and video creation in language learning, highlighting their significant benefits in enhancing comprehension, retention, critical skills, and English proficiency. The practical implications underscore the need for educators to adapt instructional methods by designing engaging activities, such as collaborative projects and creative language assignments, using platforms like VoiceThread and TikTok. These specific actions for educators aim to foster active learning, enhance students' speaking skills, confidence, adaptability, and fluency in real-life situations, while also developing essential 21st-century skills for academic and professional success.

**Keywords:** Comprehension, confidence, proficiency, remote speaking

<sup>1</sup> Corresponding author: Ahmad Tauchid, [ahmadtauchidmpd@gmail.com](mailto:ahmadtauchidmpd@gmail.com)

©Authors

This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License (CC BY-NC-SA 4.0).

## Introduction

The integration of technology has become increasingly prevalent, ushering in a paradigm shift in teaching methodologies and learning environments. One notable trend that has emerged is the incorporation of remote speaking tasks, which harness the power of digital communication platforms to enhance language learning experiences for English learners (Huang et al., 2023). With the proliferation of online learning platforms and virtual classrooms, educators are increasingly leveraging remote speaking tasks as a means to amplify understanding, proficiency, and confidence among students. This trend reflects a growing recognition of the importance of communicative competence in English language acquisition and the need for innovative pedagogical approaches that align with the demands of the digital age. As technology continues to reshape the educational landscape, remote speaking tasks stand out as a promising tool for empowering English learners to engage in authentic, interactive language practice, irrespective of physical constraints or geographical boundaries.

In the context of language education, proficiency in English is increasingly recognized as a vital skill for academic, professional, and social success in today's interconnected world (Hessel & Strand, 2023). However, mastering a language involves more than just rote memorization of vocabulary and grammar rules; it requires practical application and effective communication skills. This is where speaking tasks play a crucial role. Traditional language teaching methods often emphasize reading and writing skills, leaving speaking proficiency underdeveloped. Additionally, learners may face barriers such as limited opportunities for authentic conversation practice and fear of making mistakes. Recognizing these challenges, educators are turning to innovative approaches, such as remote speaking tasks, to address these gaps and empower English learners. By providing immersive, interactive opportunities for language practice in virtual settings, remote speaking tasks have the potential to not only amplify understanding and proficiency but also boost learners' confidence in using English in real-life communicative contexts. Thus, this study seeks to explore the effectiveness of remote speaking tasks in enhancing language acquisition outcomes, with a focus on understanding, proficiency, and confidence among English learners.

Previous researchers have extensively explored various aspects of language learning, predominantly focusing on conventional classroom-based activities. Holloway et al. (2023) emphasized the importance of face-to-face interaction in language acquisition, highlighting its role in building communicative competence and social interaction skills. They found that direct interaction with peers and instructors facilitates immediate feedback and real-time conversational practice, which are crucial for language development. Billett et al. (2023) investigated the effectiveness of online platforms for language practice, demonstrating that such platforms can support vocabulary development, grammatical accuracy, and learner autonomy through structured yet flexible learning environments. Additionally, Kohnke et al. (2024) and Susanto et al., (2023) explored blended learning

environments, revealing that a combination of in-person and online activities can enhance student engagement and language retention by leveraging the strengths of both modalities.

However, these studies have not specifically addressed the unique benefits of remote speaking tasks, particularly in a fully remote context. My research differs by focusing explicitly on remote speaking tasks and their direct impact on three critical dimensions: understanding, proficiency, and confidence among English learners. This study examines how remote speaking tasks, conducted through various digital platforms, facilitate deeper comprehension of complex language structures by requiring learners to process and produce language in real-time, often without the immediate presence of an instructor. It also investigates how these tasks improve speaking proficiency through consistent, self-regulated practice, allowing learners to refine their pronunciation, fluency, and coherence. Furthermore, the research explores the role of remote speaking tasks in building learners' confidence, as these tasks often provide a less intimidating environment for practice, thereby reducing anxiety and encouraging more active participation.

By providing detailed empirical evidence on these aspects, this study aims to fill a significant gap in the literature. Unlike previous studies, which have primarily focused on face-to-face or blended learning environments, this research offers a comprehensive analysis of the effectiveness of remote speaking tasks in a purely remote setting. This contribution is crucial for understanding how modern technological tools can be leveraged to enhance language acquisition outside traditional classroom settings, ultimately offering a fresh perspective on language learning methodologies.

The specific purpose of this study is to investigate the impact of remote speaking tasks on English learners' understanding, proficiency, and confidence. To achieve this objective, three research questions will be explored: 1) How is the impact of remote speaking tasks on students' understanding? 2) How is the impact of remote speaking tasks on students' English proficiency? 3) How is the impact of remote speaking tasks on students' confidence? By addressing these research questions, this study aims to provide empirical evidence on the effectiveness of remote speaking tasks in enhancing language acquisition outcomes, with a focus on understanding, proficiency, and confidence among English learners.

The rationale for investigating the impact of remote speaking tasks on English learners' understanding, proficiency, and confidence lies in the evolving landscape of language education and the increasing reliance on technology for learning. With the globalization of communication and the rise of remote work and virtual collaboration, proficiency in English has become indispensable. However, traditional language teaching methods often fall short in effectively developing speaking skills and boosting learners' confidence in using the language. As such, there is a pressing need to explore innovative pedagogical approaches, such as remote speaking tasks, which have the potential to address these gaps and align

language instruction with the demands of the digital age. Furthermore, with the shift towards online learning, understanding the efficacy of remote speaking tasks has become more pertinent than ever.

This study will make a significant contribution to the existing body of knowledge by providing empirical evidence on the effectiveness of remote speaking tasks in enhancing English learners' understanding, proficiency, and confidence. It will explore how remote speaking tasks facilitate deeper comprehension of complex language structures, improve speaking proficiency through consistent practice, and build confidence by offering a less intimidating environment for language use. By addressing these dimensions, the research will fill a crucial gap in the literature, which has predominantly focused on traditional and blended learning environments. The findings of this study will offer valuable insights for educators and policymakers on integrating remote speaking tasks into language instruction, ultimately advancing language teaching practices to better meet the needs of learners in digitally mediated environments.

