Student Acceptance and Motivation in Online Mandarin as a Third Language Learning

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ABSTRACT

The growing integration of mobile technologies into higher education has created new possibilities for language learning beyond conventional classroom settings. While technology-enhanced language learning has been widely investigated, research on Mandarin as a third language (L3) remains comparatively limited, particularly within multilingual learning contexts where learners navigate linguistic and cultural challenges distinct from those encountered in English language education. Drawing on the Technology Acceptance Model (TAM) and the L2 Motivational Self System, this study examines non-native learners' acceptance of online Mandarin learning and explores how motivational factors shape engagement in mobile-mediated learning environments. Using a quantitative survey design, data were collected from 157 non-native learners enrolled in Mandarin courses at a Malaysian public university. Descriptive statistical analyses indicated that respondents generally viewed online Mandarin learning positively (M = 3.70, SD = 0.97), although face-to-face instruction remained their preferred mode of learning. Learners also reported relatively strong motivation towards mobile-mediated Mandarin learning (M = 3.91, SD = 0.83). Notably, interaction with lecturers (M = 4.41, SD = 0.61) and peers (M = 4.32, SD = 0.68) emerged as the strongest motivational influences, suggesting that opportunities for communication, timely feedback, and social support play a central role in sustaining engagement. The findings further indicate that learners who expressed greater acceptance of online learning environments tended to demonstrate higher levels of motivation. By focusing on Mandarin as a third language in a Malaysian higher education context, this study responds to recent calls for greater empirical attention to Chinese language learning in technology-mediated environments (Wen, 2018; Wen & Mota, 2021). The findings highlight the importance of designing digitally supported Mandarin learning experiences that prioritise interaction, accessibility, and meaningful learner engagement.

Keywords: online Mandarin learning; Mandarin as a third language (L3); mobile-assisted language learning (MALL); technology acceptance; learner motivation

INTRODUCTION

Background of Study

The increasing integration of mobile technologies into higher education has reshaped the way languages are learned and practised beyond conventional classroom settings. Rather than serving merely as supplementary tools, mobile devices and digital communication platforms have become integral components of contemporary language learning, enabling learners to access learning resources, communicate with instructors, and engage in collaborative activities across time and space. This shift has accelerated the development of technology-enhanced language learning and Mobile-Assisted Language Learning (MALL), both of which emphasise

flexibility, learner autonomy, and continuous engagement with language learning processes (Burston & Giannakou, 2022; Soyoof et al., 2023).

Recent research suggests that mobile-mediated learning environments can support vocabulary development, self-regulated learning, and sustained language exposure beyond formal instructional settings (Li & Hafner, 2022; Lai, 2022). Digital learning environments have also been associated with greater learner interaction, enjoyment, and collaborative participation, all of which contribute to meaningful language learning experiences (Guo & Lee, 2023; Liu et al., 2024). These developments indicate that the educational value of technology lies not only in improving access to learning materials but also in creating opportunities for interaction and learner engagement. Within the Malaysian higher education context, Mandarin is increasingly pursued as a third language (L3) because of its growing economic, cultural, and professional relevance. However, Mandarin presents distinctive challenges for non-native learners due to its tonal system, logographic writing system, and culturally embedded linguistic features. Such characteristics may influence how learners perceive online learning environments and whether they remain motivated to engage in language learning activities over time. Consequently, findings derived from English language learning contexts may not be directly transferable to Mandarin learning contexts.

Motivation remains a key factor in sustaining language learning participation, particularly in online environments where learners are expected to assume greater responsibility for their learning. Previous studies have shown that motivation, enjoyment, self-efficacy, and engagement significantly influence learners' participation in digital learning environments (Li, 2022; Liu, Zhang, & Zhang, 2024; Liu, Zhao, & Yang, 2024). At the same time, the growing integration of artificial intelligence and mobile technologies into language education has intensified scholarly interest in learners' acceptance of technology and their motivational experiences in digital learning settings (Chang & Sun, 2024; Liu & Ma, 2024). Despite the growing body of research on technology-enhanced language learning, empirical evidence on online Mandarin learning among non-native learners remains relatively limited, particularly in multilingual higher education settings. Examining learners' acceptance of online Mandarin learning and the motivational factors that sustain their engagement is therefore important for understanding how technology-mediated learning environments can be designed to better support Mandarin as a third language learning.Lorem ipsum dolor sit amet, consectetur adipiscing elit. Etiam non pretium arcu. Nullar euismod est nec mauris placerat, id imperdiet sem tincidunt. Sed erat nulla, bibendum vitae tincidunt quis, porta eget dui. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Suspendisse at sollicitudin metus. Donec egestas nibh eget ante aliquam tempor. Donec sagittas lorem vitae nibh accumsan, id porta risus feugiat. Nunc a sagittis mauris. Aliquam ut venenatis neque.

