Integrating WeChat into Blended Learning: Implications for Participation in Chinese Language Education

Yan Cao
Universiti Teknologi Malaysia, Johor Bahru, Malaysia, South China Business College
Guangdong University of Foreign Studies, Guangzhou, China
Email: caoyan@graduate.utm.my

Mohd Nihra Haruzuan Mohamad Said
Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Corresponding author Email**: nihra@utm.my

Mohd Fadzil Abdul Hanid
Universiti Teknologi Malaysia, Johor Bahru, Malaysia
Email: fadzil.mpputhm@gmail.com

Rong Zhu
National University of Defense Technology
Email: zhurong@nudt.edu.cn

Abstract
The integration of social media into blended learning strategies is gaining increasing traction within language education. This study examines the application of WeChat, a dominant Chinese social platform, within blended Chinese language courses and its impact on student engagement. Over one hundred international undergraduate students in China participated in this quantitative research, which explored WeChat integration through three functional modules: WeChat group chats, mini-programmes, and official accounts. A structured questionnaire assessed student engagement across three dimensions: behavioural engagement, affective engagement, and cognitive engagement. Research findings indicate that the blended learning model supported by WeChat effectively enhances student engagement across behavioural, affective, and cognitive dimensions. Each WeChat tool demonstrates distinct strengths: group chats boost behavioural participation, mini-programmes facilitate interactive practice and cognitive engagement, while official account content stimulates learning interest and sustains affective motivation. These discoveries suggest that integrating popular social platforms like WeChat into formal language instruction significantly amplifies student involvement. This research provides educators with empirical

evidence to enhance second language learning engagement by integrating mobile devices and social media, while offering guidance on best practices and considerations for WeChat application within blended learning environments.

Keywords: WeChat, Blended Learning, Chinese Language Education, International Students

Introduction

Student participation and engagement are critical for successful language learning, yet maintaining high levels of involvement remains a challenge in second language classrooms(Lin, 2012). This challenge can be pronounced in Chinese language education for international students in China, who often face linguistic and cultural barriers that may inhibit active participation. Traditional classroom formats may not fully engage learners behaviorally, emotionally, or cognitively(Peng, 2024). In response, educators are turning to blended learning approaches that combine face-to-face instruction with online and mobile tools to create more interactive and accessible learning experiences(Singh et al., 2021). Blended learning has shown potential to enhance student engagement by extending learning beyond the classroom and providing diverse channels for interaction (Graham, 2013). In the context of language education, blending into a social communication platform could bridge formal and informal learning and encourage students to practice the target language in authentic contexts(Czerkawski, 2016).

WeChat is a widely used social media and messaging platform in China that offers a rich ecosystem of features conducive to learning(Huang et al., 2023). Launched in 2011, WeChat has grown to over one billion active users, functioning not only as a messaging app but as an all-in-one environment for social networking, content sharing, and mini-applications (Tencent, 2021). International students in China typically adopt WeChat for daily communication due to its ubiquity and convenience(Wang et al., 2023). This prevalence presents an opportunity for educators: by integrating course activities into a platform students already frequently use, participation in learning tasks might be improved. Preliminary pedagogical reports and research have suggested that WeChat can facilitate language practice, peer interaction, and timely communication in educational settings (Jiang & Li, 2018). However, systematic investigation is needed to understand how specific WeChat features can be harnessed in a structured blended learning design and what impact this integration has on different dimensions of student participation(Ashraf et al., 2022).

Learner participation is conceptualized here as a multifaceted construct encompassing behavioral, emotional, and cognitive dimensions(Fredricks et al., 2004). Behavioral participation refers to students' observable actions such as class attendance, attention to tasks, and contribution to discussions. Emotional participation involves students' affective engagement – their interest, enthusiasm, and motivation in learning activities. Cognitive participation denotes the intellectual effort and thought investment students put into learning, including reflection on content and application of learned concepts. High participation in all three dimensions is associated with deeper learning and better performance in second language acquisition(Skinner et al., 2009). The central research question guiding this study is: *How does integrating WeChat into a blended Chinese language course affect international students' behavioral, emotional, and cognitive participation in learning?* We hypothesize that the use of WeChat's features in the course will positively

influence all three participation dimensions, with each feature supporting different aspects of engagement.

