Unearthing the potentials and challenges of technology-assisted language learning (TALL) in L2 contexts: Chinese EFL teachers' voices disclosed

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ABSTRACT: Several studies have been done on technology-assisted language learning (TALL) in English as a foreign language (EFL) context. However, there is a dearth of evidence on the potentials and challenges of TALL in China, as a large community of English users. To address the gap, this qualitative study explored the perceptions of 36 Chinese EFL teachers using a semi-structured interview. The results of thematic analysis showed a range of potentials and challenges for TALL from the perspective of EFL teachers. Particularly, it was found that TALL is beneficial for 'personalized L2 learning', 'immediate feedback provision', 'enriching learning content and materials', 'enhancing learning efficacy', 'adding spirit and joy to L2 learning', and 'fostering autonomous learning'. Regarding the challenges, the findings indicated that TALL requires 'technological literacy', 'teacher training', 'teacher role shift', 'technical and financial support', and 'privacy and security considerations'. The findings are discussed and practical implications are offered to EFL teachers, educational policymakers, and administrators to facilitate the use of TALL in language education by addressing the challenges and augmenting the potentials.
Keywords: EFL teacher, technology-assisted language learning (TALL), English language learning, thematic analysis

Descubriendo las potencialidades y desafíos del aprendizaje del idioma asistido por tecnología (TALL) en contextos de L2: voces reveladas de los profesores de inglés como lengua extranjera (EFL) en China

RESUMEN: Se han realizado varios estudios sobre el aprendizaje de idiomas asistido por tecnología (TALL, por sus siglas en inglés) en el contexto del inglés como idioma extranjero (EFL, por sus siglas en inglés). Sin embargo, hay escasa evidencia sobre los potenciales y los desafíos del TALL en China, que cuenta con una gran comunidad de usuarios del inglés. Con el fin de cubrir esa laguna, este estudio cualitativo exploró las percepciones de 36 profesores chinos de EFL mediante una entrevista semiestructurada. Los resultados del análisis temático mostraron una serie de potenciales y desafíos del TALL desde la perspectiva de los profesores de EFL. En particular, se encontró que el TALL es beneficioso para «el aprendizaje personalizado de una segunda lengua (L2, por sus siglas en inglés)», «la provisión de retroalimentación

inmediata», «el enriquecimiento del contenido y los materiales de aprendizaje», «la mejora de la eficacia del aprendizaje», «la adición de ánimo y alegría al aprendizaje de una L2» y «el fomento del aprendizaje autónomo». En lo que respecta a los desafíos, los hallazgos indicaron que el TALL requiere «alfabetización tecnológica», «capacitación docente», «un cambio en el rol de los profesores», «apoyo técnico y económico» y «consideraciones sobre la privacidad y la seguridad». Se discuten los hallazgos y se ofrecen implicaciones prácticas para los profesores de EFL, los responsables de formular políticas educativas y los administradores, a fin de facilitar el uso del TALL en la educación de idiomas, abordando los desafíos y aumentando los potenciales.

Palabras clave: Profesor de EFL, aprendizaje del idioma asistido por tecnología (TALL), aprendizaje del idioma inglés, análisis temático

1. Introduction

With the ubiquitous availability of technology, research on the role of technology in language learning is flourishing in second/foreign language (L2) milieus (e.g., Buddha et al., 2024; Ghufron & Nurdianingsih, 2021; Liu & Wang, 2024; Lu et al., 2024; Shadiev & Yang, 2020). In accordance with the pervasiveness technology-related devices such as tablets, personal computers, and smartphones, the concept of Technology Assisted Language Learning (TALL) has emerged in language education (Ko, 2017; Zhi & Wang, 2024). TALL is conceptualized as a broader concept including all technological advancements beyond the mere of computers for educational purposes (Jaloliddin, 2020). In this sense, TALL encompasses myriad devices, which can be utilized with the potent aim of boosting language learning outcomes. Seminal studies in the field ascertain that drawing on technological affordances can cater for different learning styles, various modes of interaction, and authentic communication (Buddha et al., 2024; Jaloliddin, 2020; Ko, 2017; Qi & Derakhshan, 2025).