### **1. Advancements in English Language Instruction**

Recent research has provided invaluable insights into the multifaceted nature of improving English speaking skills across diverse educational contexts. For instance, Dağtan and Cabaroğlu (2021) conducted a comprehensive nationwide survey within Turkish ELT departments, revealing the necessity of systemic reforms and authentic contexts for language use. They proposed innovative solutions such as immersive language environments, which can be implemented by integrating real-life communication scenarios into the curriculum. Specifically, educators can create simulation-based activities that mimic real-world interactions, such as business meetings, social gatherings, or travel scenarios. These immersive environments encourage students to use English in practical, everyday situations, thereby enhancing their communicative competence. Additionally, they advocated for revamped testing methodologies that include performance-based assessments, such as oral presentations and interactive tasks, which more accurately reflect students' speaking abilities and encourage consistent practice.

Moreover, Nguyen and Takashi (2022) highlighted the significant benefits of integrating modern technological tools like VoiceThread into language instruction. This innovation can be practically implemented by incorporating VoiceThread into the classroom to facilitate interactive discussions and peer feedback. For example, teachers can assign projects where students create and comment on multimedia presentations, fostering a collaborative and interactive learning environment. The asynchronous nature of VoiceThread allows students to engage at their own pace, providing them with ample time to practice and refine their speaking skills without the pressure of real-time interaction.

In addition, Mekonnen et al. (2023) emphasized the pivotal role of culture-based tasks in enhancing both speaking accuracy and fluency. These tasks can be practically implemented by integrating culturally relevant materials and activities into the language curriculum. For instance, teachers can use literature, films, and case studies from various cultures to prompt discussions and role-playing exercises. This approach not only enriches students' cultural understanding but also provides them with diverse linguistic contexts to practice speaking. By engaging with culturally rich content, students can develop a deeper connection to the language and improve their ability to navigate different social and cultural settings.

Similarly, Hongsa et al. (2023) demonstrated the transformative impact of leveraging unconventional platforms such as TikTok as a medium of instruction. Educators can utilize TikTok by creating engaging language challenges and interactive content that encourage students to practice speaking in a fun and relatable way. For example, teachers can design short video prompts that require students to describe their daily routines, share their opinions on current events, or narrate stories. These activities not only make language learning more enjoyable but also help students build confidence in their speaking abilities by using a platform they are already familiar with.

Furthermore, Khan et al. (2021) explored the untapped potential of widely used social media platforms like WhatsApp in nurturing vocabulary acquisition and speaking skills. This can be practically implemented by setting up WhatsApp groups where students can engage in regular language exercises and discussions. Teachers can post daily prompts, vocabulary lists, and conversation starters, encouraging students to participate in ongoing dialogues. The informal nature of WhatsApp allows students to practice speaking in a low-pressure environment, making it an effective tool for continuous language development.

Additionally, Du and Quyen (2023) examined the cognitive and affective strategies employed by Vietnamese students, providing a nuanced understanding of learner behaviors and motivations. They suggested the implementation of self-regulation and reflective practices, which can be encouraged by educators through the use of language learning journals or digital portfolios. Students can set personal language goals, track their progress, and reflect on their learning experiences. This approach fosters a sense of ownership over their learning journey and helps them develop metacognitive skills that are crucial for long-term language acquisition.

Moreover, Cahyadi et al. (2021) and Oli et al. (2023) addressed the multifaceted challenges hindering students' English speaking proficiency, ranging from limited practice opportunities to anxiety and fear of mistakes. They recommended creating supportive environments with frequent speaking activities, which can be achieved by organizing regular speaking clubs or online meetups.

These forums provide students with a safe space to practice speaking, receive constructive feedback, and build their confidence over time. Additionally, incorporating relaxation techniques and anxiety management strategies into the curriculum can help students overcome their fear of speaking and improve their overall language performance.

Furthermore, Zaim et al. (2020) highlighted the pressing need for tailored assessment methods that accurately gauge students' communicative abilities. These methods can be implemented by designing assessments that mimic real-life communication scenarios, such as interviews, group discussions, and problem-solving tasks. By evaluating students in contexts that mirror actual language use, educators can obtain a more accurate measure of their speaking proficiency and provide targeted feedback to support their development.

Similarly, Subramaniam et al. (2020) advocated for the transformative potential of incorporating multimedia elements, such as audio, graphics, and text, in mobile learning. This can be practically implemented by using mobile apps that combine these elements to create a rich, multisensory learning experience. For instance, language learning apps like Duolingo or Babbel can be used to supplement classroom instruction, providing students with interactive exercises that enhance their listening, speaking, and reading skills. The use of multimedia also caters to different learning styles, making language learning more accessible and engaging for all students.

In addition, Almutairi (2021) emphasized the prevalent challenges faced by Kuwaiti EFL students, particularly the urgent need for motivation and technology integration in teaching practices. This can be addressed by incorporating gamified learning experiences and interactive digital tools into the curriculum. For example, teachers can use language learning games, virtual reality (VR) simulations, and interactive storytelling apps to create immersive and motivating learning experiences. These tools not only make language learning more enjoyable but also help students develop practical language skills in a variety of contexts.

Cabrera-Solano (2020) and Nget et al. (2020) similarly illuminated the efficacy of Task-Based Instruction (TBI) and digital portfolios in bolstering various facets of speaking skills. TBI can be implemented by designing lessons around real-world tasks that require students to use English to achieve specific goals, such as planning a trip, conducting a survey, or solving a problem. Digital portfolios, on the other hand, allow students to document their language learning journey by collecting samples of their work, such as recordings of their speaking tasks, written reflections, and peer feedback. These portfolios provide a comprehensive record of students' progress and can be used for self-assessment and teacher evaluation.

Finally, Dandu et al. (2020) and Sha'Ar and Boonsuk (2021) delved into the hurdles faced by learners from different backgrounds, advocating for innovative teaching methodologies to address these barriers. They recommended fostering face-to-face interactions and collaborative approaches, which can be practically implemented by organizing group projects, peer review sessions, and interactive workshops. These activities promote active learning, encourage peer support, and help students develop essential communication skills in a collaborative setting.

In summary, the integration of immersive language environments, modern technological tools, diverse instructional approaches, and tailored assessment methods provides a comprehensive framework for enhancing English speaking skills. These innovative solutions, when practically implemented, can create dynamic and supportive learning experiences that cater to the varied needs of English learners. By embracing these advancements, educators can foster greater understanding, proficiency, and confidence in their students' language abilities, ultimately preparing them for successful communication in a globalized world.