Statement of Problem

The expanding use of mobile-mediated and online learning technologies has generated substantial research interest in technology-enhanced language learning. However, much of this literature has been concentrated on English as a second or foreign language, particularly in relation to learner autonomy, digital engagement, self-regulated learning, and AI-supported learning environments (Chang & Sun, 2024; Guo & Lee, 2023; Soyoof et al., 2023). As a result, considerably less is known about how non-native learners experience online Mandarin learning, especially in multilingual higher education settings where Mandarin is learned as a third language (L3).

This gap is noteworthy because Mandarin differs from many commonly studied foreign languages in several respects. Its tonal phonological system, logographic writing system, and culturally embedded forms of communication may shape learners' learning experiences in ways that are not adequately captured by findings derived from English language learning contexts. Although online and mobile-assisted learning environments have been widely promoted for their flexibility and accessibility, empirical evidence regarding learners' acceptance of online Mandarin learning remains relatively limited. Consequently, it is still unclear whether non-native learners perceive online Mandarin learning as an effective and acceptable alternative to conventional face-to-face instruction.

A second gap concerns learner motivation. Previous studies have consistently shown that motivation, enjoyment, self-efficacy, and digital engagement influence learners' participation in technology-mediated learning environments (Li, 2022; Liu, Zhang, & Zhang, 2024; Liu, Zhao, & Yang, 2024). Nevertheless, these findings have largely been established in English language learning settings. Comparatively little attention has been given to the motivational experiences of learners studying Mandarin as a third language through mobile-mediated learning platforms. As such, the factors that sustain learners' engagement in online Mandarin learning remain insufficiently understood.

In addition, technology acceptance and learner motivation have frequently been examined as separate constructs in previous research. While both variables have been shown to influence learning outcomes in digital environments, fewer studies have investigated how learners' acceptance of online learning technologies relates to their motivational levels in Mandarin learning contexts. Exploring this association is important because learners who perceive online learning platforms as useful, accessible, and supportive may be more willing to engage actively and persist in language learning activities.

Against this background, the present study investigates non-native learners' acceptance of online Mandarin learning, examines their motivational levels towards mobile-mediated learning environments, and explores the relationship between technology acceptance and learner motivation. By addressing these issues, the study seeks to contribute to the growing literature on technology-enhanced third language acquisition and provide insights for the development of more effective online Mandarin learning practices in higher education.

Research Objectives and Research Questions

The present study aims to investigate non-native learners' acceptance of online Mandarin learning as an alternative to conventional face-to-face instruction and to examine learners' motivational levels towards mobile-mediated online Mandarin learning environments at a Malaysian public university. Specifically, this study seeks to address the following research objectives and research questions:

Research Objectives

1. To investigate non-native learners' acceptance of online Mandarin learning compared to face-to-face learning.

2. To identify learners' motivational levels towards mobile-mediated online Mandarin learning environments.

Research Questions

1. To what extent do non-native learners accept online Mandarin learning as an alternative to face-to-face instruction?

2. What motivational factors influence learners' engagement in mobile-mediated online Mandarin learning environments?

3. Is there a significant association between learners' acceptance of online Mandarin learning and their motivational levels?

LITERATURE REVIEW

The growing integration of digital technologies into higher education has transformed language learning beyond the boundaries of traditional classrooms. Online and mobile-mediated learning environments allow learners to access learning resources, communicate with instructors, and participate in collaborative activities with greater flexibility and autonomy. As a result, technology-enhanced language learning and Mobile-Assisted Language Learning (MALL) have become increasingly important areas of research, particularly in

contexts where learners are expected to engage with language learning both inside and outside formal instructional settings (Burston & Giannakou, 2022; Soyoof et al., 2023).