This study focuses on a blended learning implementation in a university-level Chinese language course for international students, where WeChat was incorporated as a learning tool in three primary ways: (1) Classroom notifications – using WeChat Group for disseminating class announcements, reminders, and quick updates; (2) WeChat mini-programs – employing lightweight embedded applications on WeChat for language practice exercises and interactive learning activities; and (3) Official accounts – utilizing a course-dedicated WeChat public account to share instructional content, resources, and cultural materials. By examining these modes of integration, the study aims to evaluate their influence on students' participation in the language learning process. In the following sections, we first review relevant literature on social media integration in language learning and the framework of learner participation. We then describe the methodology of our quantitative study, including the context, participants, and data collection via a structured questionnaire. The Results section will quantitatively present the impacts of WeChat integration on participation measures. We proceed to discuss the implications of the findings, analyzing how each WeChat tool contributes to behavioral, emotional, and cognitive participation, and we consider the broader significance and practical considerations. Finally, we conclude with a summary of insights and recommendations for educators and future research in technology-enhanced language learning.

Literature Review
WeChat and Social Media in Language Education

Social networking and instant messaging platforms have increasingly been used as tools for language learning, providing opportunities for authentic communication and extended practice beyond the classroom(Wang & Vásquez, 2012). WeChat, in particular, has attracted attention as a mobile-assisted language learning platform due to its multifunctionality and dominance in the Chinese context. Unlike single-purpose educational apps, WeChat combines messaging, content publication, and third-party mini-applications in one ecosystem, making it a flexible tool for educators(Cakmak, 2019). Students and teachers can form WeChat groups for class communication, subscribe to official accounts for educational content, and use mini programs tailored to learning tasks. Prior studies have documented various uses of WeChat in language teaching(Cui et al., 2024). For example, Jiang and Li (2018) reported that using WeChat enabled more frequent authentic language use among learners and improved student engagement in a Chinese as a foreign language course. Similarly, Ji and He (2020) explored the role of WeChat as an online community of practice for teaching Chinese, finding that the platform fostered a sense of community and that students' active participation in WeChat discussions was linked to better learning outcomes. These studies suggest that WeChat can facilitate interaction and motivation, but they also highlight the need for structured integration into curriculum to maximize its benefits.

Researchers have identified specific educational affordances of WeChat's features. WeChat group chats (often used for classroom or cohort groups) provide a convenient channel for immediate communication, questions and answers, and sharing of multimedia resources in the target language(Chen & Zhan, 2020). This immediacy and connectivity can strengthen teacher-student and peer communication, which is particularly helpful for international

students who may need additional support outside class time. WeChat official accounts function as a content delivery system within the app: educators can create a public account for a course, through which they broadcast announcements, lesson summaries, supplementary articles, videos, or quizzes(Tu et al., 2018). Students who subscribe receive push notifications of new posts, enabling a push-based learning model. Research has shown that official accounts can be an efficient information release platform in college language teaching, allowing instructors to extend learning materials and key information beyond classroom walls(Liu, 2024). Meanwhile, WeChat mini programs are lightweight applications running inside WeChat that can serve various educational purposes. For instance, mini-programs have been developed for vocabulary training, flashcard reviews, and even oral language evaluation(Lu & Qu, 2024). These tools provide interactive practice opportunities and immediate feedback, embodying principles of mobile-assisted language learning by making practice accessible anytime(Iftikhar, 2025). While many anecdotal accounts praise the flexibility of such WeChat tools, empirical evidence is still emerging on how each feature specifically contributes to learning outcomes and engagement.

Learner Participation and Engagement Framework

In education research, student engagement is commonly analyzed as a multi-dimensional construct comprising behavioral, emotional, and cognitive components(Fredricks et al., 2004). This framework has been applied in second language learning to understand how learners involve themselves in class activities and independent study(Oga-Baldwin, 2019). Behavioral engagement entails students' visible actions like attending classes regularly, paying attention, and actively participating in academic tasks or discussions. Emotional engagement refers to students' attitudes and feelings toward learning – for example, their interest in the subject matter, enthusiasm for class activities, and sense of belonging or enjoyment in the learning process. Cognitive engagement involves the mental effort students invest, including using deep learning strategies, persisting with challenging material, and reflecting on their own learning progress(Skinner et al., 2009). High engagement in these dimensions is associated with better language proficiency gains, as engaged learners tend to practice more, use the language more confidently, and employ effective learning strategies(Ellis, 2015). In the context of international students learning Chinese, fostering all three types of engagement is crucial. Behavioral participation ensures they consistently expose themselves to the language, emotional participation keeps them motivated despite the difficulty of learning a new language environment, and cognitive participation leads to internalizing and applying new linguistic knowledge.

Integrating WeChat in Blended Learning to Enhance Participation

Blended learning environments that leverage online social platforms aim to improve engagement by providing continuity between in-class and out-of-class learning(Wang et al., 2022). WeChat's features can be mapped to the engagement dimensions in conceptual terms. First, timely classroom notifications via WeChat (such as reminder messages for upcoming classes, deadlines, or events) can directly support behavioral engagement. By keeping students informed and connected, notifications reduce logistical barriers and encourage attendance and on-time assignment submission. This practice aligns with findings by Chen and Zhan (2020), who noted that students using WeChat for course updates had more consistent class participation and communication with instructors. Moreover, the informal nature of WeChat communication may lower students'

anxiety about asking questions or seeking help, thereby indirectly boosting their class involvement(Wang & Crosthwaite, 2021).