## **2. Education's Shift: Online Learning Innovation**

In recent years, the landscape of education has undergone a significant transformation, particularly with the advent of online learning platforms. The necessity for remote education became even more pronounced, prompting educators to explore innovative approaches to maintain engagement and assess student performance effectively. One such avenue of exploration has been the utilization of e-portfolios as a tool for assessing speaking performance in online courses. Kusuma et al. (2021) conducted a study in this vein, observing active participation and engagement from students across cognitive, affective, and behavioral domains during online speaking courses. Their findings underscore the adaptability of e-portfolios in assessing speaking proficiency in virtual learning environments, providing valuable insights into alternative assessment methods amidst the pandemic-induced shift to online education.

Building upon this foundation, Li (2022) delved deeper into the integration of various language skills to enhance university students' oral English communicative competence. By employing Language Game Discussion (LGD) online oral training rooted in the Communicative Language Ability (CLA) model, Li (2022) demonstrated significant improvements in interaction performance among participants. This research not only highlights the efficacy of interactive online methods but also emphasizes the importance of integrating multiple language skills to foster comprehensive language proficiency, especially in oral communication.

Moreover, the potential of multimedia elements in enhancing speaking skills and promoting collaborative learning experiences in online settings was explored by Khotimah et al. (2022). Through podcast-based speaking activities, students actively engaged in content creation, navigated technical challenges, and benefited from peer collaboration within supportive learning environments. This

study sheds light on the dynamic interplay between technology, pedagogy, and collaborative learning, illustrating how multimedia tools can be leveraged to enrich language learning experiences in virtual classrooms.

In a similar vein, Pratiwi et al. (2022) investigated the efficacy of the flipped classroom model in improving students' speaking performance in online courses. By flipping the traditional classroom dynamic and emphasizing self-directed learning, the researchers observed significant enhancements in various linguistic aspects of speaking proficiency, including fluency, coherence, lexical resources, grammatical range and accuracy, and pronunciation. This research underscores the importance of innovative instructional models in fostering language acquisition and proficiency development in virtual learning environments.

Furthermore, the study by Kusuma and Waluyo (2023) reinforces the positive impact of e-portfolios on students' speaking performance and self-efficacy in online English-speaking courses. By providing students with opportunities for self-reflection, goal-setting, and showcasing their linguistic development, e-portfolios not only serve as a means of assessment but also as a tool for fostering autonomy and self-regulated learning. These findings contribute to a growing body of literature on effective strategies for enhancing speaking proficiency in online language courses, offering valuable insights for educators navigating the challenges of remote education.

Looking ahead, several potential future research directions emerge from these studies. One critical area is the exploration of the long-term impacts of e-portfolio integration on student outcomes in various educational contexts. This could involve longitudinal studies that track students' progress over multiple semesters or academic years, providing a more comprehensive understanding of the efficacy of e-portfolios in language learning. Additionally, further research could investigate the scalability and adaptability of multimedia tools and interactive online methods across different proficiency levels, age groups, and cultural backgrounds, ensuring that these innovative approaches are inclusive and effective for diverse learner populations.

Another promising research direction involves the development and evaluation of hybrid models that blend traditional and online learning environments. These models could leverage the strengths of both settings to create a more holistic educational experience, potentially addressing some of the limitations associated with fully remote learning. For example, future studies could examine how combining face-to-face interactions with digital tools like podcasts and e-portfolios influences student engagement, motivation, and speaking proficiency.



## **Method**

### **1. Research Design**

The primary aim of this study was to delve into students' perspectives on remote speaking tasks, necessitating a qualitative approach to grasp the intricacies of their attitudes. The decision to opt for qualitative methods stemmed from the recognition that quantitative assessments might not fully capture the breadth and depth of students' viewpoints and experiences with remote speaking tasks. We chose to conduct open-ended surveys with 19 students, allowing them to freely express their thoughts, as this approach enables a more nuanced exploration of their viewpoints beyond mere numerical representation.

Through open-ended survey questions, we aimed to uncover the underlying motivations and reasons influencing students' attitudes towards remote speaking tasks, delving into both surface-level judgments and deeper reflections. This qualitative technique provided insights beyond statistical patterns, offering a comprehensive understanding of the variables shaping their assessments. By deliberately selecting a qualitative approach, we sought to capture the depth and diversity of student perspectives regarding their experiences with remote speaking tasks. Additionally, the use of NVivo 12 proved invaluable for analyzing qualitative data and gaining insight into students' attitudes, facilitating the organization and management of various data types, including text-based responses to open-ended surveys.

### **2. Participants**

This research explored the perspectives and experiences of 19 students enrolled in an English as a Foreign Language (EFL) program at Universitas Nahdlatul Ulama Sunan Giri, Bojonegoro, Indonesia, during the third semester of the 2023–2024 academic year. The aim was to uncover insights into the complexities of learning English within an Indonesian private institution, focusing on students' attitudes, challenges, and successes in their EFL journey. The choice of 19 students was deliberate, as this number was sufficient to achieve data saturation, a point where additional data no longer provides new insights. Previous studies suggest that qualitative research can reach saturation with 12 to 20 participants, depending on the population and research complexity (Guest, Bunce, & Johnson, 2006). This sample size ensured diverse backgrounds and language proficiencies were represented, capturing a comprehensive range of perspectives while allowing for detailed data analysis. This approach enhances the reliability and validity of the findings, contributing to the broader discussion on EFL education in Indonesia and beyond.

### **3. Data Collection**

To comprehensively delve into students' perspectives on remote speaking tasks, an open-ended survey was selected due to its ability to provide a deeper insight into the diversity and complexity of viewpoints compared to closed-ended surveys. This approach was chosen to encourage participants to freely express their experiences and opinions, capturing nuanced emotions beyond numerical data and facilitating detailed exploration of their views. Before the study, the open-ended survey questions were meticulously developed and piloted to ensure clarity and relevance. This piloting phase involved testing the questions with a small group of

participants to assess their understanding and gather feedback on any ambiguities or areas needing refinement. The finalized survey, refined based on the pilot feedback, was then electronically distributed to 19 students, ensuring accessibility and participation while allowing for genuine and elaborate remarks on their experiences with remote speaking tasks. The flexibility of this method enabled participants to engage at their convenience, fostering honest expression and facilitating exploration of contextual variables influencing their perspectives.