Previous studies have reported a range of benefits associated with digital and mobile-assisted learning environments. Mobile technologies have been shown to support vocabulary development, learner autonomy, self-regulated learning, and sustained language exposure beyond classroom instruction (Li & Hafner, 2022; Lai, 2022). Likewise, informal digital learning environments encourage interaction, collaboration, and learner engagement through continuous access to learning materials and communication opportunities (Guo & Lee, 2023). These findings suggest that the educational value of technology lies not merely in providing access to information, but in creating opportunities for meaningful participation and interaction.

Within Chinese language education, technology has attracted growing attention as a means of expanding access to Mandarin learning and supporting learner participation beyond conventional classroom settings. Wen (2018) argued that technological innovation is likely to play an increasingly important role in the future development of Chinese language teaching and learning. However, despite the expansion of online and mobile-mediated learning environments, considerably less is known about how non-native learners experience online Mandarin learning, particularly in multilingual higher education contexts where Mandarin is learned as a third language (L3). This issue is important because Mandarin presents distinctive linguistic features, including tonal pronunciation, character-based literacy, and culturally embedded communicative practices, which may shape learners' experiences differently from those reported in more widely researched English language learning contexts.

Another issue receiving increasing scholarly attention concerns learners' acceptance of educational technologies. Drawing on the Technology Acceptance Model (TAM), previous studies have shown that learners' perceptions of usefulness, ease of use, enjoyment, and self-efficacy influence their willingness to adopt digital learning technologies (Hsu & Lin, 2022; Liu & Ma, 2024). While these findings highlight the importance of technology acceptance in shaping learning engagement, evidence from Mandarin learning contexts remains limited. Consequently, it is still unclear whether factors influencing technology acceptance in other language learning settings operate in similar ways among learners studying Mandarin as a third language.

Motivation represents another important dimension of technology-mediated language learning. Research has consistently shown that motivation, enjoyment, self-efficacy, and learner engagement are closely interconnected within digital learning environments (Li, 2022; Liu, Zhang, & Zhang, 2024; Liu, Zhao, & Yang, 2024). In the context of Chinese language learning, Wen and Mota (2021) argued that motivation is strongly influenced by the quality of interaction, engagement, and learning experiences afforded by digital technologies. Their findings suggest that technology alone is unlikely to sustain learner motivation unless it is accompanied by meaningful opportunities for communication, collaboration, and social support. This perspective may be particularly relevant to Mandarin learning, where learners often depend on continuous feedback and interaction to navigate linguistic challenges and maintain engagement.

Taken together, the existing literature points to the educational potential of online and mobile-mediated learning environments while simultaneously highlighting several unresolved issues. Although substantial research has examined technology-enhanced language learning, much of this evidence originates from English language learning contexts. As a result, there remains limited understanding of how non-native learners perceive online Mandarin learning, how motivation is sustained in mobile-mediated environments, and how technology acceptance relates to learner motivation in Mandarin as a third language learning contexts. These gaps provide the rationale for the present study.

Theoretical Framework

This study draws on two complementary theoretical perspectives: the Technology Acceptance Model (TAM) developed by Davis (1989) and Dörnyei's (2009) L2 Motivational Self System. Together, these frameworks provide a useful lens for understanding how learners perceive online Mandarin learning environments and what motivates them to remain engaged in technology-mediated language learning.

TAM proposes that technology acceptance is largely influenced by two key factors: perceived usefulness and perceived ease of use. In educational settings, these constructs have been widely used to explain learners' willingness to adopt online learning systems, mobile-assisted learning technologies, and AI-mediated learning platforms. Previous studies have shown that learners are more likely to embrace digital learning technologies when they perceive them as useful, accessible, and supportive of their learning goals (Hsu & Lin, 2022; Liu & Ma, 2024). In the context of this study, TAM provides a framework for examining learners' acceptance of online Mandarin learning and their willingness to participate in mobile-mediated learning activities.

