

Chinese as a Foreign Language Project-Based Learning Using TikTok: Students' Perceptions on Learning Process and Online Discourse

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ABSTRACT

Chinese as a Foreign Language (CFL) learners often experience anxiety, largely due to limited authentic communication opportunities and negative pedagogical practices, which hinder their confidence, performance, and achievement. Hence, this study investigates the perceived impact of TikTok-integrated project-based learning (PBL) on CFL learners, to explore students' perceptions of the online learning process and online discourse. A qualitative case study design was used to explore the perspectives of 16 undergraduates on their competencies, experiences, and sociocultural interactions. The study design incorporated John Dewey's theories of experientialism, constructivism, and constructionism, along with Merrill Swain's Output Hypothesis and Vygotsky's Sociocultural Theory of Mind. The findings revealed that while students initially faced challenges with metalinguistic elements, implementing PBL through TikTok enhanced their engagement and confidence, and supported perceived language development. The platform facilitated collaborative language practice, creative expression, and constructive feedback. However, challenges in creative and critical thinking were identified, suggesting a need for further support. The study underscores the potential of TikTok as a valuable tool for innovative CFL teaching, emphasising the importance of addressing students' specific needs and providing additional guidance on project accomplishment.

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1. INTRODUCTION

Foreign language education is an integral component of higher education, particularly in preparing students for globalised professional environments. Acquiring proficiency in a foreign language is essential for students across disciplines, as it fosters intercultural competence and facilitates effective communication. For students pursuing international communication, a high level of foreign language ability is indispensable for professional development (Kononenko & Nedospasova, 2021). Similarly, technical specialists benefit significantly from foreign language skills, as they enable cross-cultural exchange and collaboration (Zubkov, 2020). Cultivating advanced foreign language proficiency among higher education students is thus imperative for their future career success and professional standing.

From a terminological perspective, second language acquisition is a broad term in the field of research that encompasses the learning of foreign languages and the human ability to learn languages other than the first language (Moeller & Catalano, 2015). In a narrow sense, second language acquisition typically occurs in an environment where the target language is actively spoken, whereas foreign language learning often refers to studying a non-native language in an academic setting, usually to meet specific educational or professional needs (Mansor et al., 2022). The context of this study's investigation is delimited to Malaysian higher education foreign language learning, typically on learning Chinese as a foreign language (CFL).

The People's Republic of China's (PRC) strategic investment in global Chinese language education through its government-funded Confucius Institutes has significantly catalysed the worldwide proliferation of Chinese language learners. In addition to China's growing political and economic influences as one of the world's largest economies by Gross Domestic Product (GDP) (The World Bank, 2023), it is prevalent to teach and learn CFL on a global scale, and it has also received significant demand (Chan et al., 2022). In Malaysia, numerous public and private universities provide Chinese courses to individuals who are not native Chinese speakers. A prevalent issue identified is the anxiety of learning and practicing CFL. Several studies have identified a negative correlation between students' anxiety and the target language communication, performance, and achievement (Khajavy et al., 2018; Ting & Sunarti, 2022). Ferrer and Li (2021) echoed that learners' anxiety in CFL learning is often precipitated by pedagogical approaches adopted by foreign language instructors, as well as limited exposure to authentic language environments. Additionally, individual learner factors such as self-efficacy beliefs, language learning expectations, and perceived outcomes significantly correlate with the manifestation of anxiety. Ting and Sunarti (2022) further explicate that CFL learners experience anxiety when they receive negative evaluations because they are apprehensive about making mistakes.

Although Malaysia offers a natural setting for language learners to engage with native speakers beyond the classroom, many students remain reluctant to do so. They often feel shy or uncomfortable using a foreign language in front of an audience (Nadesan & Shah, 2020). Furthermore, students are less inclined to speak the target language because their mother tongue is more natural and simpler to articulate among their peers who share the same mother tongue (Nadesan & Shah, 2020). In this case, the present study advocates that foreign language learning should be facilitated through real-life communication by creating more chances for students to practice the target language and providing a conducive language learning environment, while students' background knowledge should be considered to ensure that the learning process is engaging. Subsequently, in order to motivate students to communicate in the target language, it is imperative to provide constructive feedback rather than negative criticism.

