

Exploring Voice Input Translation Function of Google Translate Application Potential as a Reinforcing Tool in Mandarin Listening and Speaking Learning

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ABSTRACT

Enhancing Mandarin listening and speaking skills is a crucial yet challenging goal for beginners. This study examines the potential of applying Google Translate's voice input translation function as a reinforcing tool for Mandarin listening and speaking learning. By employing the ADDIE model for instructional design and using a questionnaire with 24 items and Likert scale on a sample of 32 students from two classes of a Malaysian public university in Perak, the research finds that when utilized appropriately, this feature is an effective and feasible auxiliary resource that enables linguistic improvement. Our finding revealed that students reported notable improvements in their oral expression, pronunciation accuracy, and speech rhythm and intonation, with a range from high to very high mean scores. Google Translate's ability to enhance pronunciation accuracy (mean score of 4.36) and listening comprehension (mean score of 4.29) suggests that it effectively supports the development of foundational speaking and listening skills. In summary, high mean scores across various learning dimensions, especially pronunciation and listening comprehension, indicate the app's positive impact on oral language proficiency. It also promotes autonomy and introspective practices, demonstrating its credibility as an educational aid. Though some learners may need additional real life supports to promote higher confidence in speaking, the overall positive reception suggests it can be a valuable adjunct to traditional teaching methods. Its integration into students' daily learning routines shows practicality as a modern, accessible auxiliary resource, and students' willingness to recommend and use it regularly signifies its potential for cultivating a tech-driven language learning community, essential in the digital age.

Keywords: educational technology, Google Translate, language proficiency, Mandarin language learning, voice input translation function

INTRODUCTION

One of the challenges for beginners in learning Mandarin is to improve their listening and speaking skills, yet overcoming such challenges is crucial for effective language acquisition and fluent communication. Even though these skills are fundamental, preceding teaching practices indicate that in the early stages of learning, beginners are generally reluctant to actively and promptly engage in Mandarin speaking practices. Furthermore, apart from classroom interactions with teachers within a narrow timeframe, beginners only have limited opportunities to practice Mandarin outside of classroom, which demonstrate that the lack of a language-rich environment will also be a hindrance in developing their listening and speaking skills.

To overcome these challenges, the application of modern technological tools in language learning has gradually become more relevant. Many language learners tend to seek digital tools, such as translation apps for assistance, which is not only for its convenience and accessibility, but also due to the complexities and difficulties of mastering a foreign language.

This study focuses on exploring the strategic use of Google Translate's voice input translation function to reinforce Mandarin listening and speaking skills among beginners. Through self-assessment via voice input translation function, learners can improve their pronunciation, increase tonal accuracy, and achieve naturality and fluency in speech. Listening comprehension can be strengthened through repeated listening to standard pronunciations produced by the digital tool, while the text-to-speech function assists learners in correcting their linguistic errors when and if voice input fails. In addition, the bilingual comparison mode facilitates learners towards a better understanding of Mandarin grammar structures and accurate vocabulary usage in certain contexts. In short, the immediate feedback provided by the voice input translation function during speaking practices does provide sufficient encouragements and various supports to learners to master Mandarin phonetics and intonation more effectively and efficiently.

Google Translate's widespread popularity among students is largely attributed to its robust, free features, making it a highly favored and extensively used tool for language learning in recent years (e.g., Hardini & Dewi, 2021; Tumbal, Liando, & Olli, 2021; Wei, 2021; Ying & Febriana, 2021; Van Lieshout & Cardoso, 2022). Furthermore, it is possible for students who master the voice input translation function to leverage such tool to transcend its basic capabilities as a mere traditional and simple bilingual translation function. A strategic and prudent use of Google Translate may help learners to overcome their hesitation and reluctance in Mandarin speaking especially during the early stages of language learning, as well as creating more opportunities to practice and develop other relevant language skills, despite even the lack of a language-rich environment.

Rather than advocating Google Translate as a replacement for comprehensive language learning, this study firmly recommends its use as a supplementary instrument to support, reinforce and enhance traditional language learning methods. The research aims to demonstrate that through the appropriate and strategic use of Google Translate, particularly its voice input translation function, learners can effectively and efficiently improve their practical skills in Mandarin listening and speaking along the study process. The findings seek to discover and recognize the potential benefits of integrating digital translation tools into Mandarin learning curricula, in addition to offering additional support to beginners in developing essential language skills.