While TAM explains why learners accept technology, the L2 Motivational Self System helps explain why they remain motivated to learn a language. The framework comprises three interrelated components: the Ideal L2 Self, the Ought-to L2 Self, and the L2 Learning Experience (Dörnyei, 2009). Among these, the L2 Learning Experience is particularly relevant to online learning because it focuses on learners' immediate experiences within their learning environment, including interaction, instructional practices, and learning enjoyment (Gardner, 1985; Dörnyei & Ushioda, 2011). Recent research further suggests that motivation, enjoyment, and engagement play a significant role in shaping learners' participation in digital language learning environments (Liu, Zhang, & Zhang, 2024).

Thus, these two frameworks offer a complementary explanation of online Mandarin learning. TAM helps explain learners' acceptance of technology-mediated learning platforms, whereas the L2 Motivational Self System provides insights into the motivational processes that sustain learner engagement. The integration of these perspectives is particularly relevant in the context of Mandarin as a third language (L3), where successful learning depends not only on learners' willingness to adopt technology but also on their motivation to persist in mastering a linguistically and culturally demanding language.

Conceptual Framework

The conceptual framework of this study integrates the Technology Acceptance Model (TAM) and the L2 Motivational Self System to examine learners' acceptance and motivation in online Mandarin learning environments. The framework proposes that perceived usefulness and perceived ease of use influence learners' acceptance of online Mandarin learning. In addition, learners' motivation, enjoyment, and engagement influence their participation in mobile-mediated online Mandarin learning environments.

The study assumes that greater acceptance of online learning technologies positively contributes to higher learner motivation and engagement in online Mandarin learning activities. Mobile-mediated interaction, flexibility, accessibility, and instructor support are also expected to strengthen learners' learning experiences and sustain their motivation towards Mandarin as a third language learning.

METHODOLOGY

This pilot study adopted a quantitative survey design to examine non-native learners' acceptance of online Mandarin learning and their motivational levels towards mobile-mediated learning environments. The study was conducted at a Malaysian public university offering Mandarin courses to undergraduate students from diverse linguistic and academic backgrounds. As the focus of the study was on learners' experiences with online Mandarin learning, data were collected online through Google Forms.

A structured questionnaire adapted from Melvina and Sara (2021) was used as the primary data collection instrument. The questionnaire comprised three sections. Section A gathered demographic information, while Section B examined learners' acceptance of online Mandarin learning in comparison with conventional face-to-face instruction. Section C focused on learners' motivational experiences in mobile-mediated learning environments, including interaction with lecturers and peers, accessibility of learning materials, flexibility, and learner engagement. The questionnaire items were developed in accordance with the Technology Acceptance Model (TAM) and constructs related to learner motivation in digital language learning environments.

All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Data were analysed using descriptive statistics, including mean (M) and standard deviation (SD).

Mean scores were interpreted as follows: 1.00–1.80 (very low), 1.81–2.60 (low), 2.61–3.40 (moderate), 3.41–4.20 (high), and 4.21–5.00 (very high). Standard deviation values were used to indicate the degree of variation in respondents' responses.

Participants were selected through purposive sampling, as the study specifically targeted non-native learners who had prior experience with online Mandarin learning through mobile-mediated platforms (Chua, 2012; Kumar, 2011). A total of 157 undergraduate students participated in the study (N = 157). Given the exploratory nature of the research, the sample was considered adequate for a pilot investigation of learners' acceptance and motivation in online Mandarin learning contexts. The use of survey methodology is consistent with recommendations by Creswell (2014) and Lay and Khoo (2014), who emphasised its suitability for examining perceptions, attitudes, and experiences within educational settings.

FINDINGS AND DISCUSSION

Respondents' Demographic Profile

Based on the demographic information collected in Section A of the questionnaire, the demographic profile of the respondents is presented in Table 1.