In a quest to optimize language learning and teaching, educators and researchers have strived to implement TALL in their actual practices, fostering effective language learning experiences (Buddha et al., 2024; Xin & Derakhshan, 2025). With the advent of TALL, a burgeoning number of studies have endorsed the potential of technology adoption (Colpaert & Stockwell, 2022; Lai, 2019; Zbar & Ali, 2024). Leveraging technology-assisted instruction in L2 classrooms can culminate in collaborative instruction, interactional activities, and effective input provision (Lin et al., 2020; Regina & Devi, 2022). Additionally, by offering accessible data to learners, it will accelerate the learning process (Hsu & Lin, 2022). On the other hand, technology-driven language learning may involve several challenges, including insufficient technology literacy of both teachers and learners (Buddha et al., 2024; Huo, 2019), lack of required infrastructure for enactment of TALL (Ataeifar et al., 2019), and negative impacts upon learners' well-being (Shadiev & Yang, 2020).

Despite the literature on diverse contributions and setbacks of TALL in educational settings, the L2 literature on EFL teachers' attitudes toward TALL affordances and challenges remains blurry. Furthermore, a careful scrutiny of the literature yields that prior studies have predominantly inspected learners' perspectives toward TALL implementation (Ko, 2017) and few, if any, studies have attempted to inspect EFL teachers' perceptions. Accordingly, to address the aforementioned gaps, this study sets out to unveil EFL teachers' perceptions about the potentials and challenges of TALL in L2 education domains. The present study,

hence, enriches the literature by contributing fruitful insights into how teachers' perceptions of TALL may affect their adoption of technologies in their L2 instruction.

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2.1. Technology-Assisted Language Learning

The exponential growth in technology has led to a revolution in educational milieus due to its potential to affect students' attitudes toward learning, performance, and interest as compared to conventional methods of teaching (Buddha et al., 2024). Technology has been identified as something that supports, fosters, assists, or triggers learning, which will undoubtedly serve a crucial role in language learning (Kern, 2006). The pivotal role of technology in language education has been accentuated by pioneering studies in the field (e.g., Blake, 2011; Chapelle, 2007; Otto, 2017) and an alluring line of inquiry into the influences of technology on diverse aspects of L2 education has prevailed the literature during recent years (e.g., Ataeifar et al., 2019; Bahari & Li, 2024). Within this direction, abundant exploitation of different technological tools has led to the coinage of TALL, which is perceived to enhance effective language learning (Ko, 2017). TALL includes two sub-categories entailing computer-assisted language learning (CALL) and mobile-assisted language learning (MALL) with the former encompassing the use of computer to develop language learning skills and the latter addressing the learning, which is facilitated by the use of mobile devices (Ghufron & Nurdianingsih; 2021; Zain & Bowles, 2021). CALL has provided feedback-generating platforms, which can accelerate instruction of language skills (Li et al., 2017). Similarly, CALL enables collaborative-based language learning through its interactive instruction (Kılıckaya, 2013). Relatedly, MALL, which offers both portability and connectivity, promotes the growth of online learning, including hybrid or fully online classes (Blake, 2011).

The spread of COVID-19 has expedited the technology incorporation in L2 education settings (Aghaei et al., 2022) and inspired instructors to employ a greater amount of technology in their instructional practices. Endorsing the prominence of embedding TALL as a crucial aspect of language education, Lomicka and Lord (2019) declared that TALL "must be normalized at the heart of all organizations" (p. 19). By emphasizing the shift in attention from conventional methods to technology-driven approaches, Otto (2017) remarks that technology has gained popularity in education by acting as a major source of content and conduct for educational researchers in augmenting authentic language learning situations, which can resolve the complexities of language learning and teaching. Contrary to traditional classes, technology-enabled classes put the emphasis on output production through the use of writing, grammar, and vocabulary (Buddha et al., 2024) to enable learners to interact in real-life contexts. However, it is essential to point out that technology is expanding so rapidly that instructors may fail to keep abreast of such exponential growth (Lomicka & Lord, 2019). In this regard, since teachers are the main performers of technology enactment, holding professional development courses, which foster teachers' cognizance of TALL and its benefits and setbacks, merits attention from stakeholders (Huo, 2019).