PROBLEM STATEMENT

Beginners have been observed to often encounter various obstacles in developing listening and speaking skills, even though these abilities are pivotal for mastering Mandarin language. Hesitancy and reluctance to speak during the early stages of learning, as well as the lack of a language-rich environment outside the classroom, have caused slow progress or even impediment among beginners to adequately practice and improve such basic language skills.

The prevalence of various digital tools in teaching and learning process has been observed and proven, as such tools have been relied upon by many learners to facilitate their language learning and acquisition. Hence, this study suggests a better learning approach, which is to guide students in using the voice input translation function of Google Translate effectively to refine their listening and speaking skills, rather than having digital tools to be misused or abused by students in completing their assignments or producing inaccurate translations. However, such constructive potential and prospects of Google Translate's voice input translation function in enhancing language skills have yet to be fully explored and recognized within the academic community. The key question of this study is to determine whether the strategic and proper use of Google Translate's voice input translation function can effectively overcome recurrent obstacles including hesitation and limited practice opportunities, therefore reinforce beginners' Mandarin listening and speaking skills in the process.

This study seek to address this problem through exploring the potential of Google Translate's voice input translation function as an auxiliary tool for Mandarin learning. The main objective is to analyse and evaluate whether such tool can improve beginners' pronunciation accuracy, enhance listening comprehension, and

provide immediate feedback to help them overcome challenges during the early stages of language learning. This research will also inspect and examine the feasibility of integrating Google Translate with traditional learning approaches to offer a comprehensive support for beginners in developing their Mandarin language skills.

LITERATURE REVIEW

Google Translate as a Tool in Language Learning

Google Translate has established its reputation as a popular and trusted tool among the currently accessible technologies, offering real-time translation, pronunciation guides, and voice input translation features that provide substantial support for language learners. Since its official launch in year 2006, Google Translate has striven for breaking down language barriers and facilitating global communication. By 2016, it had connected over 500 million users worldwide, translating more than 100 billion words daily (Turovsky, 2016). As of February 2020, Google Translate had expanded to support 108 languages (Caswell, 2020).

In recent years, due to Google Translate's robust and free features that have been widely utilized and applied in language learning, this application is widely accepted, appreciated and has gained popularity among students. For instance, various studies by Hardini & Dewi (2021), Tumbal et al. (2021), Wei (2021), Ying & Febriana (2021), and Van Lieshout & Cardoso (2022) highlight its extensive usage and general acceptance among language learners. However, digital language learning tools, particularly translation services like Google Translate, often face scepticism from educators, based on concerns that students may misuse or even become overly reliant on such tools, potentially hindering their language learning process in reverse. This issue is especially pertinent in the context of Mandarin learning, a language known for its complex tonal system and subtle phonetic nuances.

Challenges in Digital Language Learning

The primary concern among language educators is that students may only achieve a superficial understanding of the language if they depend solely or excessively on Google Translate. However, it is beyond doubt that technological advancements are continuously transforming the learning methods students utilize to acquire language proficiency. Hence, should educators guide students towards the strategic and appropriate use of Google Translate, its potential drawbacks can be mitigated, and its productive benefits will also be maximized. Proper guidance from language educators is able to transform Google Translate from a tool of convenience into an effective aid for enhancing language learning outcomes, particularly in the development of Mandarin listening and speaking skills among students.

PURPOSE OF THE STUDY

This study aimed to investigate and analyse the utilization of the Google Translate app's voice input translation feature as an auxiliary tool to support Mandarin language learning process, as well as to assess its effectiveness and prospects. This research focused specifically on how the tool influences learners' listening comprehension, oral expression, pronunciation accuracy, and overall learning motivation. This study also intended to explore the practical effects of the tool on Mandarin learning by analysing in what way such feature has supported learners to enhance their understanding of Mandarin listening materials, improve their oral expression's fluency and naturalness, and refine pronunciation accuracy. In addition, how such feature affected learners' motivation and interest in learning Mandarin is included in this study's inspection. Through a comprehensive assessment of all the above aspects, this research sought to present valuable insights into the potential benefits and limitations of the voice input translation feature, and to offer recommendations for optimizing its application in language education, in which learners are encouraged to engage and master Mandarin learning more effectively. In short, the purpose of this study is to explore the feasibility and effectiveness of Google Translate's voice input translation function as an instrument for improving learners' listening and speaking skills in elementary Mandarin language. The study particularly aimed to evaluate the feasibility of this tool in improving Mandarin proficiency among learners, inspect students' perceptions of its effectiveness and usefulness, and assess students' acceptance of this technology as a method to promote Mandarin learning and teaching. And as such, the study

attempted to increase awareness regarding the potential of digital translation tools, such as Google Translate in supporting language acquisition within the educational context.

