# Exploring Factors Influencing Student Attitudes and Satisfaction with Mobile Translation Applications in Learning Chinese as a Foreign Language

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**Abstract**

**Background and Aim:** This study explored the factors that affected student attitudes regarding mobile translation applications and their satisfaction. The latent variables investigated in the study include effort expectancy (EE), performance expectancy (PE), attitude (AT), perceived learning outcomes (LO), facilitating conditions (FC), social influence (SI), and student satisfaction (SS). The objective of the research is to determine the extent to which each variable influences the use of mobile translation applications.

**Materials and Methods:** The research surveyed 520 international students on their opinions of utilizing mobile translation applications at two public universities in Liaoning Province, China. The data was analyzed via structural equation modeling (SEM) and confirmatory factor analysis (CFA).

**Results:** The results of the data analysis found that all the factors on attitude were significant, and all hypotheses were verified. Among them, student attitude had the greatest effect on perceived learning outcomes.

**Conclusion:** The findings underscored the importance of these factors in promoting the effective use of such applications, ultimately enhancing student satisfaction and perceived learning outcomes in the context of foreign language education.

**Keywords:** Learning Chinese as a Foreign Language (CFL); Mobile Translation Applications; Attitude; Perceived Learning Outcomes; Student Satisfaction

## Introduction

The Chinese language is recognized as one of the six official languages within the United Nations, and its importance in fostering global communication is growing in response to the present trend of globalization. The proportion of learning Chinese as a foreign language (CFL) is increasing yearly in world language learning. However, it is difficult to learn a foreign language with a construction that differs from one's first language. There are various factors to take into account, ranging from the necessity to pay attention to speaking in the appropriate tones to the challenging aspect of writing (Basith et al., 2019). For instance, Chinese characters must be taught as a unit rather than as separate parts because they include sound (tone), form, and meaning. There are four standard tones in Mandarin Chinese (Lee & Kalyuga, 2011): flat, high-level, rising, falling, and high-falling. The tone is used to discern meaning in Chinese, although in many other languages, it is used to indicate emphasis or emotion. For instance, the word Shu as spelled in pinyin can signify "book", "tree", "rat", "number", "ripe", "cooked", "deeply", "processed" and "lose", etc. Therefore, memorizing all character strokes and components is extremely time-consuming and difficult when learning CFL (Lee & Kalyuga, 2011). The relationship between Hanzi and Chinese culture and history is another obstacle (Alshammari,

2020).

In the process of learning, these CFL learners inevitably need to translate Chinese into a language they are familiar with to enhance their understanding. The general trend is to integrate technology into CFL, especially the use of mobile translation applications. As stated by Crespo (2016), these applications make use of the accessibility and pervasiveness of mobile devices to provide flexible, dynamic, rapid, translations with acceptable levels of quality. A study by Farley et al. (2015) showed that for language study or translation in the classroom, many students frequently used mobile applications.

A cursory search on the Internet found that many mobile applications could be used to perform translation tasks. If one subdivides it into the field of Chinese translation, there are still many choices, such as Google Translate, Baidu Translate, Youdao Translate, DeepL, Pleco, iTranslate, etc. These Chinese mobile translation tools usually provide more advanced capabilities when compared to traditional paper dictionaries and glossaries., such as quick and free content access, contextual translation, speech-to-text alternatives, multi-directional access, and camera-based translation. They also include pinyin, as well as corresponding cultural information and idiom explanations to help foreign students understand the knowledge more comprehensively.

**Objectives**

The objective of this study is to use a quantitative survey method to explore the factors that may impact students' attitudes regarding the use of mobile translation applications including effort expectancy, performance expectancy, facilitating conditions, social influence, and the relationships between attitudes and student-perceived learning outcomes and satisfaction.

**Review of Literature**

**Mobile Translation Applications and Foreign Language Learning**

The utilization of mobile translation applications in the classroom has been the subject of extensive research. While some studies (Jacobson & Forste, 2011; Lepp et al., 2015) indicate that students equipped with mobile devices containing translation applications often struggle to comprehend their utility for learning, others, such as the analysis conducted by Bahri and Mahadi (2016) on university education literature, suggest that despite certain limitations, a majority of research findings advocate for the advantageous role of mobile translation applications in enhancing student engagement and facilitating learning. In an Australian study, Chinese-speaking learners experienced similar results when a web-based glossary and short self-tests were developed to support the learning objectives of a bioscience course, demonstrating the effectiveness of multilingual visual glossaries in enhancing vocabulary learning motivation, confidence, and engagement (Koch et al., 2011). Dong's (2013) research emphasizes the use of translation applications to gain prior vocabulary knowledge, thereby promoting greater student success. Research by Menezes (2011) also highlights the increasing interest in utilizing translation applications for language teaching and learning. A more recent study by Kacetl and Klímová (2019) underscores the potential advantages of using mobile phones and their applications for foreign language learning, particularly highlighting their unique features such as interactivity, ubiquity, and portability, when coupled with teachers' encouragement and feedback.