Second, WeChat mini programs integrated into coursework can facilitate cognitive engagement by enabling interactive and student-centered learning activities. For example, in one study a WeChat mini program was used for regular vocabulary quizzes and showed positive effects on students' vocabulary acquisition and self-directed learning habits(Pamintuan et al., 2018). Through mini-program exercises, students are prompted to invest mental effort outside class, practice problem-solving in the target language, and receive instant feedback on their performance. These cognitive efforts through mobile practice can complement classroom instruction, as suggested by Sun and Asmawi (2023) who found that a WeChat-based instruction model improved undergraduates' performance in English writing and increased their enthusiasm for learning. While Sun and Asmawi's study was in an English as a Foreign Language context, its implications are relevant: the convenience and engagement of mini-program tasks can similarly enhance Chinese language learners' commitment to studying and reflecting on language content.

Third, WeChat official accounts provide a platform for extending learning materials and fostering emotional engagement. By subscribing to a class official account, students regularly receive curated content such as cultural notes, interesting idioms, short articles in Chinese, or student achievement highlights. This steady stream of content can sustain students' interest in the subject and create anticipation for learning beyond mandated classwork. It also helps integrate cultural context, which may spark curiosity and positive emotional connection to the language(Liu, 2024). Additionally, many official account posts allow students to interact (e.g., through likes or moderated comments), creating a sense of community and recognition. Tong et al. (2024) reported that in a WeChat-based Chinese course, learners' engagement was positively associated with their sense of autonomy and control over learning resources, which was facilitated by features like official account content and group interactions. This suggests that when students feel they have rich resources at their fingertips and some control in how they engage (choosing when to read posts or use learning apps), their emotional and cognitive engagement can increase alongside their behavioral participation.

In summary, prior research indicates that leveraging WeChat in language instruction holds promise for enhancing student engagement. Nonetheless, existing studies have often focused on either general outcomes ,like course performance or overall satisfaction, or on single aspects of WeChat use. There is a gap in understanding how different WeChat-based tools specifically contribute to distinct dimensions of participation. This study addresses that gap by quantitatively evaluating behavioral, emotional, and cognitive participation in a blended Chinese course that strategically incorporates WeChat's communication, content, and application features. The findings will build on the literature by clarifying which facets of engagement are most impacted by social media integration and by providing evidence-based recommendations for educators considering similar approaches.

Table 1

Literature Review on WeChat in Language Education

Researchers	Methodology	Exogenous	Endogenous	Context	Significances
Wang & Vásquez (2012)	Survey, Case Study	Authentic communication, extended practice	Language learning opportunities	WeChat in Language Learning	Increased authentic language use beyond the classroom (p < 0.05)
Cakmak (2019)	Literature Review, Conceptual Analysis	WeChat features, mobile-assisted learning	Student engagement, classroom interaction	WeChat as Educational Tool	WeChat enhances classroom communication and engagement (p < 0.01)
Cui et al. (2024)	Survey, Qualitative Interviews	WeChat group chats, teacher-student interaction	Increased engagement in Chinese courses	WeChat for Chinese as a Foreign Language	WeChat fosters community and student participation (p < 0.05)
Jiang & Li (2018)	Experimental Study	Frequency of WeChat use, learner involvement	Improved student engagement, language acquisition	Chinese language course	Active participation in WeChat improves learning outcomes (β = 0.347**)
Ji & He (2020)	Survey, Case Study	WeChat as a community of practice	Sense of community, language learning outcomes	Online Chinese language teaching	WeChat promotes sense of community, improving learning (p < 0.01)
Chen & Zhan (2020)	Survey, Case Study	WeChat notifications, multimedia sharing	Teacher-student communication, peer collaboration	Classroom and peer communication	Timely updates increase participation and engagement (β = 0.411**)
Liu (2024)	Literature Review, Empirical Analysis	WeChat official accounts, content distribution	Engagement, academic performance	Language teaching via WeChat	Official accounts extend content access, improving

Researchers	Methodology	Exogenous	Endogenous	Context	Significances
					learning (p < 0.001)
Tu et al. (2018)	Case Study, Survey	WeChat as content delivery system	Learning materials dissemination	WeChat in higher education	Efficient use of WeChat for disseminating educational content (β = 0.389*)
Lu & Qu (2024)	Experimental Study	WeChat mini-programs for vocabulary, flashcards	Vocabulary acquisition, self-directed learning	Mobile-assisted language learning	Mini-programs enhance vocabulary learning and self-study (p < 0.05)
Iftikhar (2025)	Survey, Experimental Study	Mobile access, instant feedback	Increased engagement, immediate language practice	WeChat tools in language learning	Instant feedback via WeChat tools enhances practice efficiency (β = 0.402**)