Corresponding to the purposes of the study stated above, three research questions have been addressed through a further analysis on the data collected:

1. How feasible is the utilization of Google Translate’s voice input translation function in improving the listening and speaking skills of elementary Mandarin language learners?
2. How do students perceive the effectiveness and usefulness of Google Translate’s voice input translation feature in enhancing their listening and speaking skills?
3. To what extent do students find Google Translate’s voice input translation feature feasible and acceptable as a tool for reinforcing Mandarin learning and teaching?

RESEARCH METHODOLOGY

Respondents and the background of the study

This study used simple random sampling technique, where the targeted participants in this research were two randomly selected classes of degree students that enrolled in the “Basic Chinese Language I” course at a public university in Perak, Malaysia, in order to obtain a sample that represents the larger population of Mandarin learners. All participants were taught by the same instructor, and used the same textbook, same syllabus with same assessment method. A questionnaire was distributed to a total of 32 students from these two classes, and in the end, a total of 28, or 87.5%, of the students’ responses were successfully collected in return and validated. There were 12 (42.9%) male students, and 16 (57.1%) female students involved in this study, ranging in age from 20 to 24 years old, with an average age of 22.

Instruments

A questionnaire was developed, and the responses is kept confidential. Through a link sent by the lecturer via WhatsApp, students were asked to login to Google forms to fill in the questionnaire. Students were well informed that the results of the questionnaire will not affect their grades. This questionnaire consists of three sections: (A) Student Information; (B) Students’ Perception of Using Google’s Voice Input Translation for Learning Mandarin Speaking and Listening. (C) Section C: Students’ Willingness and Intention to Use Google Translate’s Voice Input Translation. The first section included a clear statement of research objectives, an inquiry into personal information, and instructions for answering the questionnaire. There were a total of 4 items under Section A, 15 items under Section B, while Section C came with 5 items, related to the aforementioned purposes of study. The questionnaire was designed using the Likert’s scale. With the Likert scale, feasible responses for each statement were ranked from 1 to 5, with (1) as Strongly Disagree, (2) as Disagree, (3) as Fair, (4) as Agree, and (5) as Strongly Agree. Data collected from the questionnaire were descriptively and statistically analysed by using Microsoft Excel.

Procedure

In this research, the ADDIE Model was referred and applied as the guiding framework to explore the use of voice input translation function of Google Translate to improve Mandarin listening and speaking skills. The five phases of a development process involved in the ADDIE model: analysis, design, development, implementation, and evaluation – has provided a systematic approach to this study (Kurt, 2018). Table 1 below show the five phases of the ADDIE model:

Table 1. The use of voice input translation function of Google Translate application development methodology via ADDIE Model

Phases	Activities	Tools	Outcome
Analysis	-Identify problems faced by students	-Teachers’	- Problems identified

	-Recognised the needs of students	observations - Research	- The needs of students recognised
Design	-Design the instructions, user interface and user flows for the voice input translation function of Google Translate	-Google Translate application	-Mobile phone instructions and guideline formulated and finalized
Development	-Develop the instructions, guideline and user flows to interact with Google Translate in classroom	-Google Translate application -Microsoft Word -PDF	-Instructions and guideline created in PDF documents are created and ready to distribute to students during class
Implementation	-Demonstrate the usage guideline and steps to students -Students are to try and test the functionality of Google Translate application	-Google Translate application	-Students test functionality and experiment with Google Translate application
Evaluation	Conduct usability testing and collect users' feedback and evaluation	-Google Form questionnaire	- Usability Test - 30 evaluation users

Step 1: Analysis

The research began with identifying the problems faced by students and their needs related to Mandarin language learning. Teachers observed challenges among students such as reluctance to speak and struggling to master pronunciation and tonal accuracy. Through further research and assessment of relevant needs, it was determined that students required more interactive digital tools to support their listening and speaking practice anytime anywhere.