Despite the extensive research exploring the potential advantages of translation applications,

there has been limited focus on understanding student perspectives within the context of CFL learning. There is a need to comprehensively investigate how CFL learners perceive and employ mobile translation applications. Thus, this study tends to analyze the factors influencing CFL learners' attitudes toward mobile translation applications and their impact on satisfaction and perceived learning outcomes.

**Attitude**

According to Ajzen and Fishbein (1980), attitude refers to the individual's assessment of whether engaging in the activity is desirable or negative. After looking at various constructs, they all measured how much a person liked, delighted in, rejoiced in, and enjoyed using technology (Venkatesh et al., 2003). A person's entire emotional reaction to utilizing new technology is referred to as their attitude in the context of research on technology acceptance. Attitude significantly influences students' perceptions of the course. According to Ardies et al. (2015), attitude in the current study refers to students' desire to use mobile applications for language learning. It should be recognized that attitude matters because it reflects users' level of satisfaction with the system (Brown et al., 2002). Based on Dwivedi's research (2019), theoretical and empirical findings linked attitude to performance expectancy, effort expectancy, social influence, and facilitating conditions.

The effort expectancy (EE) measures how easy a new technology or system is to operate. As usage increased, effort expectancy lost part of its significant predictive power, according to Venkatesh et al. (2003). The research conducted by Sabah (2016) and Hao et al. (2017) revealed that effort expectancy had a positive impact, however, Miloevi et al. (2015) discovered a negative impact. Furthermore, Botero et al. (2019) found that behavioral intention or attitude was unaffected by effort anticipation. The contradictory results suggest that additional empirical study is necessary to completely comprehend the influence of effort expectancy on the adoption of mobile-assisted language learning (MALL) (Botero et al., 2019).

Performance expectancy (PE), as defined by Venkatesh et al. (2003), is the degree to which an individual believes that using the system would help them perform better at work. Based on Hoi (2020), performance expectancy was found to be the most reliable indicator of student attitudes toward the use of MALL. This outcome was consistent with earlier research on mobile learning generally (Briz-Ponce et al., 2017; Yeap et al., 2016) as well as the MALL acceptability study conducted by Botero et al. (2019).

According to Venkatesh et al. (2003), social influence is the degree to which people think that others ought to adopt a new system. A student's behavior and reaction are constrained by social influence, which is impacted by others. In the context of MALL, other significant persons, such as classmates, instructors, or family, may have an impact on learners' attitudes toward using mobile devices for language learning. The connection between social influence and attitude was emphasized across various studies, underscoring its pivotal role in shaping the inclination to utilize mobile technologies, such as Briz-Ponce et al. (2017), Sabah (2016), Yeap et al. (2016), and Botero et al. (2019). In particular, the study by Dwivedi (2017) further demonstrated the beneficial influence that social influence has on students' attitudes toward using technology.

For Venkatesh et al. (2003), facilitating conditions is the degree to which an individual believes that an administrative and technological framework exists to facilitate system usage. The MALL environment is informed of this as technical and administrative support—including wireless network

access, mobile device availability, and technical assistance—is offered to users of mobile devices for language learning. According to Pynoo et al. (2007), facilitating conditions are an important predictor of attitude in an obligatory situation. According to Venkatesh et al.'s findings from 2003, facilitating conditions could only predict intention if effort expectancy was taken out of the equation. Later research (Botero et al., 2019; Dwivedi et al., 2019; Hao et al., 2017) could not find any evidence to support this claim. According to Dwivedi et al. (2019), even when effort expectations are present, favorable conditions strongly predict attitude.

Therefore, the following hypotheses are put forth:

**H1:** Effort expectancy (EE) has a positive effect on student attitudes (AT) toward mobile translation applications.

**H2:** Performance expectancy (PE) has a positive effect on student attitudes (AT) toward mobile translation applications.