#### **4. Validity and Reliability**

The validation process of the survey instrument was rigorous, involving a panel of education experts who assessed its clarity, relevance, and effectiveness in capturing students' attitudes towards remote speaking tasks. They used criteria such as face validity, content validity, and construct validity, examining each survey question for language clarity and alignment with research objectives. The experts' feedback was meticulously incorporated to refine the survey, thus enhancing its overall validity. Additionally, measures such as pilot testing, iterative revisions, and triangulation with other data sources ensured a comprehensive understanding of the students' perspectives. To maintain reliability, inter-coder reliability assessments were conducted, where multiple coders independently analyzed the qualitative data to ensure consistency. Discrepancies were discussed and resolved through consensus. Participants' comprehension of the Indonesian-language questions was verified, and informed consent was obtained to maintain data integrity. Member checking was employed to confirm the accuracy of responses and interpretations. These strategies collectively enhanced the dependability of the collected data, ensuring the study's findings were robust and credible.

#### **5. Data Analysis**

To analyze the data, NVivo 12 was utilized to delve into participant attitudes towards remote speaking tasks, streamlining data organization and comprehension. Initial data entry into NVivo 12 was followed by a meticulous coding process to unearth underlying themes and patterns within responses. Codes were developed through an iterative process involving multiple coders to enhance reliability. Each coder independently reviewed the data, identifying and categorizing key themes. Discrepancies between coders were discussed and resolved through consensus meetings, ensuring consistency and accuracy in the coding process. NVivo 12's functionality extended to post-coding data analysis, enabling a deeper understanding of the factors shaping participant opinions. The software facilitated the creation of visual representations, such as word clouds and thematic maps, to aid interpretation. Additionally, NVivo 12 supported data dissemination through user-friendly reports and graphics, providing valuable insights into language teaching within our unique context and attitudes towards remote speaking tasks. To further validate the findings, triangulation method (i.e. member checking) was employed, wherein participants were invited to review and confirm the interpretations of their responses. This comprehensive approach ensured that the findings were robust, credible, and effectively communicated.

## Findings and Discussion

### 1. Findings

The research findings unveil the multifaceted impacts of remote speaking tasks on students' language skills, particularly focusing on their understanding, English proficiency, and confidence levels. Through the analysis of keywords such as "understanding" and "comprehension," the study highlights the significant role of remote speaking tasks in enhancing students' comprehension of spoken English, including vocabulary usage, pronunciation, and contextual understanding. This suggests that active engagement in remote speaking tasks contributes substantially to students' ability to grasp and interpret English language concepts effectively.

Moreover, the data reveals a positive correlation between participation in remote speaking tasks and improvements in students' English proficiency. Terms like "proficiency," "fluency," and "accuracy" frequently appear, indicating that regular practice in remote speaking tasks enhances students' linguistic skills, leading to more fluent and accurate expression in English. Additionally, the study underscores the impact of remote speaking tasks on students' confidence levels, with keywords such as "confidence," "self-assurance," and "comfort" recurring throughout the data. This highlights the importance of incorporating remote speaking tasks into language learning curricula to not only improve language proficiency but also boost students' confidence in using English effectively. See Figure 1 below for the visualization.



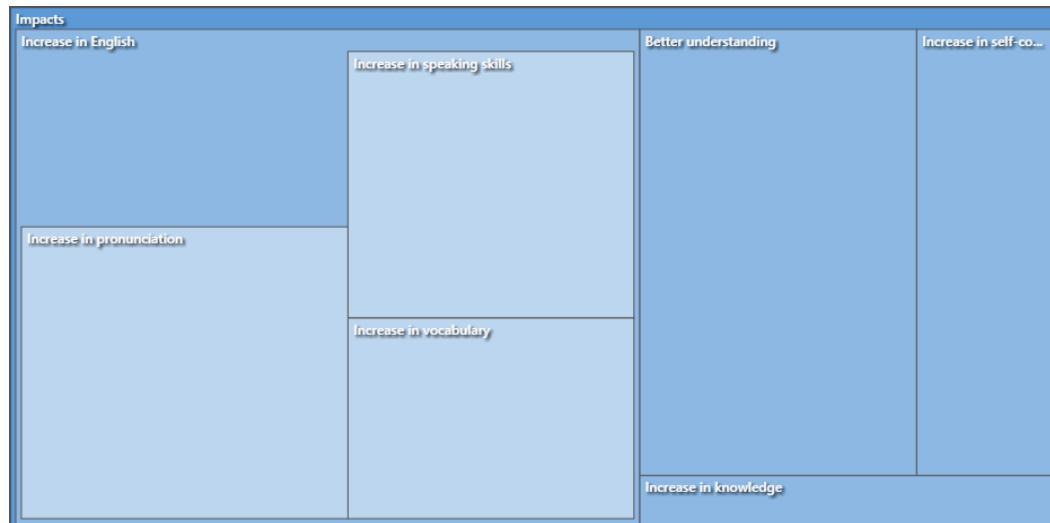
Figure 1. Word Frequency

The impact of remote speaking tasks on students' understanding encompasses a wide array of language facets that significantly influence their linguistic development. Through active participation in these tasks, students not only enhance their comprehension of spoken English but also delve into nuanced aspects such as vocabulary nuances, idiomatic expressions, and contextual interpretations. This depth of understanding extends beyond mere word meanings to encompass a holistic grasp of language usage in various contexts, contributing to their ability to decipher subtle linguistic cues and nuances in communication.

Moreover, remote speaking tasks facilitate interactive learning experiences that prompt students to engage critically with spoken content, encouraging them to analyze, interpret, and synthesize information in real-time conversations. This active engagement fosters a deeper level of understanding that goes beyond rote memorization, equipping students with the skills to navigate complex language scenarios with confidence and proficiency.

In addition to improving understanding, remote speaking tasks play a pivotal role in enhancing students' English proficiency across multiple dimensions. The interactive nature of these tasks encourages students to practice and refine their pronunciation, intonation, and speaking fluency, leading to noticeable improvements in their oral communication skills. Furthermore, regular engagement in spoken interactions exposes students to diverse vocabulary usage, idiomatic expressions, and language structures, thereby expanding their linguistic repertoire and enhancing their ability to express themselves effectively. These practical language experiences not only reinforce classroom learning but also bridge the gap between theoretical knowledge and practical application, facilitating a seamless transition to real-world communication scenarios. As a result, students gain confidence in their ability to communicate fluently and articulately in English, demonstrating a higher level of linguistic proficiency that is essential for academic, professional, and social interactions.