2.2. The Contributions and Potentials of Technology-Assisted Language Learning

The implementation of TALL has brought to the fore numerous potentials and benefits for both educators and learners in L2 academic environments. The affordances that TALL provides contribute to language learning in relation to pedagogical instruction, assessment procedures, and research purposes (Li, 2022). In terms of the pedagogical affordance, it is attested that feedback provision facilitates learning processes due to the dynamism of learner differences (Li et al., 2021). Moreover, TALL nurtures interactional tasks, provides enhanced input, increases vocabulary retention through games, and nurtures collaborative education (Lin et al., 2020; Regina & Devi, 2022). Likewise, the use of technology accelerates the learning process since it provides accessible data to language learners regardless of time and place (Hsu & Lin, 2022). More importantly, Colpaert and Stockwell (2022) ascertain that the inclusion of technology in language education cultivates authentic communication between learners and native speakers and also offers authentic materials as the content of the course. Technology-assisted learning enables learners to acquire language skills by employing the assistance of instructors and technological resources at the same time (Gros, 2016). Additionally, such technology-enabled learning tailors education based on individual learning styles and preferences (Zbar & Ali, 2024). It is argued that TALL will contribute to the development of students' language performance, language retention, and metacognitive abilities (Buddha et al., 2024). It is also noteworthy that by drawing on TALL affordances, teachers can design a diverse range of tasks more effectively based on learners' individual differences (Shadiev & Yang, 2020).

As for the assessment, it is highlighted that TALL facilitates language assessment through providing learner-centered assessments, which improve learners' attitudes toward assessment and boost their confidence (Milliner & Barr, 2020). Technology-mediated education can assess learners and then fulfill their individualized needs based on their test performance (Kaur et al., 2023). Regarding the research functionality of TALL, it is postulated that incorporating TALL aids researchers in augmenting rigor in research studies through exerting more control over the instructional conditions in research projects and engendering more reliable sources of data collection (Chapelle, 2007). On the other hand, the idiosyncratic features of technology in language learning contexts have ushered in the reconsideration of SLA theories with regard to technology inclusion (Chapelle, 2007). In this sense, TALL may affect diverse fields such as semantics, pragmatics, discourse, and so forth (Bahari & Li, 2024). It should also be noted that technology involvement is inclined to boost learners' motivation and interest in the language learning process (Shadiev & Yang, 2020). In the same vein, technology embedded in academic settings has the propensity to affect learners' engagement (Günüç & Kuzu, 2014) by providing learners with the ability to utilize language in real-life contexts.

2.3. The Challenges of Technology-Assisted Language Learning

In addition to technology contributions, TALL implementation has encountered a number of challenges in educational environments (Wang & Heffernan, 2010). One prominent challenge pertains teachers' and learners' technology literacy as a pivotal factor in the successful implementation of TALL. Concerning teachers, employing TALL in language

classes necessitates that teachers grasp sufficient knowledge about technologies, which may require a noticeable amount of money and time (Felix, 2002). Furthermore, language teachers may not be cognizant of what materials can best serve their purposes for utilizing CALL or MALL technologies (Huo, 219) since teachers may not have adequate knowledge about computer technologies and software designs to choose the appropriate materials and technology accordingly. Regarding learners, they are often unaware of how they can utilize technology for effective language learning, which results in incorrect utilization of technology affordances (Buddha, et al., 2024). Hence, adequate training is needed to train both educators and learners on how to exploit TALL efficiently (Buddha et al., 2024).

The other major challenge addresses technological impediments that may hamper TALL implementation. As regards mobile-assisted learning, poor internet connections and network access are found to pose challenges for students in accomplishing their online tasks, namely reading material, watching videos, and finishing assignments (Ataeifar et al., 2019). Likewise, teachers need to have access to technological equipment and have knowledge of audio-visual constraints (Tafazoli et al., 2018). Additionally, drawing on TALL and its affordances may be costly for many educational institutions, which have a tight budget (Huo, 2019). Another problem faced is lack of creativity in the utilization of technology since students will draw on such resources blindly and neglect the role of thinking and creativity (Huo, 2019). In this sense, Buddha et al. (2024) refer to barriers to using TALL such as shallow interactions, inaccurate feedback, and inappropriate input. In addition, CALL, as one of the sub-branches of TALL, does not offer intelligent feedback and cannot cater for learners' different levels of proficiencies and their learning preferences (Huang et al., 2021).