**H3:** Social influence (SI) has a positive effect on student attitudes (AT) toward mobile translation applications.

**H4:** Facilitating conditions (FC) have a positive effect on student attitudes (AT) toward mobile translation applications.

### Perceived Learning Outcomes

Learning outcomes are achieved by students who participate in online learning and receive medical care while they are studying. According to Ikhsan et al. (2019), perceived learning outcomes are the perception of how students engage with the learning environment to improve their behavior. Perceived learning outcomes are intricately linked to student attitudes in the mobile learning process. Alshare and Lane (2011) asserted that depressed attitudes might cause students to act destructively, which might have an impact on the learning outcomes in the classroom. Also, in Eom et al.'s study (2006), students' expectancy of their interactions with the mobile learning platform significantly affects their ability to upgrade their behaviors and enhance their knowledge. Positive attitudes often lead to increased engagement, active participation, and a proactive approach toward learning, which collectively contribute to favorable perceived learning outcomes. The following hypothesis is put out about the earlier literature review:

**H5:** A student with a positive attitude (AT) toward mobile translation applications has a higher level of perceived learning outcomes (LO).

### Student Satisfaction

According to Astin (1997), student satisfaction refers to how a student feels about their time in college and how valuable they feel their education is. Most college students consider receiving a high-quality education to be worth the time, money, and effort (Knox, 1993). According to Ikhsan et al. (2019), students, as active participants in higher education, play a pivotal role in shaping service outcomes through their attitudes, perceived learning outcomes, and satisfaction. Perceived learning outcomes and satisfaction are essential dependent variables in mobile learning, as demonstrated by Eom et al. (2006). Positive attitudes regarding the course material, teachers, and teaching techniques frequently result in higher levels of satisfaction. Students who have a positive outlook are more likely to see their coursework and learning outcomes favorably, which increases their level of satisfaction with their academic pursuits (Alshare & Lane, 2011). Notably, students' overall satisfaction, driven by their attitudes and perceived learning outcomes, directly influences subsequent behaviors (Ikhsan et al.,

2019). Therefore, we can link attitudes and perceived learning outcomes to student satisfaction and propose the hypothesis of this study:

**H6:** A student with a positive attitude (AT) toward mobile translation applications has a higher level of student satisfaction (SS).

**H7:** A student with higher perceived learning outcomes (LO) on mobile translation applications has a higher level of student satisfaction (SS).

**Conceptual Framework**

The issue under investigation in this study pertains to the exploration of factors influencing student attitudes and satisfaction with mobile translation applications in the context of learning Chinese as a foreign language. This research rigorously examines existing relevant theories and, based on this examination, refines them to propose a theoretical framework suitable for this study. Based on Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology (UTAUT), four elements—performance expectancy, effort expectancy, social influence, and facilitating conditions— directly influence both behavioral intention and usage behavior (Hoi, 2020). Subsequently, Dwivedi et al. (2019) introduced an enhanced UTAUT model. introducing an additional individual construct, attitude, alongside the existing dimensions and their anticipated interrelationships. Given the acknowledged theoretical and empirical importance of attitude in determining technology acceptance, he considers it a vital inclusion previously absent in the model. Furthermore, as per Alshare and Lane's investigation (2011), attitude holds a pivotal role in their model, influencing student satisfaction and perceived learning outcomes. Building on this foundation, Ikhsan et al. (2019) further established the connection between perceived learning outcomes and student satisfaction. Therefore, Figure 1 shows the conceptual framework of this study formed based on the previous theory (Venkatesh et al., 2003; Dwivedi et al., 2019; Alshare & Lane, 2011, and Ikhsan et al., 2019).
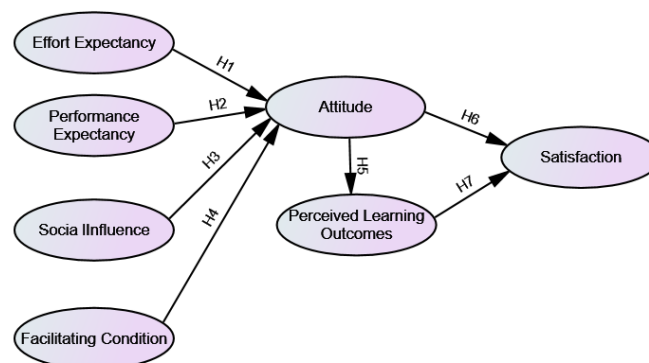