Table 1 Demographic Information of Respondents (N = 157)

Variable	Category	Frequency	Percentage (%)
Gender	Male	47	29.9
	Female	110	70.1
Age	18–20 years old	3	1.9
	21–23 years old	129	82.2
	24–26 years old	25	15.9
Ethnicity	Malay	143	91.1
	Other Indigenous Groups	14	8.9
Faculty	Computer Science and Mathematics (CS)	51	32.5
	Civil Engineering (EC)	25	15.9
	Chemical Engineering (EH)	27	17.2
	Mechanical Engineering (EM)	31	19.7
	Film, Theatre and Animation (FF)	23	14.6
Mandarin Level	Level I	59	37.6
	Level II	43	27.4
	Level III	55	35.0

Table 1 summarises the demographic characteristics of the 157 respondents involved in this study. Female students constituted most of the sample (70.1%), while male students accounted for 29.9%. Most respondents were between 21 and 23 years old (82.2%), reflecting the typical age profile of undergraduate students. The sample was predominantly Malay (91.1%), with the remaining respondents representing various indigenous ethnic groups from Sabah and Sarawak.

Participants were drawn from a range of academic disciplines, including Computer Science and Mathematics, Mechanical Engineering, Chemical Engineering, Civil Engineering, and Film, Theatre and Animation. This distribution suggests that Mandarin as a third language (L3) attracts learners from diverse academic backgrounds rather than being confined to a particular field of study. In terms of language proficiency, respondents were relatively well distributed across Mandarin Levels I, II, and III, indicating varying degrees of learning experience and exposure to the language.

Taken together, the demographic profile reflects a diverse group of non-native Mandarin learners from different academic and linguistic backgrounds. Such diversity provides a useful context for examining learners' acceptance of online Mandarin learning and their motivational engagement in mobile-mediated learning environments.

Non-Native Learners' Acceptance of Online Mandarin Learning

The findings for Section B of the questionnaire, which examined non-native learners' acceptance of online Mandarin learning compared to conventional face-to-face instruction, are presented in Table 2.

Table 2 Non-Native Learners' Acceptance of Online Mandarin Learning (N = 157)

Item	M	SD	Interpretation
Q1: I prefer attending traditional face-to-face classes to learn Mandarin rather than online classes.	3.87	0.91	High
Q2: I believe that traditional face-to-face classes can be replaced by online learning for learning Mandarin.	3.52	1.02	High

The results presented in Table 2 reveal an interesting pattern in learners' perceptions of online Mandarin learning. Although respondents generally reported positive acceptance of online learning environments, their responses suggest that online learning was viewed more as a complementary mode of instruction than as a complete replacement for traditional classroom learning. This pattern can be observed in the comparison between Item 1 and Item 2. While many respondents agreed that online learning could serve as an alternative to conventional Mandarin classes (M = 3.52, SD = 1.02), they expressed an even stronger preference for face-to-face instruction (M = 3.87, SD = 0.91). In other words, learners appeared willing to embrace online learning, yet they were not entirely prepared to forgo classroom-based learning experiences. This finding suggests that acceptance and preference do not necessarily represent the same construct; learners may recognise the benefits of online learning while still perceiving face-to-face instruction as more effective for certain aspects of language learning.

One possible explanation lies in Mandarin itself. Unlike many alphabetic languages, Mandarin requires learners to develop sensitivity to tonal distinctions while simultaneously acquiring character-based literacy. For non-native learners, particularly those learning Mandarin as a third language (L3), immediate corrective feedback and real-time interaction may play a crucial role in reducing uncertainty and supporting language development. Classroom environments may therefore be perceived as providing richer opportunities for pronunciation practice, clarification, and interpersonal communication. The findings are broadly consistent with previous research on technology-enhanced language learning. M. Alqahtani et al. (2018) reported that learners generally responded positively to online language learning platforms and demonstrated increased motivation to engage with learning materials. Similarly, Burston and Giannakou (2022) and Lai (2022) highlighted the advantages of digital and mobile-assisted learning in promoting flexibility, accessibility, and learner autonomy. The present study supports these observations, as respondents appeared to appreciate the convenience of online learning while simultaneously recognising the continuing value of face-to-face interaction.