Step 2: Design

The research focuses on drafting instructional materials and a structured approach for integrating Google Translate's voice input translation feature into the classroom, which involved designing user guidelines and step-by-step instructions, as well as mapping out how students may and should interact with the app to establish a constructive and effective learning process.

Step 3: Development

The necessary instructional materials had been successfully developed, which include PDF documents that outlined in detail on the proper method of using Google Translate application in a classroom setting. To ensure that students could easily comprehend and apply the instructions in their language practice, such materials were designed to be user-friendly and practical.

Step 4: Implementation

Instructional materials were officially introduced to students, where the usage guidelines are demonstrated, and students were given the opportunity to practice using the voice input translation function of Google Translate. Such hands-on experience allowed students to experiment with the tool and realize its potential to enhance their

Mandarin listening and speaking skills.

Step 5: Evaluation

A usability testing is conducted and feedback from students is collected through Google Form questionnaire. The data collected highlighted significant understanding into the tool's effectiveness, usability, and overall acceptance among students. Evaluation on these data will help assess and ascertain whether the Google Translate's voice input translation function could be practically integrated into Mandarin language learning and whether it effectively satisfy students' various needs.

This structured approach, guided by the ADDIE model, ensured a thorough examination on Google Translate's full potential as an auxiliary tool for improving Mandarin listening and speaking skills among elementary Mandarin language students.

Google Translate is a free machine translation service offered by Google for translating texts and messages across different languages. It is accessible through web interfaces, mobile applications, and APIs that can be integrated into new applications. As of February 2020, Google Translate has been expanding its capabilities and supports over 108 languages (Caswell, 2020). However, instead of developing new application or platform to assist students in language teaching and learning, which requires a huge investment in resources such as time and money, this project focus on the students' preferences and commonly used platform – Google Translate application to formulate methods or steps for learning and practice Mandarin listening and speaking skills. Stated below are the steps to utilize Google Translate's voice input translation feature for students to practice and improve their Mandarin language skills:

1. Download Google Translate application in Android or Apple IOS Store. After the download and installation process is successful, kindly observe the following steps for using voice input translation function of Google Translate in learning Mandarin speaking and listening.
2. Set Google Translate language: First, students should set Google Translate to translate from Mandarin (Simplified Chinese) to either Malay or English language, depending on their preference and learning goals.
3. Activate voice input: Once the language settings are adjusted, students may activate the microphone feature in Google Translate by clicking on the microphone icon.
4. Speak Mandarin sentences or vocabulary: Students may then begin speaking Mandarin sentences or individual vocabulary words into the microphone. During this step, clear and accurate articulation is especially crucial.
5. Translation and evaluation: As students speak, Google Translate will translate their Mandarin voice input into the selected target language (Malay or English) automatically. Students may then evaluate their pronunciation and intonation by comparing the translated output with the original Mandarin. If students face difficulties when producing accurate pronunciation or intonation, they may choose to type their input into Google Translate. Doing so will enable students to listen to the correct pronunciation through the audio playback feature of Google Translate. This additional support mechanism may encourage students to listen to the correct pronunciation repeatedly, which will motivate their efforts to refine their speaking skills.
6. Self-assessment: Students may use this translated output to self-assess their Mandarin pronunciation and tone accuracy. If the translation match closely with their intended meaning, this indicates that their pronunciation is likely to be clear and understandable.
7. Check additional features: Students may benefit from other features provided by Google Translate, such as listening to the audio of the translated sentences, viewing the corresponding Chinese characters, or reviewing the pinyin (Mandarin phonetic transcriptions) to further enhance their understanding and learning.

By following these steps, students have indeed successfully and effectively utilized Google Translate’s voice input translation feature as a tool for practicing and improving their Mandarin listening and speaking skills.

RESULT AND FINDINGS

The findings and analysis of data collected through the Google Form questionnaire has facilitated in solving the three research questions aforementioned, including: (a) to examine the feasibility and effectiveness of Google Translate’s voice input translation function as an auxiliary tool for enhancing the listening and speaking skills of elementary Mandarin language students, (b) to evaluate the feasibility level of such tool in improving Mandarin proficiency among learners and explore students’ perceptions of its effectiveness and usefulness, and (c) to assess the acceptance level of such digital technology as a method to improve Mandarin learning and teaching. The outcome analysis is reckoned to deliver insights regarding the potential of digital translation tools such as Google Translate in supporting language acquisition within an educational context.