**Figure 1**: Conceptual Framework

**Methodology**

**Research Instrument**

The researcher distributed online surveys using a quantitative approach to reach the target populations. 24 scale items, derived from earlier studies, were employed to assess the latent variables. This included 3 items for effort expectancy (EE), 3 items for performance expectancy (PE), 3 items for

facilitating conditions (FC), 3 items for social influence (SI), 4 items for attitude (AT), 4 items for perceived learning outcomes (LO), and 4 items for student satisfaction (SS). Seven independent variables were gauged using a 5-point Likert scale, where 1 represented "strongly disagree" and 5 denoted "strongly agree".

Three experts from similar fields were contacted by the researchers to evaluate the validity before being distributed. All items were deemed valid based on the item-objective congruence (IOC) index, each scoring a minimum of 0.6. Following pilot research with a sample size of 50 participants validated the validity and constancy of Cronbach's alpha. The Cronbach's alpha values, ranging from 0.808 to 0.911, were deemed reliable based on the criteria established by George and Mallery (2003). To ensure the validity and reliability of the survey instruments beyond the pilot study, several measures were implemented. These included revising the survey based on feedback obtained during the pilot phase and addressing any ambiguities or inconsistencies identified. Furthermore, steps were taken to ensure the clarity and comprehensibility of the survey instructions and items to minimize respondent confusion and enhance data quality.

### Population and Sample

Based on Krejcie and Morgan (1970), a sample size of 381 was determined appropriate for a population approaching 50,000. Statistics indicate that two public universities in Liaoning Province, China, collectively enroll 44,000 college students. University of Science and Technology Liaoning currently hosts approximately 24,000 college students, including around 220 foreign students, while Anshan Normal University has approximately 20,000 college students, including 300 foreign students. Foreign students from various countries studying different majors, all enrolled in Chinese language courses at these universities were selected as the study sample, aiming to ensure reliable and accurate study results. This sample selection ensures representation from universities with diverse student populations, enhancing the generalizability of the findings to foreign Chinese learners in similar academic contexts. A total of 492 valid responses were obtained, providing ample data for further analysis.

Purposive sampling refers to a variety of non-probability sampling methods, including judgmental, selective, or subjective sampling, where the researcher exercises discretion in selecting units for study (Rai & Thapa, 2015). This approach is guided by the researcher's judgment rather than random selection. The primary objective of purposive sampling is to concentrate on specific characteristics within a population that are pertinent to addressing the research questions. By focusing on specific characteristics or attributes within the population of interest, this sampling method facilitates a deeper exploration of key themes or phenomena related to the research questions. In the context of this study, the researcher selected foreign students from two universities to investigate the influencing factors of foreign Chinese learners' attitudes toward mobile translation applications and student satisfaction. These CFL learners from different countries have all studied Chinese and have a certain foundation in Chinese. Simultaneously, all individuals within this group fall within the young adult bracket, aged between 18 and 30 years old, and they all have experience in using mobile products and translation applications for Chinese language learning.

Table 1. Population and Sample Size

| School Name | Number of Students | Sample Size |
|---|---|---|
| University of Science and Technology Liaoning | 24,000 | 220 |
| Anshan Normal University | 20,000 | 300 |
| **Total** | **44,000** | **520** |

### Data Collection and Analysis

Informed consent was obtained from all participants involved in the study. Participants were provided with detailed information about the nature, purpose, and potential risks of the study, and their voluntary agreement to participate was documented. Besides, as a protection for the participants, all personally identifiable information (such as name, ID number, etc.) in the experiment was anonymized. To obtain the proper number of samples indicated in the sample size, the questionnaire on foreign Chinese learners' perceptions of mobile translation applications was distributed to all 520 participants. An initial email was sent to potential students, inviting them to take part in the study voluntarily. The email explained the purpose of the research, assured confidentiality of responses, and provided contact information for any inquiries. Upon expressing their willingness to participate, respondents were then emailed the questionnaire as an attachment.

Utilizing Jamovi and Amos software, the researcher eventually collected 492 questionnaires with useful answers and performed confirmatory factor analysis (CFA) to evaluate discriminant validity, average variance extracted (AVE), composite reliability (CR), factor loading, and t-values, followed by employing a structural equation model (SEM) to investigate the hypotheses and effects of interrelationships among the variables.