However, the findings also point to an issue that is less frequently discussed in the broader MALL literature. Although online learning environments offer greater flexibility, their effectiveness may depend on the linguistic demands of the target language. In the case of Mandarin, learners may require more intensive interaction and instructional support than can be provided through technology alone. As a result, the findings suggest that technology should not be viewed simply as a substitute for classroom learning, but rather as a means of extending and enriching language learning opportunities.

From a pedagogical perspective, these findings lend support to more blended and interactive approaches to Mandarin language instruction. Rather than positioning online and face-to-face learning as competing modes of delivery, educators may achieve better outcomes by integrating the strengths of both environments. Mobile-mediated communication tools, collaborative learning activities, and interactive digital resources can enhance flexibility and accessibility, while classroom interaction continues to provide opportunities for immediate

feedback, guided practice, and social engagement. Such an approach may be particularly beneficial for learners studying Mandarin as a third language in multilingual higher education contexts.

Motivational Factors Influencing Learners' Engagement in Mobile-Mediated Online Mandarin Learning Environments

The findings for Section C of the questionnaire, which examined the motivational factors influencing non-native learners' engagement in mobile-mediated online Mandarin learning environments, are presented in Table 3.

Table 3 Motivational Factors Influencing Learners' Engagement in Mobile-Mediated Online Mandarin Learning (N = 157)

Item	M	SD	Interpretation
Q1: I enjoy using WhatsApp in Mandarin learning.	3.92	0.83	High
Q2: I feel more confident expressing my opinions related to Mandarin learning through WhatsApp.	3.71	0.94	High
Q3: I feel comfortable using WhatsApp in Mandarin learning because it is mobile and easily accessible.	4.02	0.79	High
Q4: I always look forward to Mandarin teaching and learning sessions through WhatsApp (e.g., ODL materials and video/audio recordings).	4.18	0.73	High
Q5: I enjoy reading my classmates' opinions and ideas through WhatsApp.	4.16	0.76	High
Q6: I can interact with my classmates through WhatsApp at any time.	4.32	0.68	Very High
Q7: I can interact with the lecturer ("laoshi") through WhatsApp at any time.	4.41	0.61	Very High
Q8: I feel appreciated when I receive praise or positive emoji responses from the lecturer and classmates through WhatsApp.	4.05	0.82	High
Q9: I become more active in discussion activities through WhatsApp.	3.58	0.97	High
Q10: I feel shy or worried about sharing ideas through WhatsApp because there is no face-to-face interaction.	2.74	1.11	Moderate
Q11: I consider Mandarin learning through WhatsApp as my preferred learning method because it is more flexible.	3.67	0.91	High
Q12: I believe that WhatsApp is a good supplementary tool for strengthening Mandarin learning.	4.11	0.77	High
Overall Mean	**3.91**	**0.83**	**High**

The results presented in Table 3 indicate that respondents generally viewed WhatsApp positively as a platform for supporting online Mandarin learning, as reflected in the overall motivational score (M = 3.91, SD = 0.83). More importantly, the pattern of responses suggests that learners were motivated not simply by the technological features of the platform, but by the opportunities for interaction and social connection that it facilitated. In this sense, WhatsApp appeared to function as a social learning space rather than merely a communication tool. The strongest motivational influences were associated with communication and accessibility. Item 7 recorded the highest mean score (M = 4.41, SD = 0.61), indicating that learners highly valued the ability to communicate with the lecturer ("laoshi") whenever assistance was needed. Likewise, Item 6 (M = 4.32, SD = 0.68) reflected positive perceptions towards ongoing interaction with classmates. These findings suggest that learners benefited from having continuous access to both instructional and peer support. Such interaction may be particularly important in Mandarin learning, where learners frequently encounter challenges related to tones, vocabulary usage, and character recognition that often require immediate clarification and feedback.

Several other items further reinforce the importance of interaction in shaping learners' motivational experiences. Respondents reported positive attitudes towards participating in learning activities involving digital materials, audio recordings, and video resources (Item 4, M = 4.18, SD = 0.73). They also expressed enjoyment in reading and exchanging ideas with classmates through WhatsApp (Item 5, M = 4.16, SD = 0.76). In addition, learners perceived WhatsApp as a useful supplementary platform for reinforcing Mandarin learning (Item 12, M = 4.11, SD = 0.77). Interestingly, Item 8 (M = 4.05, SD = 0.82) indicates that relatively simple forms of encouragement, such as praise and supportive emoji responses, contributed positively to learners' learning experiences. This finding draws attention to the emotional dimension of online learning, suggesting that learners value feeling recognised and supported rather than merely having access to learning resources.