Project-based learning (PBL) has been identified as an effective method for revitalising foreign language learning in higher education by providing learners with opportunity to communicate using the target language in a meaningful and authentic way that is fundamental to the language learning process (Jaleniauskiene, 2016). PBL has been found to have a multifaceted impact on the progress of students' language learning and plays the most significant role to improve students' confidence, language proficiency, communication skills, collaborative or cooperative skills, and critical thinking, and creativity (Dharmayanti & Joni, 2022; Karyawati & Ashadi, 2018; Kemalglu-er & Sahin, 2022). Owing to the

growing prominence of Chinese language education globally and the substantial benefit of PBL in foreign language learning, this study seeks to contribute to the literature by offering insights into the integration of PBL in CFL learning.

2. LITERATURE REVIEW

1.1 Emerging social media platform supporting PBL

Education, particularly in the teaching and learning activities, has been significantly impacted by the advancement of information and communication technology in the Society 5.0 which highlights the realisation of technological integration by fostering balance and harmony between technology and humans (Yaraş & Kanatlı-Öztürk, 2022). Investigations into the most recent learning and teaching innovations have yielded novel insights into effective language learning strategies and environments that are intended to enhance language proficiency and achievement. In this regard, Dharmayanti and Joni (2022) suggested that the effective implementation of PBL in language teaching and learning can be facilitated using technological tool, such as learning and sharing language knowledge on social media. For instance, Facebook and Instagram have emerged as two of the most frequently examined social media platforms due to their strong perceived credibility within educational contexts (Pereira et al., 2024; Giannikas, 2020). Similarly, YouTube has become a pivotal tool for educators through its integration in Massive Open Online Courses (MOOCs) and various open online learning environments. Consequently, it is widely utilised in education for entertainment, knowledge acquisition, and content dissemination purposes (Khan et al., 2023).

Based on the Global Digital Report (Kemp, 2024), it highlights TikTok's continued global expansion, with its popularity now rivalling that of established platforms like Instagram and Facebook. Notably, TikTok surpassed YouTube in terms of average user engagement time. By 2024, it had firmly established its global presence, amassing over 137 million downloads worldwide (Business of Apps, 2024). Its unique recommendation algorithm and immersive content design have positioned TikTok not only as a source of entertainment but also as an emerging educational tool, facilitating innovative modes of content delivery for learning purposes. TikTok is frequently employed as a social media that supports the online-based PBL approach, in which students are provided with input and the opportunity to practise their knowledge using ready-made videos from TikTok (Julianti & Pratiwi, 2023; Suropto et al., 2023) or special feature such as "voice-over" (Chuah & Ch'ng, 2023). Innovatively, this study advocates a student-centred PBL approach, in which students are provided with the opportunity to learn from TikTok videos and subsequently produce their own TikTok video in order to receive formative feedback from the social media community.

1.2 TikTok as an emerging educational platform for language learning

TikTok has become a widely adopted educational platform in higher education worldwide, with particular prominence in language learning. Rahimullah et al. (2022) contend that TikTok as an emerging educational technology, holds significant potential for supporting learners by expanding its functionality and refining its features to better align with their needs and preferences. Building on this, Lee (2022) highlighted that TikTok incorporates multimodality, mobility, instant participation, and interactivity features that foster learners' agency and creativity by enabling them to repurpose affordances for language learning beyond the application's original design. In this way, informal online language learning continues to evolve alongside technological innovation. Nonetheless, this study aligns with Bali et al. (2025), who note that research specifically addressing TikTok's role in online foreign language learning remains scarce to date. Bali et al. (2025) pointed out that employing TikTok in CFL instruction tends to facilitate learners' independent development of conversational Chinese rather than formal academic language skills. Owing to its short-form, algorithm-driven content, the platform prioritises cultivating learner autonomy and competence to sustain meaningful engagement. These perspectives inform the aim of this study, which explores TikTok's influence on PBL in the CFL classroom and its contribution to online discourse.