Moreover, the impact of remote speaking tasks extends beyond linguistic competence to encompass students' overall confidence levels in using English as a means of communication. The interactive and engaging nature of these tasks creates a supportive learning environment that encourages students to take linguistic risks, experiment with language usage, and explore creative ways of expressing themselves. This experiential learning approach fosters a sense of empowerment and self-assurance among students, leading to increased confidence in their ability to communicate effectively in various social and academic settings. Furthermore, the positive feedback and encouragement received during remote speaking tasks contribute to a positive self-image and attitude towards language learning, motivating students to actively participate in language activities, seek opportunities for language practice, and continuously improve their language skills. Overall, the combined impact of improved understanding, enhanced proficiency, and increased confidence resulting from remote speaking tasks underscores the transformative potential of interactive language learning approaches in nurturing well-rounded and proficient English learners. See Figure 2 below for the visualization.



**Figure 2.** Hierarchy Chart

### **#RQ1: How is the impact of remote speaking tasks on students' understanding?**

The students' comprehension of the research findings manifests a collective acknowledgment of the advantages inherent in engaging with remote speaking tasks and video creation to bolster their understanding of academic content. Their insights resonate with a shared realization of the pivotal role active participation in such activities plays in enriching comprehension and solidifying knowledge retention. They articulate a profound understanding of the multifaceted benefits derived from these engagements, emphasizing the tangible impact on their learning process. Furthermore, they demonstrate a nuanced grasp of the practical implications, recognizing how sourcing materials for video creation fosters discovery and deepens comprehension of complex concepts. Moreover, the students' recognition of the necessity of persistence and resilience in navigating challenges during video production underscores their commitment to maximizing learning outcomes. Through their reflections, it becomes evident that the students possess a keen awareness of how proactive engagement with remote tasks fosters not only deeper comprehension but also a more robust foundation for long-term retention of academic material. The following are some examples of students' response:

*Student 1:* "Yes, when I get the task of making a video of a material, and I repeat reading the script that I made so that I understand the material by myself."

*Student 2:* "Yes, there is. With remote speaking tasks I have the opportunity to see the references that I will convey through video, so that the references bring me to understanding and skills in English."

*Student 3:* "There is, when I was looking for material for me to use in creating/working on remote speaking tasks I found a lot of new material or ways that made my understanding deeper."

*Student 4:* "Yes, in making videos there will definitely be failures where it must be repeated until it is in accordance with what is

desired. So, the impact I feel is a strengthening of memory and being able to understand what will be conveyed....."

*Student 5:* "There is, that is, when there is an online task to make a video where through that task I am required to find learning materials. From the learning materials that I have made, it helps me know and better understand things that I previously knew but forgot. So the video assignment had a significant impact on me."

### **#RQ2: How is the impact of remote speaking tasks on students' English proficiency?**

The students' insights into the impact of remote speaking tasks on their English proficiency reflect a rich understanding of language acquisition and development. Their reflections unveil a myriad of ways in which these tasks serve as catalysts for linguistic growth. One student, for instance, delves into the introspective aspect of language learning by acknowledging personal shortcomings and recognizing the integral role of speaking tasks in addressing and overcoming them. This demonstrates a profound awareness of self-assessment and self-improvement within the language learning journey. Another student elaborates on the intricate process of vocabulary acquisition and pronunciation refinement, highlighting how the practice inherent in speaking tasks leads to a deeper understanding of language mechanics and phonetics. This showcases not only a mastery of language skills but also an appreciation for the nuances of linguistic expression. Moreover, students express gratitude for the versatility afforded by remote tasks, noting the accessibility of online resources and the opportunities for interactive engagement in English. Their reflections underscore a sophisticated understanding of digital literacy and communication skills in an English-speaking context. Furthermore, the students' nuanced exploration of the advantages of remote tasks over traditional methods reveals a keen insight into the evolving landscape of language learning in the digital age. Their ability to articulate complex ideas and opinions in English reflects not only linguistic competence but also critical thinking skills and cultural awareness. Overall, their comprehensive reflections serve as a testament to their advanced level of English proficiency and their dedication to continuous growth and improvement in the language. The following are some examples of students' response:

*Student 6:* "It was very big, because I as a student became aware of my shortcomings in doing the task, and the task certainly would not deviate from the development of my speaking skills, so indirectly he also played an important role in the development of my English skills."

*Student 7:* "There is, maybe from the pronunciation itself I know more about vocabulary and also the right pronunciation, as well as regulating facial expressions how to fit what is being said."

*Student 8:* "The impact of remote speaking tasks on my English skills is that I can practice and improve my pronunciation of English vocabulary"

*Student 9:* "Actually, there is a positive impact of this learning when I have spoken up automatically we know the right and wrong pronunciation."

*Student 10:* "In my view, remote speaking tasks provide greater flexibility in building English speaking skills than traditional

methods. This is because we can easily access various online learning resources, organize study times as needed, use different types of materials, and actively interact with others through online platforms."

*Student 11:* "I can learn to memorize texts and get new vocab when presenting my speaking, a kind of self-study for myself."

*Student 12:* "...So far, the remote speaking tasks method has had a good impact on me. I can memorize a lot of vocabulary before delivering the material I have prepared. But there is still a minus in the context of taking video (for me)."

### **#RQ3: How is the impact of remote speaking tasks on students' confidence?**

The research findings reveal a profound transformation in the students' confidence levels as a result of their engagement in remote speaking tasks. This newfound confidence permeates their reflections, indicating a significant shift in their perception of their English proficiency and overall language skills. One student articulates a deep-seated belief in the superiority of remote speaking tasks as a means of fostering confidence in English speaking abilities. This assertion suggests not only an enhanced sense of self-assurance but also a growing awareness of the efficacy of specific learning methods in achieving language goals. Moreover, another student delves into the multifaceted impact of heightened self-confidence, underscoring its broader implications beyond language proficiency. They highlight how increased confidence spills over into other areas of their academic and personal lives, positively influencing their approach to challenges and interactions. This holistic perspective reflects a nuanced understanding of the interconnectedness between confidence, language learning, and overall well-being. Additionally, students' reflections hint at a deeper internalization of their capabilities and potential, as they recognize the role of confidence as a driving force behind their linguistic development. Furthermore, their willingness to engage in remote speaking tasks despite initial apprehension or discomfort suggests a growing resilience and determination to push beyond their comfort zones in pursuit of growth. Overall, the students' evolving confidence serves as a testament to the transformative power of immersive language learning experiences, underscoring the profound impact such experiences can have on self-perception, skill development, and personal empowerment. The following are some examples of students' response:

*Student 13:* "I think my confidence has increased a little bit, so is my English"

*Student 14:* "In my opinion, remote speaking tasks can be more effective in helping develop English speaking skills compared to other learning methods. The reason for this is because in the remote speaking task I can develop confidence in speaking...."