The questionnaire result report introduced the findings of this study. The data interpretation has referred to the following scale based on the mean of the data developed by Abragan (2021).

Table 2. Interpretation of the Mean Score

Scale	Agreement Range	Mean Range	Interpretation
5	Strongly Agree	4.20-5.00	Very High
4	Agree	3.40-4.19	High
3	Fair	2.60-3.39	Moderate
2	Disagree	1.80-2.59	Low
1	Strongly Disagree	1.00-1.79	Very Low

The table above shows the criterion of means categorized into five criteria. The “very low” category includes mean range from the score of 1.0 to 1.79. The mean range of score from 1.80 to 2.59 indicates “low” category. The mean range of score from 2.60 to 3.39 is classified as the “moderate” category. The mean range of score from 3.40 to 4.19 is classified as the “high” category, and the mean range of score from 4.20 to 5.00 is classified as the “very high” category.

Research Question 1: How feasible is the utilization of Google Translate’s voice input translation function in improving the listening and speaking skills of elementary Mandarin language learners?

Table 3: Feasibility of Google Translate’s Voice Input Translation Function for Improving Elementary Mandarin Learners’ Listening and Speaking Skills.

No	Item	Mean	SD	Level
1	I feel that after using voice input translation function of Google Translate app, I have noticed significant improvement in my oral Mandarin expression.	4.071429	0.857584	High
2	I feel that voice input translation function of Google Translate app helps me improve the accuracy of my Mandarin pronunciation.	4.357143	0.780042	Very High
3	I feel that using voice input translation function of Google Translate app can	4.178571	0.818923	High

	enhance my sensitivity towards the accuracy of Mandarin Chinese phonetics and pronunciation.			
4	I feel that during the process of using voice input translation function of Google Translate app for oral practice, my pronunciation becomes more fluent and natural.	4.142857	0.890871	High
5	I feel that after using voice input translation function of Google Translate app for oral practice, there is improvement in my Mandarin speech rhythm and intonation.	4.071429	0.899735	High
6	I feel that after using voice input translation function of Google Translate app for oral practice, it can enhance my sensitivity towards the Mandarin speech rhythm and intonation.	4.178571	0.862965	High
7	I feel that after using voice input translation function of Google Translate app, it can improve my listening comprehension of Mandarin.	4.285714	0.89679	Very High
8	I feel that using voice input translation function of Google Translate app for listening practice can enhance my recognition ability towards Mandarin Chinese phonetics.	4.035714	0.961563	High
9	I feel that after using voice input translation function of Google Translate app for listening practice, I will take initiative to attempt to mimic the speaker's speech rhythm and intonation.	4.142857	0.890871	High
10	I feel that after using voice input translation function of Google Translate app for listening and oral practice, there is an improvement in my mastery of Mandarin oral vocabulary.	4	0.860663	High
11	I feel that after using voice input translation function of Google Translate app for listening and oral practice, I have made improvement in practicing and applying Mandarin oral grammar.	4.107143	0.875142	High
	Overall	4.142857091	0.872286	High

The findings demonstrated in the above table inferred that Google Translate's voice input translation function is distinctly effective for enhancing the listening and speaking skills of elementary Mandarin language learners. Learners reported significant improvements in oral expression, with a mean score of 4.07, and pronunciation accuracy, which saw a high mean score of 4.36. Improvements in speech rhythm and intonation, with mean scores ranging from 4.07 to 4.18, evidently emphasize the app's positive influence on speaking skills. Furthermore, learners' sensitivity to Mandarin phonetics improved and their pronunciation became more fluent and natural during practice, are both evidenced by a mean score of 4.18. Listening comprehension also displayed a significant increase, with a mean score of 4.29, though there was some variability in phonetic recognition. It is also important to recognize that students who were willing to take initiative to attempt to mimic the app speaker's speech rhythm and intonation shows a mean score of 4.14, which indicated the app does positively incite learners in their language skill acquisition progress.

Google Translate positively motivate learners to actively mimic speech patterns, which is crucial in speaking practice. Learners reported enhancement in their mastery of Mandarin vocabulary and grammar, with an average mean score over 4.0, denoting the app's broad-ranging usefulness. The establishment of Google Translate's voice input translation feature as a highly feasible tool for improving pronunciation, rhythm, intonation, and listening comprehension is also further confirmed with an overall mean score of 4.14, asserting its

resourcefulness and valuableness in language learning.