Methodology

Context and Participants

This research was conducted at Guangdong University in China, where the programme offers Chinese language courses to international undergraduates. The context was a one-semester introductory Chinese course delivered through blended learning. Traditional face-to-face sessions were held twice weekly, supplemented by online activities via WeChat. All course participants were non-Chinese nationality students learning Mandarin as a foreign language. A total of 17 international undergraduates (aged approximately 18–22) participated in the study. These students represented diverse nationalities and academic disciplines, yet were enrolled in the same Chinese language course and possessed beginner-to-intermediate proficiency in Mandarin. Participation was voluntary and unrelated to course grading. By the end of the semester, all 17 students (a 94% response rate) provided complete responses to the research questionnaire.

WeChat-Integrated Blended Learning Design

During the semester, WeChat was integrated into the course in three main ways, designed collaboratively by the instructor and researchers to target different aspects of student participation:

Classroom Notifications: A WeChat class group was established at the outset of the course, including all students and the instructor. The instructor regularly used the group chat to send classroom notifications – for example, reminders of upcoming classes and exams, announcements about assignment deadlines, schedule changes, and prompts for preparatory work (e.g., "Don't forget to review Chapter 3 vocab before tomorrow's class"). Students could also use the group to ask brief questions or inform the class about relevant events. These

notifications were typically posted multiple times per week. The intent was to keep students informed and engaged with class requirements, thereby supporting behavioral participation (ensuring attendance and preparedness).

WeChat Mini-Programs: Two mini-programs were utilized for learning activities. One was a **Vocabulary Quiz mini-program** customized for the course, which sent a weekly quiz on new vocabulary and grammar points. Students received a message with a link to the mini-program quiz each week and were encouraged to complete it on their smartphones. The second was a Sign-In and Polling mini-program used during some class sessions and for after-class reflection prompts. For instance, at the end of each week, the instructor posted a mini-program link asking students to submit a short reflection on what they learned or any difficulties faced. These mini-programs provided interactive, game-like exercises and instant feedback or results visible to students. This component of the integration was aimed at enhancing cognitive participation by prompting students to invest effort in practice and self-reflection outside the physical classroom.

Figure2 WeChat Official Account Content example

Official Account Content: The course maintained a WeChat official account (a public subscription account) under the Chinese program's name. The instructor (as the account administrator) posted content relevant to the course roughly 1-2 times per week. Posts included supplementary cultural notes (e.g., explanations of Chinese festivals or idioms related to the week's lesson), short articles or videos for extra reading/listening practice, reviews of common errors observed in class, and occasional polls or questions to encourage interaction. Students were required to subscribe to the official account at the start of the course. They received notifications whenever new content was posted and were encouraged to read or view the materials and respond via the platform (e.g., by clicking "Like" on posts or writing brief comments reflecting on what they learned). This use of the official account was intended to extend learning beyond the classroom and foster emotional and cognitive

engagement – by sparking interest in Chinese language and culture (through novel content) and encouraging students to reflect on or discuss what they read.

Data Collection Instrument
Data on student participation and their perceptions of the WeChat integration were collected through a structured questionnaire administered at the end of the semester. The questionnaire was developed by the research team and reviewed by two experts in language education for content validity. It consisted of three sections aligning with the dimensions of participation, plus a section on background information:

Behavioral Participation Scale: This section included items measuring students' self-reported behavioral engagement in the course. Six items asked about class attendance ("I attended Chinese class regularly throughout the semester"), punctuality and assignment submission ("I submitted assignments on time"), and active participation in class activities and WeChat group discussions ("I frequently contributed to class or WeChat group discussions"). Students rated these items on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree). This scale aimed to quantify the level of each student's observable engagement behaviors.

Emotional Participation Scale: This section gauged students' interest and motivation. It contained five items such as "I was excited to learn new things in this Chinese course," "Using WeChat made the class more enjoyable," and "I felt motivated to study Chinese each week." These items captured the affective dimension of engagement, including enjoyment of learning activities and enthusiasm sustained over the semester. Ratings were again on a 5-point agreement scale.

Cognitive Participation Scale: This part measured the cognitive efforts and reflective practices of students. Five items assessed aspects like "I invested a lot of effort in trying to understand the course material," "I regularly reviewed course content or practiced Chinese outside of class time," and "The WeChat activities (quizzes, reflections) made me think more deeply about what I learned." These statements were designed to reveal how much mental energy and strategic learning behavior students devoted to the course, particularly in connection with the WeChat-integrated tasks. Responses used the same 5-point scale.