1.3 PBL using TikTok: Foreign language learning process and online discourse

PBL offers students the chance to develop learning skills and implement them in real-world scenarios, thereby generating meaningful learning experiences (Tinenti, 2018). PBL has been incorporated into foreign language instruction via a variety of ways to enhance learners' language skills. For instance, introducing cooperative PBL to increase students' foreign language learning motivation (Zaafour & Salaberri-Ramiro, 2022), improving foreign language students' speaking abilities using PBL in the form of presentations (Lawarn, 2021), adopting collaborative approach with PBL to alleviate the anxiety of foreign language learners in the learning process (Miguel & Carney, 2022), and so on.

While TikTok emerged as a popular and influential platform among learners, prompting recent studies to explore its potential for supporting language acquisition through PBL. For instance, Purwoko and Ikhsanudin (2023) proposed a model that harnessed TikTok videos as tools for engagement in online classes, increasing student motivation and participation. In a similar vein, Julianti and Pratiwi (2023), along with Suripto et al. (2023), highlighted the extensive content available on TikTok as a valuable resource for developing speaking skills within PBL frameworks. TikTok has emerged as an effective platform for fostering communication skills in Generation Z (Klinjuy, 2025). Additionally, the platform's interactive nature has facilitated meaningful feedback loops and collaborative learning. Ikhsanudin and Purwoko (2022) underscored the importance of synergy between teachers, students, and instructional materials on TikTok, enabling dynamic interactions that strengthen speaking proficiency. Unlike more traditional platforms, TikTok's immediacy and creativity creates an environment that encourages spontaneous expression and continuous peer feedback, aligning closely with the iterative and student-centred nature of PBL. Taking together, there is a clear progression in using social media to enrich PBL in foreign language education by moving from textual engagement (e.g., Facebook) to multimodal, expressive learning experiences on TikTok. The platform's immersive features, cultural relevance, and accessibility make TikTok a powerful tool for language learners seeking to improve communication skills through authentic, project-driven interactions.

Nonetheless, the present study is inclined to other prior studies, advocating that PBL should prioritise the development of communicative skills, technology competency to produce oral products, and presentation skills among learners, rather than solely providing them with pre-made materials (Wahyudin, 2017). Just like Molina and Cardona (2017), students were requested to produce and present their own audiovisual product using PBL method, which eventually improved students' oral skills. What sets this study apart is its integration of PBL with students' digital oral production. Learners are guided to craft scripts, deliver and record presentations, then select and edit their content using TikTok as a platform to support the entire process. This is done by typically focusing on CFL learning which have never been conducted in previous research. Moreover, this study stands in line with Suprihatin and Kurniawan's (2023) study, which indicated that TikTok has the potential to be employed as an alternative-formative assessment tool to offer feedback and encourage students to engage in reflective commentary, particularly regarding their speaking and listening skills. This is a part of the PBL foreign language learning process that contributes to the evolving online discourse on the utilisation of social media platforms.