### Results

#### Demographic Information

The researcher collected 492 valid data for this study. The main selection process had a high response rate and was precise and of excellent quality. Among the survey participants, there were 212 males, constituting 43.1% of the total, and 280 females, making up 56.9% of the respondents. Regarding educational institutions, 298 respondents (60.6%) were affiliated with Anshan Normal University, while 194 participants (39.4%) were from the University of Science and Technology Liaoning. About the duration of learning Chinese, the majority of participants reported having studied for less than 1 year (247 participants, 50.2%), followed by 1-2 years (98 participants, 20.0%), 3-4 years (75 participants, 15.2%), and over 4 years (72 participants, 14.6%). Table 2 illustrates the demographic outcomes.

**Table 2.** Demographic Information

| Demographic and General Data (N=492) | | Frequency | Percentage |
|---|---|---|---|
| Gender | Male | 212 | 43.1% |
| | Female | 280 | 56.9% |
| School | Anshan Normal University | 298 | 60.6% |
| | University of Science and Technology Liaoning | 194 | 39.4% |
| Year of Learning | Less than 1 year | 247 | 50.2% |

| Demographic and General Data (N=492) | | Frequency | Percentage |
|---|---|---|---|
| Chinese | 1-2 years | 98 | 20.0% |
| | 3-4 years | 75 | 15.2% |
| | Over 4 years | 72 | 14.6% |

**Confirmatory Factor Analysis (CFA)**

The findings from the research indicated favorable goodness-of-fit indices for the measurement model. Specifically, the CMIN/DF stood at 1.398, below the threshold of 5.00 (Awang, 2012), while the GFI reached 0.947, surpassing the 0.85 criterion (Sica & Ghisi, 2007). Furthermore, the AGFI achieved a value of 0.933, exceeding the 0.80 benchmark post-adjustment through Jamovi and Amos statistical software. These collective indices signified acceptability for the measurement model.

The statistical summary in Table 3 revealed Cronbach's alpha value exceeding 0.70, comprehensive reliability (CR) surpassing 0.60, and average variance extracted (AVE) exceeding 0.50. Consequently, these outcomes validated both the convergent and discriminant validity of the CFA results.

**Table 3.** Goodness of Fit for Confirmatory Factor Analysis

| Latent Variables | Source of Questionnaire | Factors Loading | Cronbach's Alpha | CR | AVE |
|---|---|---|---|---|---|
| Effort Expectancy (EE) | (Alshare & Lane, 2011; Botero et al., 2019) | 0.708-0.777 | 0.792 | 0.792 | 0.560 |
| Performance Expectancy (PE) | (Alshare & Lane, 2011; Botero et al., 2019; Hoi, 2020) | 0.696-0.778 | 0.793 | 0.794 | 0.563 |
| Social Influence (SI) | (Botero et al., 2019; Hoi, 2020) | 0.705-0.810 | 0.816 | 0.818 | 0.600 |
| Facilitating Condition (FC) | (Botero et al., 2019; Hoi, 2020) | 0.732-0.818 | 0.823 | 0.824 | 0.610 |
| Attitude (AT) | (Alshare & Lane, 2011; Botero et al., 2019; Hoi,2020) | 0.754-0.794 | 0.852 | 0.860 | 0.606 |
| Perceived Learning Outcomes (LO) | (Alshare & Lane, 2011) | 0.757-0.778 | 0.850 | 0.850 | 0.587 |
| Satisfaction (SS) | (Alshare & Lane, 2011) | 0.729-0.787 | 0.860 | 0.847 | 0.580 |

According to this study, discriminant validity was in favor since its value was greater than the sum of all actor correlations. The data was enough to show construct validity because the convergent and discriminant validity were established.

**Table 4.** Discriminant Validity

|      | EE | PE | SI | FC | AT | LO | SS |
|------|------|------|------|------|------|------|------|
| **EE** | 0.749 | | | | | | |
| **PE** | 0.509 | 0.750 | | | | | |
| **SI** | 0.377 | 0.454 | 0.775 | | | | |
| **FC** | 0.423 | 0.411 | 0.466 | 0.781 | | | |
| **AT** | 0.539 | 0.520 | 0.539 | 0.501 | 0.762 | | |
| **LO** | 0.283 | 0.273 | 0.282 | 0.262 | 0.524 | 0.766 | |
| **SS** | 0.295 | 0.284 | 0.295 | 0.274 | 0.547 | 0.474 | 0.778 |

### Structural Equation Model (SEM)

Using the CFA methodology, a specific set of linear equations underwent estimation and validation through the structural equation model (SEM). The study by Erasmus et al. (2015) examined the causal connections among various constructs composed of independent and dependent variables. Consequently, each strong fit indicator within the SEM validation sufficed for the research's objectives.