*Student 15:* "A lot, such as...self-confidence also increases.... this has a very positive impact on me."

## 2. Discussion

### **#RQ1: How is the impact of remote speaking tasks on students' understanding?**

The findings contribute significantly to the field of English language instruction by providing a comprehensive understanding of the benefits of engaging in remote speaking tasks and video creation. It is explicitly stated that how the research offers new insights and perspectives compared to previous studies. For instance, the study emphasizes the multifaceted advantages of active participation in remote tasks, such as enhancing comprehension, knowledge retention, and fostering confidence in English learners. This extends beyond mere observation of engagement levels, as highlighted by (Kusuma et al., 2021), to a deeper analysis of how such activities contribute to holistic language development. Additionally, we delve into the practical implications of material sourcing for video creation, highlighting the importance of utilizing authentic and relevant content to enhance learning outcomes. These perspectives and practical implications distinguish the research from existing studies and demonstrate the significance of the findings in advancing the field of English language instruction.

Creating stronger thematic links between the results and cited studies is integral to showcasing the progression of knowledge in the field. The research builds upon previous studies by examining the dynamic interplay of multimedia elements in enhancing speaking skills and promoting collaborative learning experiences. This thematic link aligns with the ongoing emphasis on technological advancements and pedagogical innovations in recent studies. For instance, the exploration mirrors the discussions by (Khotimah et al., 2022) on the transformative potential of integrating multimedia tools in language learning contexts. We also draw connections with studies highlighting the importance of embracing technological innovations to support language learners effectively in virtual environments, as emphasized by (Subramaniam et al., 2020). These thematic links not only strengthen the theoretical framework of the research but also contribute to the broader discourse on enhancing English language instruction in the digital age.

Clear articulation of the limitations of the study is crucial for ensuring transparency and contextualizing the findings. While the research provides valuable insights, it is essential to acknowledge potential limitations that may have influenced the outcomes. For instance, the study's sample size constraints and specific context of study participants may limit the generalizability of the findings to broader populations. Additionally, the duration of the intervention and the scope of variables examined could have impacted the depth of the analysis. By acknowledging these limitations, we provide a more nuanced understanding of the research's scope and encourage future researchers to address these limitations in their studies. This transparent approach enhances the credibility and reliability of the findings within the academic community.

Looking towards future research, there are several promising avenues that can build upon the findings and address existing limitations. For example, future studies could delve into more extensive investigations into the long-term effects of



remote speaking tasks and video creation on language proficiency and retention. This longitudinal approach would provide valuable insights into the sustainability and lasting impact of such interventions. Additionally, exploring diverse learner demographics and their responses to varied instructional strategies can offer a more comprehensive understanding of effective teaching methods in virtual environments. Furthermore, examining the optimal balance between technological innovation and educational effectiveness is essential for ensuring that advancements in technology align with pedagogical goals. By focusing on these areas for future research, we can continue to advance the understanding of effective English language instruction in the digital age and contribute meaningfully to the field.

### **#RQ2: How is the impact of remote speaking tasks on students' English proficiency?**

The recent findings presented in this study significantly contribute to the ongoing discourse surrounding English language acquisition and proficiency enhancement, particularly within remote education. Unlike previous studies that mainly discussed challenges in traditional language education methodologies, this study explicitly highlights how innovative approaches can foster speaking skills in remote settings. By integrating technology like VoiceThread, which allows for interactive and collaborative discussions, and exploring the adaptability of e-portfolios in assessing speaking proficiency with real-time feedback mechanisms, this research brings new perspectives to light (Dağtan & Cabaroğlu, 2021; Nguyen & Takashi, 2022). These approaches not only enhance linguistic skills but also cultivate digital literacy and communication prowess among learners, preparing them for the evolving digital landscape.

Furthermore, this study establishes stronger thematic links with prior research by highlighting the importance of addressing challenges in traditional language education methodologies (Hongsa et al., 2023; Khan et al., 2021; Mekonnen et al., 2023). Additionally, it showcases the transformative potential of integrating technology into language instruction (Kusuma et al., 2021), as demonstrated by exploring various innovative methodologies ranging from culture-based tasks that promote intercultural communication to leveraging social media platforms like TikTok and WhatsApp for language practice and interaction (Du & Quyen, 2023; Oli et al., 2023; Pinto Avilez & Díaz Larenas, 2020; Santhanasamy & Md, 2022). These studies collectively contribute to the progression of knowledge in the field, demonstrating how these findings build upon and extend previous insights, creating a more comprehensive understanding of effective language teaching practices in remote settings.

Acknowledging the limitations of this study, including sample size constraints and scope limitations, ensures transparency and provides a contextual understanding of the research findings (Khotimah et al., 2022; Kusuma & Waluyo, 2023; Li, 2022; Pratiwi et al., 2022). These limitations are not critiques but opportunities for improvement and future exploration. Future researchers can leverage these insights to design studies that address these limitations more comprehensively, such as conducting larger-scale studies with diverse participant demographics, including learners from different proficiency levels and

backgrounds, or delving deeper into specific instructional techniques' efficacy, like comparing the effectiveness of different technological tools in enhancing speaking skills. Additionally, exploring the long-term impact of technology integration on language proficiency, tracking learners' progress over an extended period, or investigating how different technological tools cater to diverse learning needs and preferences, could be promising areas for further investigation. By suggesting these areas for future research, this study aims to inspire ongoing discussions and advancements in remote language education, ultimately benefiting language learners and educators alike by providing evidence-based insights and directions for effective pedagogical practices.