On the other hand, Shadiev and Yang (2020) maintain that technology integration can exert detrimental effects on learners by invoking negative emotions like anxiety, stress, discomfort, and increased cognitive load. Similarly, Kurt and Bensen (2017) demonstrated that students undergo frustration when using a mobile application to finish a task due to the complex and arduous nature of tasks. Likewise, due to the lack of familiarity with the learning condition, students may also feel nervous and confused when using technological advancements (Bailey, 2019). In addition, it is asserted that students experience cognitive overload when reading text using the smaller screens of mobile phones (Yu, 2018).

Despite the significance of researching the potentials and setbacks of TALL, existing research has not adequately unraveled EFL teachers' attitudes toward the use of TALL in language educational milieus. Notwithstanding the myriad publications on the subject of technology in L2 education, there is an evident dearth of research on teachers' perceptions regarding the contributions and challenges of TALL. Specific types of technologies like AI have been studied in terms of benefits and challenges (Derakhshan & Ghiasvand, 2024), but TALL as a whole concept has received insufficient attention. Moreover, qualitative investigations on teachers' real-life experiences and perceptions of TALL are missing in the literature. Inspired by these gaps in knowledge, this study embarks on the journey to uncover EFL teachers' perceptions about TALL and its benefits and setbacks in EFL setting. The study intends to answer the following research question:

RQ: What are the potentials and challenges of technology-assisted language learning (TALL) from the perspective of Chinese EFL teachers?

3. Method

3.1. Participants and Context

Through convenience sampling, a group of 36 Chinese EFL teachers took part in this qualitative study. In the sample, there were 13 males (36%) and 23 females (64%). They were teaching English at several universities across different regions in China. The age factor ranged from 33 to 50 years old. The teachers held MA (26) and Ph. D. degrees (10) in English language and literature (12), Applied linguistics (11), English translation (8), and foreign linguistics (5). They were proficient users of English. Of the sample, 34 teachers had a teaching experience above 15 years, and two teachers had taught English for five years.

3.2. Semi-Structured Interview

In order to unpack the teachers' perceptions about TALL, a semi-structured interview was conducted carefully. Since the participants were from different universities, the interview was held online. There were three open-ended interview questions after a demographics section (Appendix). The questions focused on the potentials and challenges of TALL from the perspective of EFL teachers. The interview was done in English and during the teachers' free time as agreed in advance. The sessions were audio-recorded for later transcriptions. Each interview lasted about 15 minutes.

3.3. Data Collection Procedure

The data collection of this study lasted two weeks. At first, the interview questions were developed based on the research question. Previous related studies on TALL were also consulted during the composition of the interview items (e.g., Buddha et al., 2024; Chapelle, 2007; Ko, 2017; Zhi & Wang, 2024). Then, two experts in qualitative research were invited to check the content validity of the interview questions. From the initial five items, two items were considered overlapping and were suggested to be mixed together. An item was also recommended to be removed from the item-set, leaving the interview with three open-ended questions. For teachers' convenience, the interviews were held online and during non-instructional times. They were mostly held on weekends. The privacy and confidentiality of identity and responses were guaranteed. No conflict of interest existed. The teachers willingly attended the interviews. A friendly and interactive interview was carried out with each teacher separately. Probing questions and clarification requests were posed whenever required. The interviewees were encouraged to explain their experiences and perceptions in detail. The interview sessions were audio-recorded. After two weeks, all the participants successfully completed their interviews. On December 15, 2024, the data collection terminated. The data were sorted for a thematic analysis, as explicated in the following section.