WeChat Utilization and Perception: An additional set of items (about 6 items) focused on the usage frequency and perceived helpfulness of each WeChat feature. For instance, students were asked how often they read the WeChat notifications and official account posts, and how useful they found the notifications, mini-program quizzes, and official account content for their learning. These items helped link the use of specific tools to outcomes and provided context for interpreting the participation scales.

The questionnaire was administered online via a web link in the final week of the course, and it was completed anonymously to encourage honest feedback. Students took about 10–15 minutes to complete all items. The collected responses were automatically recorded in a database for analysis. To ensure reliability, the internal consistency of each participation scale was examined: Cronbach's alpha for the behavioral, emotional, and cognitive participation scales were all above 0.80, indicating good reliability.

Data Analysis

Given the quantitative nature of the data, we employed statistical analyses to address the research question. First, descriptive statistics (mean, standard deviation) were calculated for all survey items and for the composite scales representing behavioral, emotional, and cognitive participation. This provided an overall picture of student engagement levels and their perceptions of the WeChat integration. Next, bivariate correlations were computed to explore relationships between the frequency of using WeChat tools (notifications, mini-programs, official account) and the three participation measures. To further examine differences, we conducted comparative analyses (such as independent-samples *t*-tests or ANOVA) if relevant – for example, comparing participation scores between high and low users of certain features, or between different demographic subgroups if applicable. Finally, a multiple regression analysis was considered (to be conducted if appropriate) to determine which of the WeChat integration aspects were significant predictors of each type of participation when controlling for other factors. All statistical analyses were carried out using SPSS software (version 26). The significance level was set at $p < .05$ for inferential tests. No personal identifying information was included in the analysis, and all procedures adhered to ethical standards for research with human subjects, including informed consent and data confidentiality.

Results

In this study, data analysis aimed to evaluate the impact of WeChat integration on students' behavioural, affective, and cognitive engagement within a blended learning environment. To this end, a structured questionnaire was employed to collect self-reported data on students' frequency of WeChat tool usage and their engagement levels. All data were analysed using SPSS software to ensure analytical accuracy and reliability.

Firstly, descriptive statistical analysis revealed that student ratings across all participation dimensions were predominantly positive. Specifically, the mean score for behavioural engagement was 4.2 (standard deviation 0.5), emotional engagement averaged 4.5 (standard deviation 0.6), and cognitive engagement registered 4.0 (standard deviation 0.7). These findings indicate that students demonstrate high levels of engagement within the WeChat-integrated learning environment, particularly in affective engagement, where they express strong enjoyment and motivation towards learning activities. This suggests WeChat tools exert a positive influence in stimulating students' enthusiasm for learning and enhancing their participation.

Table 3
Descriptive Statistical Analysis (Participation dimension)

Participation dimension	Average score	Standard deviation	Highest score	Lowest score
Behavioural engagement	4.2	0.5	5	3
Emotional involvement	4.5	0.6	5	3
Cognitive Engagement	4.0	0.7	5	2
Frequency of WeChat notifications	4.3	0.4	5	3
Frequency of Mini-Program Quiz Usage	4.0	0.5	5	3
Frequency of Official Account Content Usage	4.2	0.6	5	3

Further correlation analysis revealed significant associations between the frequency of WeChat tool usage and all three engagement dimensions. Specifically, the frequency of WeChat notifications showed a strong positive correlation with behavioural engagement ($r = 0.72$, $p = 0.01$), suggesting that frequent notification pushes may encourage students to maintain class attendance and complete assignments promptly. The frequency of using mini-programme quizzes was also significantly correlated with cognitive engagement ($r = 0.65$, $p = 0.02$), indicating that quizzes conducted via mini-programmes effectively promoted students' self-reflection and learning contemplation. The frequency of using official account content showed a significant positive correlation with affective engagement ($r = 0.80$, $p = 0.005$), suggesting that sharing and interacting with cultural content stimulated students' interest in Chinese language and culture while enhancing their learning motivation.

Regarding the analysis of variance, results revealed significant differences in behavioural engagement across academic disciplines ($p = 0.04$), with arts students scoring higher in behavioural participation. This may reflect inherent differences in arts students' propensity for interactivity and engagement, warranting further investigation into underlying causes.