3. THEORETICAL FRAMEWORK

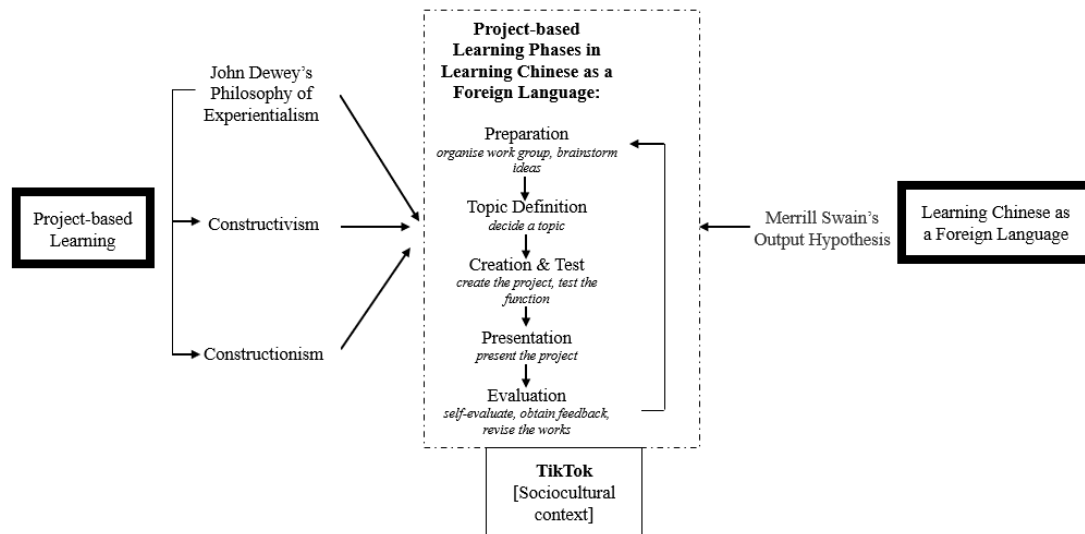


Fig. 1. Theoretical framework

Source: Recompositing from

- Nilsook et al. (2021) & Eckardt et al. (2020): Experientialism, Constructivism, Constructionism
- Nilsook et al. (2021): Project-based Learning Phases
- Swain (2005): Output Hypothesis
- Swain (2005) & LaPierre (1994): Vygotsky's Sociocultural Theory of Mind

TikTok is a platform for foreign language learning which is embedded with rich social opportunities that encourage sociocultural dialogues. The concept of PBL is founded on the philosophy of Experientialism, which was initiated by John Dewey's philosophy advocated for the concept of learning by doing. It fosters students' acquisition of knowledge through practical applications. According to Nilsook et al. (2021), this philosophy also generates two additional learning theories: (1) Constructivism, which posits that students are capable of generating knowledge independently; and (2) Constructionism, which posits that students are capable of producing something independently. Eckardt et al. (2020) summarised that Experientialism, Constructivism, and Constructionism are the principal foundations that brace PBL. On this matter, Nilsook et al. (2021) explicated that the PBL approaches implemented in today's education exhibit a fairly similar trend, which can be summarised into five cyclical phases: Preparation, Topic Definition, Creation and Test, Presentation, and Evaluation.

With regards to the PBL phases, the process of CFL learning is adhered to Merrill Swain's Output Hypothesis, which argues that foreign language learners should actively engage themselves in the production of comprehensible output (writing or speaking) to facilitate cognitive and linguistic development (Swain, 2005). Comprehensible output provides the learners contextualised and meaningful use, pushes the learners to move from semantic to syntactic processing of the target language, and allowing the learners to test and evaluate their products. More importantly, it exposes learners to a variety of feedback (Swain, 1985). Therefore, Vygotsky's sociocultural theory of mind is an additional concept that necessitates consideration, as this study implemented online PBL on the TikTok platform which offer feedback and encourage students to engage in reflective commentary. Drawing from Vygotsky's sociocultural theory of mind, Swain (2005) claimed that "speaking is initially a source of physical and mental regulation...overtime, however, the individual internalises these regulatory actions" (p.478). Hence, dialogue is particularly crucial for CFL learning. When the target language is being practiced and discussed,

it induces metalinguistic reflection that enables learners to generate a new and accurate linguistic hypothesis and enhances their language learning (LaPierre, 1994).

Fig. 1 illustrates the comprehensive conceptual framework of online PBL that were implemented in this study. TikTok is a platform for foreign language learning which embedded with rich social opportunities that encourage sociocultural dialogues. Given the theoretical and practical underpinnings, the objectives of the study consist of the following:

1. To investigate students' views about their level of competence in producing a CFL project through online PBL.
2. To explore students' perceptions of their CFL learning process using TikTok as a PBL platform.
3. To discover students' perceptions on the sociocultural aspects of using TikTok for CFL through PBL.