3.4. Data Analysis

The collected data of this study went through a careful thematic analysis. This qualitative technique is common in analyzing interviews. Braun and Clarke's (2006) model of thematic analysis was drawn on during the analysis (Figure 1). In particular, the interview transcripts were firstly read and re-read several times. The researcher immersed in the data to be familiar with the ideas.
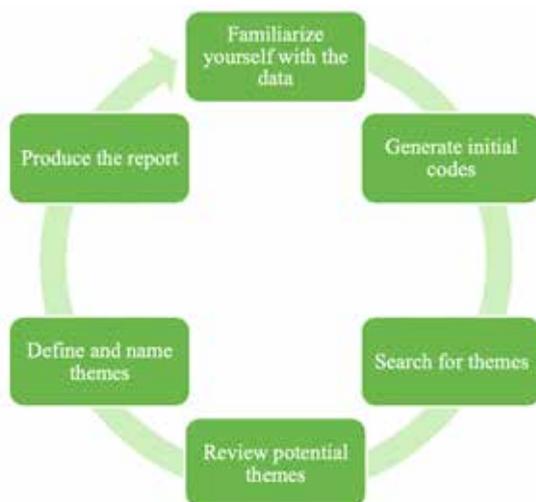

Figure 1. *Thematic Analysis Stages*

Second, the data were chunked and different segments were highlighted and underlined. Initial codes were created from those salient segments. The next step was searching for themes out of the extracted initial codes. Six themes were created after putting the initial codes together. For example, '*technology makes learning efficacious*' and '*technology brings effectiveness*' were combined to generate the theme, '*TALL enhances learning efficac*'. To check the quality of extracted themes, they were reviewed once more. Redundant ideas were removed. The goal was to ensure that the themes reflect the data. Afterwards, the themes were given clear, succinct, and evocative names that could contribute to the overall analysis. Engaging phrases were used to label themes. Lastly, the themes were woven together in order to offer a coherent and compelling report of the findings with sample excerpts and interpretations.

To ensure the credibility of the findings, member-checking was done by inviting the teachers to review the data and the extracted themes. Concerning confirmability, another researcher examined all the stages of data analysis (also called auditing). To establish the dependability and transferability of the findings, a thick description of the research context, participants, and data collection procedures was provided that could foster the replication of the study in other contexts. Additionally, transparency was ensured by developing a codebook during the analysis of the data.

Regarding positionality, the researcher took an outsider position during the data collection and analysis and excluded personal previous experiences, beliefs, and values as an EFL teacher.

4. Findings

The last two interview questions were analyzed via thematic analysis to unveil the potential and challenges of TALL from the view of Chinese EFL teachers. Specifically, the analysis of the second interview question revealed that TALL had six areas of potential (Figure 2). The first common theme posed in the interviews was the potentials of TALL in providing a 'personalized L2 learning' for EFL students. As noted by T3, "*technologies can offer personalized learning paths based on students' learning progress, level of knowledge mastery, and other factors. Students can arrange their learning plans according to their own time and learning abilities*". Moreover, it was claimed that "*TALL is learner-centered and this makes learning personalized with high engagement and participation*" (T30). It means that TALL tailors and tunes learning to learners and their interests and levels. The second extracted potential of TALL has been its capacity to provide 'immediate feedback'. As noted by a teacher, "*the scoring system and progress bars in games can provide students with immediate feedback, helping them understand their learning progress*" (T31). It was further mentioned that "*technologies provide real-time feedback for students*" (T4).

1	Personalized L2 Learning (18)
2	Immediate Feedback Provision (16)
3	Enriching Learning Content and Materials (15)
4	Enhancing Learning Efficacy (13)
5	Adding Spirit and Joy to L2 Learning (10)
6	Fostering Autonomous Learning (7)

Figure 2. *Chinese EFL Teachers' Perceived Potentials of TALL*

The capability of technologies in providing diverse, rich, and authentic materials for L2 learning was the next pinpointed potential. In this regard, it was declared that "*technologies provide a vast amount of English learning materials, enabling students to access the most authentic English expressions and understand language usage in different cultural contexts*" (T3). TALL goes beyond textbooks in that "*the content that it provides is really rich and diverse. It expands the materials related to the content of the textbook*" (T2). The accessibility of mass data on the net provides numerous learning materials. The next potential of TALL is that it 'enhances learning efficacy' in the sense that "*technology integration in L2 classes can improve learning efficiency, allowing students to grasp the taught content more intuitively*" (T5). Comparing it with traditional instruction, T13 argued that "*the use of technologies in L2 classes makes learners efficient and proficient English users because they become multi-literate learners*". Another teacher stated, "*L2 learning in light of TALL is more efficacious because students gain pure literacy and look for operational skills*" (T11). Trying to provide a real example for this theme, T 34 noted "*the personalized recommen-*

dation system of the Zhihuishu platform can help students find suitable learning resources and improve learning efficiency".