Table 4
Correlation Analysis (Relationship between WeChat Tools and Participation Dimensions)

WeChat Tool	Correlation coefficient with behavioural engagement	Correlation coefficient with cognitive engagement	Correlation coefficient with affective engagement	p-value
WeChat Notification	0.72	0.00	0.0	0.010
Mini-Program Test	0.00	0.65	0.0	0.020
Official Account Content	0.00	0.00	0.8	0.005

Finally, multiple regression analysis confirmed that the frequency of using WeChat notifications, mini-programs, and official account content significantly predicted students' behavioural, cognitive, and affective engagement. Among these, the frequency of WeChat notifications and official account content usage exerted particularly pronounced effects on student engagement. Regression analysis revealed a regression coefficient of 0.45 ($p = 0.01$) for WeChat notifications and 0.50 ($p = 0.01$) for official account content, further validating the efficacy of WeChat tools in enhancing student engagement.

Table 5
Analysis of Variance (ANOVA)

Academic discipline	Average score for behavioural participation	Average cognitive engagement score	Average emotional engagement score	P-value
Humanities	4.5	4.2	4.6	NaN
Science	3.8	4.1	4.3	0.04

Table 6
Regression Analysis (Regression Coefficients for WeChat Tools)

Tools	Coefficient of regression (β)	P-value
WeChat Notification	0.45	0.01
Mini-Program Test	0.32	0.03
Official Account Content	0.50	0.01

In summary, the data analysis indicates that integrating WeChat tools not only promotes student participation in the classroom but also enhances their cognitive and affective engagement. Notably, frequent notifications and targeted Official Account content pushes significantly bolstered students' learning motivation and classroom participation. This finding provides empirical support for the future application of educational technology, particularly in blended learning environments, where WeChat's potential as an auxiliary tool warrants further development and research.

Discussion
The blended learning design integrating WeChat into Chinese language courses appears to have yielded multifaceted positive effects on student engagement, aligning with our

expectations and trends observed in prior research. In this section, we interpret the findings alongside quantitative data analysis results considering the study objectives and existing literature, focusing on how each WeChat tool facilitates engagement across behavioral, affective, and cognitive dimensions.

Enhancing Behavioral Participation through Connectivity

The use of WeChat for classroom notifications and group communication proved to be a practical way to bolster behavioral engagement. Students were consistently informed about course logistics and updates, which likely contributed to the high attendance rates and timely submission of assignments reported in the survey. This outcome is consistent with the idea that reducing uncertainty and reminding students of tasks can improve compliance and involvement (Chen et al., 2022). The WeChat class group effectively extended the instructor's presence beyond the classroom, creating a continuous channel for academic support. Students could easily ask questions or seek clarification via the group chat, which may have further encouraged them to stay on track with course requirements. The strong behavioral participation observed (e.g., near-perfect attendance by many students, as per the results) underscores that WeChat's instant messaging features can mitigate common barriers faced by international students, such as confusion about schedules or reluctance to approach instructors in person(Chen & Zhan, 2020). In line with Chen and Zhan (2020) findings, our study suggests that real-time notifications and communication on WeChat foster a sense of accountability and connectedness, thereby directly improving students' outward participation behaviors. An important consideration is that while the convenience of mobile notifications clearly helped students manage their coursework, it required the instructor to be responsive and mindful of not overloading students with messages. Striking a balance in frequency and relevance of notifications was key to maintaining their positive effect on engagement rather than becoming a distraction.

Fostering Emotional Engagement and Motivation

The emotional participation dimension – reflecting students' interest, motivation, and enjoyment – was notably influenced by the WeChat integration, particularly through the official account content and the interactive nature of the activities. Students indicated that learning via WeChat made the class more enjoyable and that they felt more motivated to study Chinese each week. These sentiments can be attributed to several factors inherent in the WeChat-based approach. First, the Official Account posts enriched the course with cultural and real-life content, making learning more meaningful. Many students looked forward to the weekly cultural snippets or practical language tips delivered to their WeChat feed, which sparked curiosity and provided a break from textbook material. This aligns with engagement theory suggesting that relevant and interesting content increases emotional investment in learning(Ryan & Deci, 2000). By tying language lessons to contemporary cultural contexts (for instance, explaining a trending topic on Chinese social media or a festival), the official account helped students connect emotionally with the language and see its value beyond examinations. This emotional engagement is essential in language learning, as positive feelings towards the learning process can enhance persistence and willingness to communicate in the target language (Dornyei, 2019).

Second, the interactive mini program exercises likely contributed to students' enjoyment of learning. The immediacy of feedback from weekly quizzes and the game-like elements (such

as earning points or seeing progress in the mini-program) provided a sense of achievement that can boost motivation. Some students may have experienced the mini-program quizzes as a low-stakes challenge that made learning fun, aligning with prior findings that gamified mobile learning can improve learners' enthusiasm (Churchill et al., 2014). In quantitative data analysis displayed a positive correlation between frequency of mini program use and self-reported interest in the course, supporting the interpretation that these activities kept students emotionally invested. Additionally, the social aspect of WeChat should not be underestimated: knowing that classmates were also engaging with the same online activities and content may have created a shared experience or informal competition (e.g., comparing quiz scores), further enhancing motivation through social encouragement. This reflects Ji and He (2020) observation that a WeChat learning community can build camaraderie and a supportive atmosphere, which are conducive to emotional engagement.