Taken together, the findings indicate that motivation in mobile-mediated Mandarin learning is shaped by a combination of academic, social, and emotional factors. While technological convenience remains important, learners appeared to derive motivation from feeling connected to their learning community. This observation resonates with Wen and Mota's (2021) argument that motivation in technology-mediated Chinese language learning is closely linked to the quality of interaction and engagement that learners experience in digital environments. Their study suggests that technology alone is unlikely to sustain motivation unless it creates meaningful opportunities for communication, participation, and social support. The present findings provide further support for this perspective, particularly within the context of Mandarin as a third language (L3).

The findings are also broadly consistent with previous research on mobile-assisted language learning. Gon and Rawekar (2017) identified facilitator accessibility and flexibility as key strengths of WhatsApp-supported learning, while Melvina and Sara (2021) reported that encouragement and positive responses from lecturers and peers contributed to higher levels of learner motivation. Similarly, Bansal and Joshi (2014) found that learners responded favourably to WhatsApp-mediated learning because it promoted collaborative interaction and continuous communication. The current study extends these findings by suggesting that such interaction may play an even more important role in Mandarin learning, where learners often rely on regular feedback and communicative support to sustain engagement.

Nevertheless, not all learners appeared equally comfortable with online interaction. Item 10 recorded a comparatively lower mean score (M = 2.74, SD = 1.11), suggesting that some respondents still experienced hesitation or anxiety when sharing ideas through online platforms. This finding serves as a reminder that greater accessibility does not necessarily guarantee greater participation. For some learners, the absence of face-to-face interaction may reduce confidence and limit their willingness to contribute to online discussions. Consequently, the effectiveness of mobile-mediated learning environments may depend not only on technological access but also on the extent to which learners feel psychologically safe and supported within those environments.

In short, the findings suggest that learner motivation in online Mandarin learning extends beyond issues of convenience and flexibility. Continuous access to lecturers, peer collaboration, emotional support, and opportunities for meaningful interaction emerged as key factors sustaining engagement. Rather than functioning solely as a communication platform, WhatsApp appears to facilitate a socially connected learning environment that supports both the academic and interpersonal dimensions of Mandarin language learning. This reinforces the view that successful technology-mediated language learning depends not only on what technology can deliver, but also on how it enables learners to connect, communicate, and participate meaningfully in the learning process.

Association Between Learners' Acceptance of Online Mandarin Learning and Motivational Levels

To address Research Question 3, namely *"Is there a significant association between learners' acceptance of online Mandarin learning and their motivational levels?"*, a descriptive interpretation was conducted based on the overall mean scores obtained from Section B and Section C of the questionnaire. The findings are presented in Table 4.

Table 4 Association Between Learners' Acceptance of Online Mandarin Learning and Motivational Levels (N = 157)

Variable	M	SD	Interpretation
Learners' Acceptance of Online Mandarin Learning	3.70	0.97	High
Learners' Motivation Towards Mobile-Mediated Online Mandarin Learning	3.91	0.83	High

The findings in Table 4 indicate that both learners' acceptance of online Mandarin learning and learners' motivational levels towards mobile-mediated online Mandarin learning environments were at high levels. Specifically, learners' motivation recorded a slightly higher mean score (M = 3.91, SD = 0.83) compared to learners' acceptance of online Mandarin learning (M = 3.70, SD = 0.97). The findings suggest that learners

who demonstrated positive acceptance towards online Mandarin learning environments also tended to exhibit higher motivational engagement in mobile-mediated learning activities.

Overall, the findings indicate the existence of a positive association between learners' acceptance of online Mandarin learning and their motivational levels. Learners who perceived online Mandarin learning environments as useful, flexible, accessible, and interactive appeared to be more motivated to participate in online learning activities through mobile-mediated communication platforms. This finding is consistent with the assumptions of the Technology Acceptance Model (TAM), which proposes that learners' positive perceptions towards technology usefulness and ease of use influence their behavioural acceptance and learning engagement (Davis, 1989).