The fifth benefit of TALL was related to the spirit of learning. It was claimed that TALL 'adds spirit and joy to l2 learning'. As noted by T6, "technologies can enhance students' interest in learning and escape the dullness of traditional classrooms. They make L2 learning joyous and enjoyable for learners". Another person maintained "*with TALL, students can use various functions and enjoy learning. It is much better than rigid traditional teacher-centered instruction*" (T33). The interactive and novelty of technologies makes learners engaged in the learning process. Hence, they find it enjoyable. The last potential concerned the capacity of TALL in 'fostering autonomous learning'. According to T20, "*with technology, learners are active agents of their own learning process. They drive and direct the process*". Referring to two sample technologies in China, a respondent declared:

> "*TALL encourages students to explore and learn independently. Through the rich resources and customizable learning paths provided by platforms like Super Star Learn and Doubao, students can autonomously select learning content and pace based on their interests and needs, cultivating their autonomous learning abilities and self-management skills" (T15).*

The tendency of students in the digital era to independently learn English was due to "*the availability of myriads of learning platforms and sources in which learners can autonomously learn without time and space pressure*" (T31). Another interviewee stated "*with TALL, students learn independently because they are non-reliant on the presence of a teacher. Everything is solvable by a simple search or a click*" (T8).

Concerning the challenges of TALL, the results revealed five major challenges of TALL (Figure 3). The first perceived challenge was the need for 'technological literacy' on the part of both teachers and students when using technologies in L2 classes. As stressed by a participant, "*teachers need to have a deep understanding of technology and be proficient in how to integrate technology into L2 teaching*" (T1). Without technological literacy, it would be difficult to integrate technologies into L2 education. To address this challenge, the participants further pointed to the needs for 'teacher training' regarding TALL. In many contexts, such a professional support is limitedly provided. As noted by T3, "*teachers need to continuously update and master new technological means, but they lack centralized training and guidance*". Training is critical because "*teachers may overly focus on the "flashy" aspects of technological means while neglecting the content and quality of teaching*" (T3). Another reason for having training on TALL was that "*teachers need to undergo training on various technological devices and become particularly familiar with them. This finally affects their teaching effectiveness*" (T8).

1   Technological Literacy Demands (15)
2   Teacher Training Needs (13)
3   Teacher Role Shift (11)
4   Privacy and Security Concerns (9)
5   Technical and Financial Support (8)

Figure 3. *Chinese EFL Teachers' Perceived Challenges of TALL*

The third theme was that TALL demands 'role shifts' in teachers. They are no longer simple knowledge conveyors. As stated by T5, "*TALL poses the challenge of role transformation in teachers. They need to shift from being a knowledge imparter to a digital guide and mediator*" (T5). To explain this theme further, another person noted "*the integration of technology inevitably demands a change in the traditional teaching model, requiring teachers to adapt to new role positioning*" (T19). "*Balancing between teaching and technology*" was a sample role challenge mentioned in the interviews (T27). A participant, similarly, called for restructuring of teaching in light of TALL by arguing that "*effectively integrating traditional teaching content with emerging technological tools requires teachers to possess innovative instructional design capabilities and practical experience. This process may involve course restructuring and teaching method adjustments, posing certain challenges for teachers*" (T17).