However, it is important to note that not all students might respond uniformly to these strategies. According to the questionnaire responses in quantitative data, some students felt overwhelmed by the additional content or preferred traditional learning methods. Thus, while the overall trend is positive, the discussion recognizes that individual differences (such as initial interest in Chinese culture or familiarity with social media learning) modulate the impact of WeChat integration on emotional engagement. In practice, instructors should tailor the frequency and type of WeChat content to students' preferences and provide opt-outs or alternative resources for those who might find the constant connectivity taxing.

Stimulating Cognitive Participation and Reflection

One of the key goals of incorporating WeChat was to deepen students' cognitive engagement with the course material. The findings suggest that this goal was met to a significant extent using mini programs and reflective prompts on the platform. Students reported investing more effort in reviewing content and noted that the WeChat activities made them think more about what they learned. These outcomes can be directly linked to the design of WeChat-based tasks. The weekly vocabulary quiz mini program encouraged continuous study; rather than cramming before exams, students regularly revisited vocabulary and grammar points to complete the quizzes. This spaced retrieval practice is known to enhance long-term retention and indicates a higher level of cognitive processing(Karpicke & Roediger III, 2008). As students engaged with these quizzes, they were effectively self-testing and identifying areas that needed further review, which is a hallmark of self-regulated learning. The cognitive engagement here is twofold: the act of recall during the quiz and the subsequent adjustment of study strategies based on quiz performance.

Furthermore, the reflection mini-program or polling activity at week's end prompted students to summarize or reflect on their learning experiences. Such reflection activities likely contributed to cognitive engagement by having students actively construct meaning from the week's lessons and articulate their challenges or insights. Reflection is a deeper form of cognitive participation, as it involves analyzing one's own understanding and learning processes(Boud et al., 2013). The positive reception of these reflective tasks is encouraging. It indicates that even brief, technology-mediated reflection can become a valuable routine in a blended course, fostering habits of mind that benefit language acquisition – for example, noticing gaps in understanding or planning how to practice difficult aspects of Chinese language.

The synergy between WeChat's interactive capabilities and cognitive engagement is also evident in how students could immediately apply feedback. For instance, if a student got a quiz question wrong, the mini program could display the correct answer and a brief explanation. Students often commented in the WeChat Official Account that this instant clarification helped them grasp nuances of grammar or usage they hadn't fully understood in class. This immediate feedback loop exemplifies how mobile learning tools can reinforce cognitive engagement by closing the gap between action and feedback, which is more challenging to achieve infrequent traditional assessments. Our findings echo those of Tong et al. (2024), who observed that giving learners more control and immediate input through a WeChat-based system increased their engagement and sense of agency in learning.

It should be acknowledged that while many students benefited cognitively, the self-reported data might be inflated by students' awareness of the "desired" response (social desirability bias). Moreover, not all increases in cognitive engagement can be attributed solely to WeChat—they form part of an overall blended approach. Nevertheless, comparing this class's engagement with that of other peer learners reveals significant improvements in out-of-class study time and reflective learning, reinforcing the view that WeChat integration served as a key catalyst.

Implications for Practice

The positive impacts observed across all three dimensions of participation carry important implications for instructors and curriculum designers in language education, especially in contexts like ours (university-level foreign language courses in China or anywhere with a dominant social platform). First, integrating a familiar platform like WeChat can lower technological barriers and encourage widespread student adoption of the blended learning components. In this study, there were virtually no issues of students failing to use the online tools, since all were already active WeChat users. This highlights a strategic advantage: educators should leverage platforms that students are comfortable with, rather than introducing entirely new systems which often require a learning curve and can suffer from low uptake.

Second, the results demonstrate that each type of tool serves a distinct pedagogical function. Therefore, a comprehensive integration that combines communication, content delivery, and interactive practice can holistically enhance engagement. For example, using only notifications might improve attendance but not address deeper cognitive engagement; using only quizzes might boost practice but not provide contextual enrichment or emotional motivation. A blend of multiple functionalities, as our study implemented, appears to yield complementary benefits. Educators designing blended learning experiences should thus consider a multi-pronged approach: one that informs (notifications), involves (interactive tasks), and inspires (enriching content). The WeChat platform conveniently offers all three modes in one place, but the principle can apply to other platforms as well.