Research Question 2: How do students perceive the effectiveness and usefulness of Google Translate’s voice input translation feature in enhancing their listening and speaking skills?

Table 4 : Student Perception of Google Translate’s Voice Input Translation Feature for Mandarin Listening and Speaking Skills Enhancement.

No	Item	Mean	SD	Level
1	I feel that using voice input translation function of Google Translate app is helpful for my overall learning of Mandarin.	4.142857	0.931518	High
2	I feel that using voice input translation function of Google Translate app for oral practice is an effective learning method for me.	4.107143	0.875142	High
3	I feel that after using voice input translation function of Google Translate app for listening and oral practice, I feel more confident to communicate with others in Mandarin.	3.75	1.040833	High
4	1. I feel that voice input translation function of Google Translate app have a positively motivating influence on my Mandarin learning process.	3.892857	0.916486	High
5	I feel that the process of using voice input translation function of Google Translate app makes learning Mandarin more interesting and entertaining.	4.107143	0.875142	High
	Overall	4	0.927824	High

The above finding and its interpretation revealed that students generally found Google Translate’s voice input translation feature to be an effective tool in improving their overall Mandarin learning experience. Learners considered such tool to be beneficial for improving their overall understanding of Mandarin, with an average mean score of 4.14. Correspondingly, learners viewed the app as an effective method for oral practice, scoring 4.10, which also highlighted the role of this function in fostering various Mandarin verbal language skills. Although learners’ confidence in communicating with others in Mandarin was comparatively lower, with an average mean score of 3.75, it was still within a relatively viable range. This indicated that although this tool is helpful, some learners may still required additional support other than Google Translate app, or even more practices and exercises to improve their confidence in speaking and learning Mandarin.

Students’ feedback also noted that Google Translate app has applied a positive and motivating effect on their learning, with an average mean score of 3.89, evincing that this digital tool encouraged them to engage extensively in Mandarin language learning. For example, such application allowed better convenience for students to access language learning resources anytime and anywhere, enhancing their learning efficiency. Another aspect to note is that the accurate translation and pronunciation provided by the application were able to guide students in correcting their language errors and improving their language proficiency. Students were also in favour of the notion that using this tool properly does make learning Mandarin more interesting and delightful, attaining a high mean score of 4.10. Numerous functions offered by the application, such as voice input, text translation, and language learning games, allowed the learning process to be additionally appealing and enjoyable. Hence, the data concluded that students did consider the voice input translation function of Google Translate as both practical and enjoyable, which helped them to further develop their basic listening and speaking skills in a continuously supportive and interactive manner. On top of that, it also functioned as a valuable and practical tool for students to explore different languages and cultures in broadening their horizons.

Research Question 3: To what extent do students find Google Translate’s voice input translation feature feasible and acceptable as a tool for reinforcing Mandarin learning and teaching?

Table 5 : Student Perception of Google Translate’s Voice Input Translation Feature for Reinforcing Mandarin Learning and Teaching.

No	Item	Mean	SD	Level
1	I feel that after using voice input translation function of Google Translate app for oral practice, I am able to self-assess and reflect upon my performance, in order to further improve my oral proficiency in Mandarin.	4.214286	0.786796	Very High
2	I am willing to use voice input translation function of Google Translate app as a regular auxiliary tool to learn Mandarin.	4.178571	0.772374	High
3	I am willing to recommend voice input translation function of Google Translate app to other students that are also learning Mandarin.	4.071429	0.939999	High
4	I will consider using voice input translation function of Google Translate app as one of my primary Mandarin learning tools in the future.	4.071429	0.939999	High
Overall		4.133928571	0.859791764	High

With an overall mean score of 4.13 and a standard deviation of 0.86, the above data greatly supported the notion that students perceived Google Translate’s voice input translation feature as a highly feasible and acceptable instrument for enhancing Mandarin learning and teaching. Students felt more capable of self-assessing their performance and improving their Mandarin proficiency upon utilizing the app for oral practice, as evidenced by a high mean score of 4.21. This indicated that the app contributes to students’ autonomy in self-reflection and fosters independent learning.