The next challenge of TALL concerned 'privacy and security' issues. As declared by T13, "*TALL comes with privacy and security risks. Teachers need to strengthen supervision and guidance to ensure that students learn in a safe environment*". One of the reasons for the reluctance to use TALL in some contexts could be "*the fear of private information leak*" (T13). Such a challenge is also seen in testing and scoring contexts. As stated by T9, "*technologies are good but easy to be manipulated and hacked. Some students may cheat when answering questions and quizzes and this affects the authenticity of the test results*". The need for technological infrastructures and support from organizations is the last challenge of TALL, as noted by Chinese EFL teachers. According to T15, "*when there is technology, there is the issue of facility and financial support from the school*". Referring to costs of TALL, another person said "*Currently, many software programs are expensive and beyond the purchasing power of individual teachers, necessitating financial support from organizations and schools*" (T15). In case technologies are not affordable, "*some teachers and learners may be deprived of them and this will affect their performance and functionality rate*" (T36). In sum, the results demonstrated different potentials and challenges for TALL in the context of China, which are discussed separately in the next part.

5. DISCUSSION

This study intended to unveil Chinese EFL teachers' perceptions about the potentials and challenges of TALL. The results of interview data revealed six areas of potentiality and five major challenges involved in TALL. Particularly, it was found that TALL is beneficial for providing 'personalized L2 learning' as it offers 'immediate feedback' to teachers and learners. The findings are in line with previous studies (e.g., Buddha et al., 2024; Hsu & Lin, 2022; Li et al., 2017), which highlighted the potentials of TALL in making L2 education more effective, individualized, and interactive. The individually guided and directed nature of many educational technologies can explain this finding. Feedback was also emphasized probably because TALL provides real-time and instant feedback on one's performance and this function had engrossed the participants. Their feedback literacy in digital era may also justify the findings. TALL fosters classroom interaction and this fosters feedback provision (Lin et al., 2020; Regina & Devi, 2022). The findings also indicated that TALL 'enriches learning content and materials', a potential reported by Colpaert and Stockwell (2022), who considered technologies as sources of authentic materials and learning content. The vastness

of TALL and its capacity in providing mass data and materials can justify this potential (Buddha et al., 2024). Moreover, it can be inferred that Chinese teachers had cared about content and materials development and adoption in L2 education possibly due to their experience and expertise. Their technological literacy can explain this theme, too.

The study also revealed that TALL is fruitful for 'enhancing learning efficacy' and 'adding spirit and joy to L2 learning'. The findings agree with Buddha et al. (2024), who declared that technology fosters effective language learning experiences. That is probably because TALL provides effective input (Lin et al., 2020; Regina & Devi, 2022). Additionally, the provision of enjoyment reflects prior research suggesting the impact of TALL on learners' emotions and overall affective status of L2 learning (Günüç & Kuzu, 2014; Shadiev & Yang, 2020). The attractive nature of technologies may be a reason behind these potentials. Constant updates and developments of applications and software in the academia may also justify such efficacy and enjoyment. The findings are also attributable to the emotional tie between TALL and L2 education. The last potential was that TALL 'fosters autonomous learning'. It is in line with Lai (2019), who found technology and learner autonomy closely interrelated in both formal and informal learning contexts. TALL is self-directed and this capacity may justify this theme. Preference for independence is also a possible reason. The participants also seem to have a high technological literacy due to pre-service and in-service training in this regard. Their positive view of TALL may also explain these potentials.

However, it was identified that TALL poses five challenges, as well. The most frequent ones pertained the need for 'technological literacy' and 'teacher training'. These themes resonate with previous research, suggesting the literacy and technology-related training demands as major challenges of TALL (e.g., Buddha et al., 2024; Huo, 2019). Without technological literacy, L2 educators may refrain from integrating technologies into their classes or implement them ineffectively. The participants highlighted training probably because they believed in ongoing professional development, especially concerning technology. They considered literacy and training as two critical elements possibly due to their high field experience and mastery of the overall requirements of TALL in EFL settings. Their teaching experience could justify this nuanced understanding. The dynamic nature of technology growth may demand teacher literacy and training. It was also found that TALL is challenging because it requires 'teacher role shift'. It means that teachers are no longer simple presenters of lessons, but mediators and directors of TALL. They have to simultaneously take care of content and technology. This finding showcases the participants' knowledge of modern L2 teachers' characteristics, which demand taking multiple roles in L2 education.