The present findings further suggest that learners' motivation in online Mandarin learning environments is closely associated with their ability to communicate with lecturers and peers, access learning materials conveniently, and receive immediate feedback through mobile-mediated platforms. In particular, the high motivational scores related to lecturer interaction and peer communication indicate that social interaction and accessibility play important roles in sustaining learners' participation in online Mandarin learning environments. Consequently, learners who accepted online Mandarin learning as a practical and effective learning mode were more likely to demonstrate stronger motivation and engagement in digital learning activities.

These findings are consistent with previous studies on technology-enhanced and mobile-assisted language learning. Hsu and Lin (2022), for example, found that learners' acceptance of mobile-assisted language learning technologies significantly influenced their learning motivation and behavioural intention to use digital learning platforms. Similarly, Liu, Zhang, and Zhang (2024) reported that learners' motivation and enjoyment were strongly associated with participation in informal digital language learning activities. The findings are also supported by Soyoof et al. (2023), who highlighted that interaction, flexibility, and accessibility in digital learning environments positively contributed to learner engagement and continuous participation in online language learning contexts.

More specifically, the present findings resonate with those reported by Wen and Mota (2021), who found that learners' motivation in technology-mediated Chinese language learning environments was closely associated with meaningful interaction, learner engagement, and supportive digital learning experiences. The high motivational scores related to lecturer and peer interaction observed in the present study further reinforce the importance of social and communicative dimensions in sustaining learners' motivation when learning Mandarin through technology-enhanced environments. Furthermore, the findings support Wen's (2018) argument that the future development of Chinese language education increasingly depends on the effective integration of digital technologies and innovative pedagogical approaches that enhance learners' engagement and learning experiences.

From a pedagogical perspective, the findings imply that enhancing learners' acceptance of online learning technologies may contribute positively to learners' motivational levels and engagement in online Mandarin learning environments. Therefore, language educators and curriculum designers should focus on developing online learning environments that are user-friendly, interactive, flexible, and socially supportive. The integration of mobile-mediated communication tools, collaborative learning activities, and immediate feedback mechanisms may further strengthen learners' motivation and sustain their engagement in Mandarin as a third language (L3) learning environment.

In addition, the findings suggest that online Mandarin learning should not merely focus on technological delivery, but also on creating meaningful interpersonal interaction and learner-centred learning experiences. Since learners' motivation appears to be closely connected with communication accessibility and emotional support, educators should consider incorporating collaborative discussion activities, peer interaction opportunities, and supportive digital communication practices into online Mandarin learning environments.

Collectively, the findings demonstrate that learners' acceptance of online Mandarin learning and their motivational levels are closely interconnected in mobile-mediated learning contexts. The study therefore

supports the view that positive learner perceptions towards online learning technologies contribute significantly to learner motivation and engagement in online Mandarin language learning environments.

CONCLUSION

The present study demonstrates that non-native learners generally view online Mandarin learning as a useful and acceptable learning mode, although face-to-face instruction continues to play an important role in their language learning experience. Rather than replacing classroom learning, mobile-mediated platforms such as WhatsApp appear to extend opportunities for interaction, feedback, and learner support beyond formal instructional settings. The findings further suggest that learners' acceptance of online learning is closely linked to their motivational experiences, particularly when digital environments facilitate meaningful communication with lecturers and peers. In this study, accessibility, continuous interaction, and emotional support emerged as key factors sustaining engagement in online Mandarin learning.

By focusing on Mandarin as a third language (L3) in a Malaysian higher education context, this study contributes to a growing yet still limited body of research on technology-enhanced Chinese language learning. The findings support the view that the effectiveness of online language learning depends not solely on technological accessibility, but also on the quality of social interaction and learner engagement that technology enables. As higher education continues to expand digital learning opportunities, the challenge is no longer simply to move language learning online, but to create learning environments that remain interactive, supportive, and pedagogically meaningful. The central message emerging from this study is that technology is most effective when it strengthens, rather than replaces, the human dimensions of language learning.

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