### **#RQ3: How is the impact of remote speaking tasks on students' confidence?**

The recent findings highlight a significant enhancement in students' confidence levels attributed to their participation in remote speaking tasks. This enhancement signifies a notable shift in students' perceptions of their English proficiency and language skills, reflecting a growing awareness of effective learning methods in language acquisition. Unlike previous studies that primarily focused on traditional instructional methods, our research provides new insights into the transformative potential of remote speaking tasks. These tasks not only foster speaking skills but also boost students' self-confidence, which positively influences various aspects of their academic and personal lives. This holistic understanding aligns with the multifaceted nature of English language learning discussed in previous studies, emphasizing the importance of tailored instructional strategies to meet diverse learner needs effectively.

The integration of e-portfolios as a tool for assessing speaking performance in online courses exemplifies the adaptability of innovative approaches in remote education. This utilization underscores the evolving landscape of language instruction, where educators are prompted to explore alternative assessment methods to maintain engagement and effectively evaluate student performance. Previous research by Kusuma et al. (2021) highlights the adaptability of e-portfolios in assessing speaking proficiency in online environments. Moreover, the findings by Li (2022) and Pratiwi et al. (2022) emphasize the efficacy of interactive online methods and innovative instructional models, such as Language Game Discussion (LGD) and the flipped classroom, in fostering speaking proficiency and comprehensive language development in virtual learning environments.

Additionally, the positive impact of e-portfolios on students' speaking performance and self-efficacy in online English-speaking courses underscores the role of autonomy and self-regulated learning in language acquisition. This emphasis on fostering autonomy resonates with previous studies highlighting the importance of learner motivation and self-regulated learning in language proficiency development. Research by Almutairi (2021), Cabrera-Solano (2020), and Nget et al. (2020) supports the notion that self-regulation and autonomy are crucial for effective language learning. Our findings add to this body of literature by demonstrating how e-portfolios can serve as a practical tool to enhance these attributes in remote learning contexts.

Despite these promising results, it is essential to acknowledge the limitations of our study. The sample size was relatively small, and the scope was limited to a specific demographic, which may not fully capture the diversity of experiences among all English learners. Additionally, the reliance on self-reported data could introduce biases that affect the accuracy of the findings. These limitations underscore the need for further research to validate and expand upon our results. Future studies should consider larger and more diverse samples, as well as alternative data collection methods to mitigate potential biases. Acknowledging these limitations demonstrates transparency and helps contextualize the findings within the broader landscape of language education research.

In conclusion, our research underscores the transformative impact of remote speaking tasks on students' confidence levels and perceptions of their English proficiency and language skills. By integrating innovative instructional approaches and technological tools, educators can effectively foster language learning in virtual environments. However, the limitations of our study highlight the necessity for ongoing exploration and innovation in remote language instruction. Future research should address these limitations and explore additional strategies to support language learners in virtual settings, ensuring that the potential of remote learning environments is fully realized in fostering comprehensive language proficiency development.

### **Conclusion**

In conclusion, the collective recognition of the benefits stemming from remote speaking tasks and video creation illuminates their transformative potential in language learning. These tasks significantly enhance comprehension, retention, and the development of critical skills such as persistence, resilience, critical thinking, and digital literacy. The notable advancements in students' English proficiency, particularly in pronunciation, speaking skills, and vocabulary acquisition, underscore the effectiveness of remote speaking tasks as dynamic tools for linguistic development. These insights highlight the need to integrate remote speaking tasks into language learning pedagogy to maximize student outcomes and engagement.

Based on the study's findings, educators can implement specific strategies to effectively incorporate remote speaking tasks into their instruction. For example, educators can assign regular video-based projects where students create and present content, which enhances speaking skills and builds confidence. Utilizing e-portfolios allows for continuous assessment and feedback, encouraging students' progress and self-regulated learning. Setting up virtual discussion groups and role-playing scenarios can provide students with varied contexts to practice language use, fostering adaptability and fluency in real-life situations.

The practical implications for language teaching practice are profound. Educators can adapt their instructional methods to capitalize on the benefits of remote tasks and video creation by designing engaging, interactive activities that promote active learning. Specific examples include collaborative projects using platforms like VoiceThread, where students can comment on each other's videos, and using social media tools like TikTok for creative language assignments. These approaches not only make learning more engaging but also help develop essential

21st-century skills, preparing students to thrive in both academic and professional settings.

## References

- Almutairi, M. A. (2021). Underachievement in English Speaking Skills among Kuwaiti EFL Students at the College of Basic Education: Possible Causes and Possible Solutions. *Journal of Language Teaching and Research*, 12(1), 206. <https://doi.org/10.17507/jltr.1201.23>
- Anchunda, H. Y., & Kaewurai, W. (2021). Instructional model development based on collaborative and communicative approaches to enhance lower secondary students' English-speaking skills in Thailand. *Kasetsart Journal of Social Sciences*, Volume 42(2), 287–292. <https://doi.org/10.34044/j.kjss.2021.42.2.11>
- Bagheri, M., & Mohamadi Zenouzagh, Z. (2021). Comparative study of the effect of face-to-face and computer mediated conversation modalities on student engagement: speaking skill in focus. *Asian-Pacific Journal of Second and Foreign Language Education*, 6(1), 5. <https://doi.org/10.1186/s40862-020-00103-0>
- Billett, S., Leow, A., Chua, S., & Le, A. H. (2023). Changing attitudes about online continuing education and training: A Singapore case study. *Journal of Adult and Continuing Education*, 29(1), 106–123.
- Cabrera-Solano, P. (2020). The Use of Digital Portfolios to Enhance English as a Foreign Language Speaking Skills in Higher Education. *International Journal of Emerging Technologies in Learning (IJET)*, 15(24), 159. <https://doi.org/10.3991/ijet.v15i24.15103>
- Cahyadi, A., Susanto, D. A., & Wekke, I. S. (2021). Obstacles and challenges of information technology application on the online lecturing during covid19 pandemic outbreaks. *Psychology and Education*, 58(3), 1070-1077.
- Dağtan, E., & Cabaroğlu, N. (2021). Status of English speaking skills in Turkish ELT departments: A nationwide survey. *Eurasian Journal of Applied Linguistics*, 7(1), 359–382. <https://doi.org/10.32601/ejal.911454>
- Dandu, G., Charyulu, G. M., Rao, V. C. S., Hussain, S. S., & Latha, M. (2020). Enhancing English speaking skills among MBA rural area student for better employability during the course. *Journal of Critical Reviews*, 7(05), 485–490. <https://doi.org/10.31838/jcr.07.05.104>
- Du, T. T., & Quyen, H. T. Le. (2023). Language Learning Strategies to Improve English Speaking Skills among Vietnamese Students: A Case of Three High Schools in Binh Duong Province, Vietnam. *World Journal of English Language*, 13(7), 116. <https://doi.org/10.5430/wjel.v13n7p116>
- Hessel, A. K., & Strand, S. (2023). Proficiency in English is a better predictor of educational achievement than English as an Additional Language (EAL). *Educational Review*, 75(4), 763-786. <https://doi.org/10.1080/00131911.2021.1949266>
- Holloway, S. M., Xu, S., & Ma, S. (2023). Chinese and Canadian preservice teachers in face-to-face dialogues: Situating teaching in cultural practices for West-East Reciprocal Learning. *Teaching and Teacher Education*, 122, 103930.
- Hongsa, N., Wathawatthana, P., & Yonwilad, W. (2023). The Effects of TikTok Application on the Improvement of EFL Students' English-Speaking Skills. *World Journal of English Language*, 13(7), 77. <https://doi.org/10.5430/wjel.v13n7p77>