**Table 5.** Goodness of Fit for Structural Equation Modeling

| Index | Criterion | Source | After Adjustment Values |
|------|------|------|------|
| CMIN\DF | <5.00 | Awang (2012) | 1.398 |
| GFI | ≥ 0.85 | Sica and Ghisi(2007) | 0.947 |
| AGFI | ≥ 0.80 | Sica and Ghisi (2007) | 0.933 |
| NFI | ≥ 0.80 | Sica and Ghisi (2007) | 0.939 |
| CFI | ≥ 0.80 | Bentler (1990) | 0.982 |
| TLI | ≥ 0.80 | Sharma et. al. (2005) | 0.979 |
| RMSEA | < 0.08 | Pedroso et.al. (2016) | 0.028 |

### Research Hypothesis Testing Result

Table 6 displays the computed outcomes for each structural path. The standardized path coefficient (β) for effort expectancy exhibited a notable impact on attitude at 0.260 (t-value = 4.499***). Similarly, performance expectancy significantly influenced attitude with a β of 0.188 (t-value = 3.430*), while social influence showed a substantial effect on attitude, yielding a β of 0.188 (t-value = 3.149***). Notably, the facilitating condition demonstrated the most significant impact on attitude, recording a β of 0.267 (t-value = 4.758***).

Furthermore, attitude notably influenced perceived learning outcomes (β = 0.524, t-value = 9.521***), as well as student satisfaction (β = 0.411, t-value = 6.888***). Student satisfaction, in turn, was significantly influenced by perceived learning outcomes, showcasing a β of 0.259 (t-value = 4.459***).
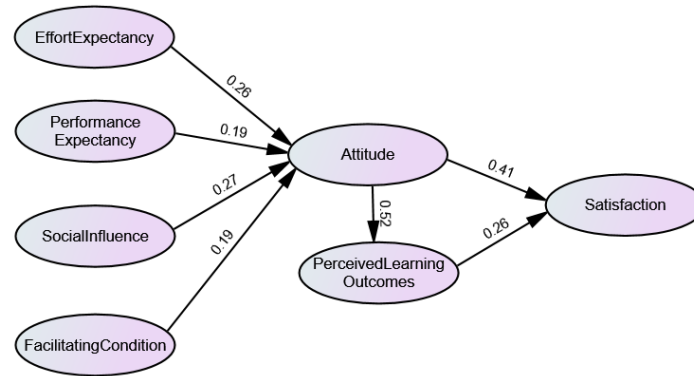
**Figure 2**: Structural Equation Model (SEM)

**Table 6.** Hypothesis Results

| Hypothesis | Paths | Standardized Path Coefficient (β) | t-Value | Tests Result |
|---|---|---|---|---|
| H1 | EE→AT | 0.264 | 4.499 | Supported |
| H2 | PE→AT | 0.188 | 3.430 | Supported |
| H3 | SI→AT | 0.267 | 3.149 | Supported |
| H4 | FC→AT | 0.188 | 4.758 | Supported |
| H5 | AT→LO | 0.524 | 9.521 | Supported |
| H6 | AT→SS | 0.411 | 6.888 | Supported |
| H7 | LO→SS | 0.259 | 4.459 | Supported |

The subsequent expansions are derived from the information presented in Table 6 and Figure 2. In the structural pathway, the standardized route coefficient value is 0.264. H1 revealed that effort expectancy was a significant component in student attitudes about mobile translation applications. One of the most important aspects of influencing student attitudes is effort expectancy (Dwivedi, 2019; Hoi, 2020).

The coefficient value of 0.188 for H2 demonstrated that the correlational data supported the hypothesis concerning the impact of performance expectancy on attitude. The impact of performance expectancy on attitude has been extensively researched by academics, which implies that students would have good attitudes toward mobile translation apps if they feel the tools will successfully help them study and achieve their goals (Dwivedi, 2019; Hoi, 2020).

With a standardized route coefficient value of 0.267, H3 provided evidence in support of the idea that student perceptions of mobile translation apps were significantly influenced by social influence. Social influence has a considerable impact on student views, and the opinions of peers and lecturers may persuade students to adopt mobile translation programs (Dwivedi, 2019; Hoi, 2020).