Privacy and security concerns were the next common challenge of TALL. This setback is in tune with Wang and Heffernan (2010), who explored the ethical considerations of CALL from the view of both teachers and learners. They highlighted the importance of data privacy and security in L2 learning. The participants referred to this challenge probably because of their fear and concern of the digital world, as a whole. Their commitment to ethics is also a possible reason for pinpointing this challenge. Previous experiences of being deceived or hurt through technology may explain such concerns, too. Finally, it was found that TALL is challenging in L2 context because it requires 'technical and financial support', a finding echoed by Ataeifar et al. (2019), who argued that poor technology infrastructure and support is a big challenge of TALL. Likewise, Huo (2019) maintained that the cost of

TALL makes it challenging for educators in many contexts. The participants' familiarity with the logistics demands of TALL explains this finding. Their partial implementation of TALL may be a reason for such knowledge. Financial concerns are always important in employing technologies in academic contexts. Consequently, the teachers in this study underscored such supports. Their considerate and meticulous personality may have caused them to propose such critical concerns of employing TALL.

6. CONCLUSION AND IMPLICATIONS

This study explored the potentials and challenges of TALL from the perspective of Chinese EFL teachers. The findings demonstrated several potentials and setbacks. It is then concluded that TALL carries both benefits and setbacks depending on personal, contextual, and infrastructure characteristics. In case it is effectively applied, TALL positively influences L2 education. However, the literacy, training, and technical support demands may pose challenges in using this L2 instructional approach. The study adds to existing theories on educational technology by unpacking common potentials and setbacks in EFL settings. Practically, the findings help EFL teachers by making them aware of benefits and challenges of TALL. Their technological literacy may enhance by this study. They can work out effective strategies to deal with TALL challenges in their own classes. Teacher educators can propose TALL-related courses to EFL teachers to empower them regarding the integration of technologies into their L2 instruction. Educational institutions can utilize the study to strengthen technology infrastructure, provide teacher training in technology, formulate reasonable technology application strategies, and focus on technical support and learning guidance for both L2 teachers and students. Additionally, policymakers and educational administrators can draw on the findings and address data privacy and security concerns to ensure the sustainability and safety of technology applications. By comprehensively addressing these challenges, TALL can maximize its potential in EFL classrooms and truly enhance students' English learning outcomes.

However, this study has some limitations. The sample size was small, and this limits the generalizability of the findings. Large-scale studies are then recommended to address this limitation. The use of convenience sampling may constrict the representativeness of the participating sample. To prevent selection bias, non-random sampling is suggested in future investigations. No triangulation was made in the data collection and only a single context was the source of data. Future researchers may use mixed-methods designs employing scales, interviews, observations, and narratives. The role of teaching experience in perceiving the potentials and challenges was excluded in this study, hence further research can consider its mediating role as experience may shape TALL perception and practice. Cross-cultural research is also advised to obtain a universal model of TALL integration in L2 education with practical techniques to tackle the challenges. Yet, this study overlooked the role of culture. The study can also be replicated in other subjects to see if TALL potentials and challenges vary across fields or not. Future research can also focus on comparing common technologies in L2 education to see if potentials and challenges are technology-specific or general. The role of technophobia and technophilia in perceiving educational technologies in EFL context is also recommended to future scholars. This study just included teachers'

views of TALL. Future researchers can focus on both teachers' and learners' perspectives at the same time. Further investigations can be done on the potentials and challenges of artificial intelligence (AI) in L2 education, too (Wang et al., 2025). The emotional factor of TALL is also a novel line of research for the future, especially the tensions that it may impose on EFL teachers and learners. The dynamism of emotions in light of TALL may also be an interesting future direction for research.

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8. APPENDIX

Interview Questions

Part 1) Demographics
1.   Age:
2.   Gender:
3.   Major:
4.   University Degree:
5.   Teaching Experience:

Part 2) Teachers' Perceptions

1. As a teacher, have you used technology-assisted language learning approaches in your classes? How was that experience?
2. What are the potentials and benefits of technology-assisted language learning in EFL classes? Please, elaborate on your view.
3. What are the challenges of technology-assisted language learning in EFL classes? Can you explain?