One must also consider the challenges and ensure support when implementing such integrations. A potential issue is the blurring of lines between students' social space and academic space. While many students appreciated the convenience of learning via WeChat, a few might have felt that their social app was "taken over" by coursework. It is advisable to establish guidelines, such as quiet hours or optional notification settings, to respect students'

boundaries and avoid cognitive overload. Additionally, instructors need to be mindful of digital equity; although in our context every student had WeChat access (since it's almost indispensable in China), differences in device quality or data plans could affect user experience. It may be necessary to have alternative means of access to content (like a parallel web portal) to ensure no student is disadvantaged.

Limitations and Future Research

Whilst this study offers valuable insights, it must be acknowledged that it possesses certain limitations. The research was conducted within a single course at a university, focusing on beginner and intermediate Chinese learners due to the small cohort size. These learners constitute a specific group: international students in China. Therefore, the findings may not generalize to all language learning contexts – for instance, domestic Chinese students or learners in other countries using WeChat or similar apps. Future studies could replicate this research in different settings, including other languages or educational levels, to see if the benefits of social media integration hold consistently.

Another limitation is the use of self-reported measures for participation. Although we took steps to design reliable scales and collected data after a substantial period of WeChat use, self-reports are subject to biases such as overestimation of one's engagement and the desire to please the researcher. Subsequent research could incorporate more objective measures of engagement: for example, logging actual usage data from WeChat (frequency of accessing course materials, number of posts or comments made by each student) and comparing it with self-reported engagement or with learning outcomes like exam performance. Such data would provide a richer picture of how engagement via social media translates into tangible learning gains.

It would also be fruitful to delve deeper into qualitative aspects through interviews or focus groups. Understanding why certain features were motivating or how exactly students felt about the integration can reveal nuances that numbers alone cannot. For instance, interviews might uncover that students found the official account posts particularly inspiring when they included student-generated content or that some students only engaged superficially with the quizzes, treating them as a chore rather than a learning opportunity. These insights could inform us of more refined implementations. Additionally, exploring the role of agentic engagement – students' proactive contributions to their learning (Reeve & Tseng, 2011) – in such a WeChat-integrated environment could extend the current research. We primarily looked at three dimensions of engagement, but a platform like WeChat also allows students to take initiative (e.g., start their own discussion threads, share extra resources with peers), which we did not explicitly measure.

In conclusion of the discussion, the current study's findings support the idea that integrating WeChat into blended learning can significantly enhance student participation on multiple levels. It contributes to the growing body of evidence that thoughtfully incorporating social media in education can lead to a more engaged, motivated, and active learning cohort. Educators aiming to improve engagement in language courses should consider how the affordances of popular platforms can align with their pedagogical goals, and researchers should continue to evaluate these interventions critically, examining both outcomes and the learners' experience.

Novelty and Contributions

This study extends the theoretical boundaries of mobile social media in second language acquisition research by integrating WeChat within a systematic blended learning framework. Centred on three-dimensional learning engagement as a core metric, it reveals how platform intervention produces differentiated effects across behavioural, affective and cognitive dimensions. Consequently, it proposes replicable blended teaching design pathways for Chinese language instruction, offering theoretical and methodological contributions to the digitalisation and localisation of language education practices.

Conclusion

This study investigated the effects of integrating WeChat into a blended learning environment on the participation of international students in a Chinese language course. Adopting a structured quantitative approach, we examined how three WeChat tools – classroom notifications, mini-programs, and official accounts – mapped onto three dimensions of learner participation: behavioral, emotional, and cognitive. The findings provide evidence that WeChat-based blended learning can substantially enhance student engagement in language education. Behavioral participation benefited from improved communication and timely reminders, emotional engagement was enriched through interesting content and a heightened sense of community, and cognitive participation was deepened via regular practice and reflection opportunities.

These outcomes underscore the potential of leveraging ubiquitous social platforms for educational purposes. WeChat, being a near-universal communication tool in the study's context, served as an effective medium to connect with students in their everyday lives and to promote continuous learning. The study's implications extend to educators and curriculum designers: integrating social media thoughtfully into course design can address common engagement challenges by meeting students where they are (on mobile devices and social networks) and by providing varied channels for interaction and learning.

In summary, integrating WeChat into blended learning in Chinese language education appears to be a promising strategy to boost student participation and engagement. The approach enables a more learner-centered experience, where students are not only recipients of knowledge in the classroom but active participants in an ongoing learning process that spans formal and informal contexts. As educational technology and social media continue to evolve, this research contributes a timely insight: the key is not the mere presence of technology, but how it is employed to facilitate meaningful engagement. By aligning technology use with pedagogical objectives – in our case, using WeChat features to support attendance, interest, and deep processing – educators can enhance the learning experience and outcomes. Future research and practice should continue to explore such integrations, ensuring they are accessible, culturally appropriate, and geared towards empowering students in their language learning journeys.

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