- Huang, F., Zhao, M., Qi, J., & Zhang, R. (2023). English teachers' perceptions of emergency remote teaching: Emotional attitudes, professional identity, and coping strategies. *Frontiers in Psychology*, 13, 1064963. <https://doi.org/10.3389/fpsyg.2022.1064963>
- Khan, R. M. I., Radzuan, N., Farooqi, S., Shahbaz, M., & Khan, M. (2021). Learners' Perceptions on WhatsApp Integration as a Learning Tool to Develop EFL Spoken Vocabulary. *International Journal of Language Education*, 5(2), 1. <https://doi.org/10.26858/ijole.v5i2.15787>
- Khotimah, K., Cahyono, B. Y., & Batunan, D. A. (2022). Chronicling Indonesian EFL students' engagement in podcast-based speaking in online learning milieu: A self-determination theory perspective. *The JALT CALL Journal*, 18(3), 335–359. <https://doi.org/10.29140/jaltcall.v18n3.621>
- Kohnke, L., Foug, D., & Zou, D. (2024). Microlearning: A new normal for flexible teacher professional development in online and blended learning. *Education and Information Technologies*, 29(4), 4457–4480. <https://doi.org/10.1007/s10639-023-11964-6>
- Kusuma, I. P. I., & Waluyo, B. (2023). *Language Teaching Research Enacting E-portfolios in Online English-Speaking Courses: Speaking Performance and Self-efficacy*. 11(July 2022), 75–95.
- Kusuma, I. P. I., Mahayanti, N. W. S., Gunawan, M. H., Rachman, D., & Pratiwi, N. P. A. (2021). How Well Do E-portfolios Facilitate Students' Learning Engagement in Speaking Courses during the COVID-19 Pandemic? *Indonesian Journal of Applied Linguistics*, 11(2), 351–363. <https://doi.org/10.17509/ijal.v11i2.30583>
- Li, L. (2022). Interactive Design of Online Oral Training in University English Teaching. *Journal of Higher Education Theory and Practice*, 22(5), 184–200. <https://doi.org/10.33423/jhetp.v22i5.5213>
- Mekonnen, T. T., Dobeche, T. M., & Djibiti, A. N. (2023). Effects of Culture-Based Tasks in Improving Students of English as a Foreign Language Speaking Skills: Jimma College of Teachers' Education. *International Journal of Learning, Teaching and Educational Research*, 22(9), 117–139. <https://doi.org/10.26803/ijlter.22.9.7>
- Nget, S., Pansri, O., & Poohongthong, C. (2020). The effect of task-based instruction in improving the English speaking skills of ninth-graders. *LEARN Journal: Language Education and Acquisition Research Network*, 13(2), 208–224. <https://so04.tci-thaijo.org/index.php/LEARN/article/view/243708>
- Nguyen, T. T. T., & Takashi, Y. (2022). Online Course Design Using VoiceThread with TPACK Model to Enhance English Speaking Skills for Non-native Learners. *International Journal of Engineering Pedagogy (IJEP)*, 12(1), 33–50. <https://doi.org/10.3991/ijep.v12i1.24407>
- Oli, L., Manickam, R., Rajesh, K., Ponmuthuramalingam, M., & Aravind, B. R. (2023). Probing the Determinant Factors Affecting Students' English Speaking Skills. *World Journal of English Language*, 13(7), 232. <https://doi.org/10.5430/wjel.v13n7p232>
- Pinto Avilez, A., & Díaz Larenas, C. (2020). Enhancing English Speaking Skills through Self-Assessment-Based Action Research. *International Journal of Action Research*, 16(2–2020), 132–152. <https://doi.org/10.3224/ijar.v16i2.04>
- Pratiwi, D. I., Ubaedillah, U., Puspitasari, A., & Arifianto, T. (2022). Flipped

- Classroom in Online Speaking Class at Indonesian University Context. *International Journal of Instruction*, 15(2), 697-714. <https://doi.org/10.29333/iji.2022.15238a>
- Santhanasamy, C., & Md, M. (2022). A Systematic Review of Flipped Learning Approach in Improving Speaking Skills. *European Journal of Educational Research*, 11(1), 127-139. <https://doi.org/10.12973/eu-jer.11.1.127>
- Sha'Ar, M. Y. M. A., & Boonsuk, Y. (2021). What hinders english speaking in thai efl learners? investigating factors that affect the development of their english speaking skills. *Mextesol Journal*, 45(3), 0-2. <https://eric.ed.gov/?id=EJ1310991>
- Subramaniam, T. S., Yunus, M. M., Ayub, A. F. M., Rosli, M. S., Maaruf, S. Z., Nawi, A., & Palpanadan, S. T. (2020). Important elements for a framework in designing a mobile learning for english language listening and speaking skills. *Journal of Critical Reviews*, 7(06), 312-315. <https://doi.org/10.31838/jcr.07.06.54>
- Susanto, D. A., Egar, N., & Sumardiyani, L. (2023). Investigating Indonesian EFL learners' cognitive language learning strategy within blended learning in the covid-19 pandemic. In *Conference on English Language Teaching* (pp. 1035-1048).
- Zaim, M., Refnaldi, R., & Arsyad, S. (2020). Authentic Assessment for Speaking Skills: Problem and Solution for English Secondary School Teachers in Indonesia. *International Journal of Instruction*, 13(3), 587-604. <https://doi.org/10.29333/iji.2020.13340a>