Furthermore, H4 suggested that the facilitating conditions were an influencing factor in student attitudes in this study. The availability of facilitating conditions facilitates the usage of mobile translation applications by students (Dwivedi, 2019; Hoi, 2020).

The substantial standard coefficient value of 0.524 for Hypothesis 5 supported the concept that

there was a robust association between student attitudes and perceived learning outcomes. As a result, student attitudes have a substantial influence on how students view their learning accomplishments (Alshare & Lane, 2011).

With a standard coefficient value of 0.411, H6 revealed that attitude influenced student satisfaction. This study demonstrated that positive attitudes among students toward mobile translation applications will lead to increased satisfaction (Alshare & Lane, 2011).

The statistical coefficient of 0.259 signifies that perceived learning outcomes strengthened student satisfaction with H7. According to prior research, several researchers stated that perceived learning outcomes of employing mobile translation applications have a big impact on how satisfied students are (Ikhsan et al., 2019).

**Discussions**

This study explored the perspectives of foreign learners in Chinese language education regarding mobile translation applications. The findings confirmed the impact of various factors on student attitudes and satisfaction. Effort expectancy, performance expectancy, social influence, and facilitating conditions were all found to significantly influence student attitudes toward these applications (Ardies et al., 2015; Brown et al., 2002; Dwivedi, 2019; Venkatesh et al., 2003), as evidenced by the standardized path coefficients. Among these factors, effort expectancy and social influence had a greater impact, while performance expectancy and facilitating conditions had relatively smaller effects. Furthermore, in all examined relationships, student attitudes emerged as a significant determinant of their perceived learning outcomes and satisfaction, supporting the views of Ikhsan et al. (2019), Alshare and Lane (2011), and Eom et al. (2006). Additionally, the standardized path coefficients confirmed that perceived learning outcomes significantly influenced student satisfaction with the use of mobile translation applications.

While this study has offered valuable insights, there are still some limitations. The research primarily focused on a specific group of foreign learners, which may have constrained the generalizability of the findings. Future studies could consider expanding the sample size and diversity. Additionally, this research predominantly relied on self-report data, which could introduce response bias. Further investigations utilizing mixed methods and exploring potential moderating variables are warranted. Given the rapid evolution of technology, continuous adaptation and assessment of mobile translation applications to meet evolving learning needs and preferences are essential for their sustained effectiveness.

**Implications for Practice**

To enhance the utilization of mobile translation applications in teaching Chinese to foreign students, educators and institutions should consider implementing several key strategies. This includes prioritizing the development of user-friendly interfaces and improving the overall user experience. It's important to ensure that these tools effectively align with the learning objectives of students. Leveraging social influence by encouraging peer and instructor endorsements, as well as providing convenient access to resources and support, can streamline student acceptance of these applications. By collectively implementing these strategies, educators can enhance the learning experience for foreign learners and promote the effective use of mobile translation applications.

Moreover, to embrace efficiency and promote the acceptance of mobile translation applications in Chinese language education, it is crucial to emphasize their impact on perceived learning outcomes and academic achievements. By highlighting the benefits of mobile translation applications and fostering positive attitudes among students towards their use, educators, institutions, and application developers can collaborate to optimize their utilization in Chinese language education. Additionally, ensuring the adaptability of these applications to evolving learning needs and preferences is essential. By implementing these suggestions, educators can enhance the learning journey for international students and maximize the potential of mobile translation applications in Chinese language education.

**Recommendations for Future Research**

Building on the findings of this study, future research endeavors could delve deeper into several key areas. Exploring the nuanced interactions between the identified factors: effort expectancy, performance expectancy, social influence, and facilitating conditions and their impact on student attitudes toward mobile translation applications could provide valuable insights. Investigating how these factors vary across different cultural contexts and educational settings could also enrich the understanding.

Additionally, considering the influence of other variables, such as language proficiency, prior experience with technology, and individual learning styles, on student attitudes and satisfaction with mobile translation applications would offer a more comprehensive perspective. Examining the role of these variables as potential moderators or mediators in the relationship between student attitudes, perceived learning outcomes, and satisfaction could yield significant findings. Furthermore, future research could employ mixed methods approaches to complement the predominantly self-report data used in this study, thus providing a more comprehensive understanding of the topic.

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