Additionally, students’ willingness to employ the tool habitually as an auxiliary resource is reflected by the mean score of 4.18 (Item 2), which highlighted its versatility and practicality in Mandarin learning process. Students also indicated a higher tendency to endorse Google Translate as one of the primary learning tools to other learners, as reflected by the similar mean score of 4.07 in both Item 3 and Item 4, propounding the potential for a community-wide positive effect, in which learners realized and appreciated that the tool were beneficial for both their personal use and its value for other learners as well. In conclusion, Google Translate’s voice input translation feature not only enriches the Mandarin learning experience among students, but also contributes to digital literacy skills development, which holds indispensable value in the current or even future’s technology-driven world.

DISCUSSION

The findings indicate that Google Translate’s voice input translation feature is a highly constructive instrument for improving various aspects of Mandarin language skills. Students reported noticeable improvements in their oral expression, pronunciation accuracy, and speech rhythm and intonation, with a range from high to very high mean scores. Specifically, the app’s ability to enhance pronunciation accuracy (mean score of 4.36) and listening comprehension (mean score of 4.29) suggests that it effectively supports the development of foundational speaking and listening skills. This aligns with research by Pokrivcakova, S. (2019), which highlights that both foreign language learners and teachers can choose from a wide range of language education offerings. It provides learners with immediate and highly individualized support, which is a fundamental building stone for personalized learning as one of the ideal standards of contemporary pedagogy. In addition, applying digital tools can enhance learners’ progress through the functionality of small consequential steps and immediate feedback. Therefore, these digital tools or applications can be used by teachers as very effective supporting tools because they are able to free teachers from tiring, energy- and time-consuming activities such as grammar or pronunciation drills. Another important point is the increase in self-assessment and reflection skills. Learners reported that the Google Translate app helped them to monitor their own oral proficiency and performance (mean score of 4.21), indicating a positive shift toward learner autonomy. Such tool proved to be a valuable way for

the majority of participants to gain improvement through performing introspection in terms of motivation, learning styles, content review, second language skills improvement, and autonomous learning skills. Without reflection, learners may not be able to optimize their learning process and achieve their learning goals. (Upton & Hirano, 1983)

Interestingly, although the students reported an increase in communicative self-confidence, with an average score of 3.75, this value was relatively lower than other indicators, such as pronunciation and fluency, as discussed above. Such discrepancy may connote that while Google Translate is effective in improving students' own language proficiency, additional external factors such as speaking the language directly to another person in real-life contexts, or receiving direct feedback from native speakers may still be necessary and imperative to build stronger communicative confidence and language fluency among students in real-world communication scenarios.

Furthermore, the high overall mean score for feasibility and acceptability (4.13) reflects a strong endorsement of the app's role in Mandarin learning. Students' positive responses regarding their ability to self-assess and their willingness to use and recommend the app to others highlight its potential as a bona fide auxiliary tool in language education. This supports the notion that integrating digital tools such as Google Translate into the curriculum holds the potential to enhance learning experiences and outcomes. However, it is crucial to balance such tools with traditional learning methods to address all facets of language acquisition effectively.

CONCLUSION

In conclusion, this study supports the notion that Google Translate's voice input translation feature is an effective and highly feasible tool for enhancing Mandarin language learning if it's used properly. The high mean scores across various learning dimensions, particularly pronunciation and listening comprehension, signifies its favourable impact on oral language proficiency. The tool's ability to foster autonomy and introspective practices, such as self-assessment and reflection, further demonstrates its value as an educational aid. Despite some learners may still require additional or external supports to further improve their communicative confidence, the overall positive reception suggests that Google Translate can and should be considered as a valuable adjunct to traditional teaching methods. Moreover, the tool's integration into students' daily learning routine shows its practicality as a modern, accessible auxiliary resource. The willingness of students to recommend and regularly use the tool signals its potential for cultivating a supportive, tech-driven language learning community, which is increasingly essential in today's digital age.

However, this study may have some apparent limitations that require further handling. First, the sample size in this study is relatively small. Hence, future studies may incorporate a larger sample size to improve the universality of the research results. Second, the time span of this study is relatively short. Thus, future studies should explore the actual impact of Google Translate's voice input translation function on mastering Mandarin listening and speaking abilities over a longer period of time, perhaps even with datafication such as examinations or test results marks to monitor students' progress. Finally, this study only examines the use of Google Translate's voice input translation function in the context of Mandarin listening and speaking learning. Future research may explore its application in different language learning aspects, such as reading and writing learning and cross-language communication, to expand and diversify its application scope and value. At the same time, further research may be conducted on the combined use effect of this function with other language learning tools to provide language learners with richer and more plausible learning resources and strategies.

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