4. METHODOLOGY

1.4 Research site and course context

This research was carried out at a Malaysian public university recognised for its pioneering role and established expertise in CFL education (Leow et al., 2024). As the country's largest university by student enrolment, it also hosts Chinese as the most widely chosen foreign language. The institution offers a blended undergraduate CFL course that integrates face-to-face instruction with online learning. As such, examining CFL teaching and learning practices at this site offers valuable insights into the broader realities of foreign language education within Malaysia's higher education landscape.

CFL courses are part of the university's graduation requirements and are designed to be both foundational and practical. They emphasise the use of Pinyin (the standardised Romanisation system for Chinese) and simplified Chinese characters. Instruction targets four core language skills: listening, speaking, reading, and writing, with the primary goal of developing students' basic communicative competence. The teaching approach prioritises oral communication and incorporates diverse pedagogical strategies, including lectures, discussions, blended learning, and interactive activities such as role-plays, language games, problem-based learning, project-based learning, and so on. A range of instructional materials, such as textbooks, workbooks, flashcards, and audio-visual resources, are used to enrich the learning process.

1.5 Participants

Participants of this study were students who enrolled in a degree CFL course. Due to the limitation of qualitative study which usually entails a small participant pool, consent to participate in this study was granted to 33 students who were fully enrolled in the course. However, only 16 students agreed to participate. Most of the students enrolled in this study reported their gender as male (75%), and the rest reported as female (25%). All participants were first-year undergraduate students with limited or no prior knowledge of the Chinese language. 100% of the students reported a high level of recognition regarding the PBL learning approach in relation to their prior experience. Additionally, 100% of the students reported a high level of recognition for the function and features of TikTok, indicating a high perceived ease of use among the students.

1.6 Instruments and data collection

The PBL process in this study involved students crafting scripts, delivering and recording presentations, editing their content using TikTok, sharing the videos on the platform, receiving feedback, and engaging in

reflection. This study adapted the PBL stages from Wahyudin (2017) and Molina and Cardona (2017), modifying them to incorporate TikTok as a key element in the learning process to scaffold the task for students (see Fig. 2).

A case study research approach was chosen to investigate students' perceptions on CFL learning process and online discourse while experiencing PBL using TikTok. Merriam (1998) views case study as an in-depth, comprehensive description, and investigative research. This method is suitable to be used for studying innovative programs and practices in education, directed to the exploration of an individual, group, or phenomenon. Data were collected using semi-structured interviews that allow for open-ended responses from participants for more in-depth information. The semi-structured interview form included 12 questions, divided into three sections, as shown in Fig. 3. Each question emphasises different areas of focus, such as PBL, foreign language skills, technical skills, sociocultural aspect, and general information as a warm-up and wind-down to address the research questions. Interviews with each participant were conducted online for approximately 45 minutes using videoconferencing tools. Interviews were video-recorded and later transcribed verbatim. In addition, the interview data regarding TikTok community feedback was supported by the researchers' observations for verification purposes.

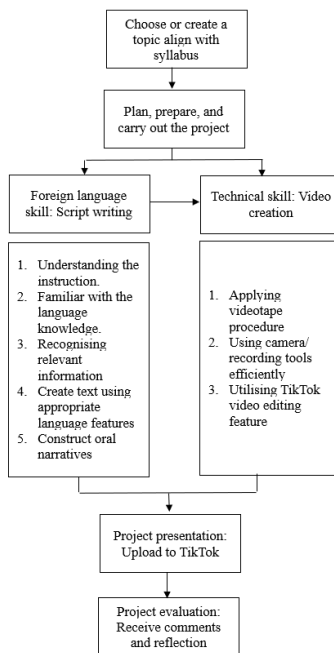


Fig. 2. PBL process using TikTok

Competence to produce a CFL project through online PBL

- | | | |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------|------------------|
| 1. Briefly describe the process of producing the TikTok video throughout the learning process. | General information | Warm-up question |
| 2. How many points would you give to yourself based on the script you have prepared? Why? | Focus: foreign language skill | |
| 3. Explain how you can make your script better. | Focus: foreign language skill | |
| 4. How many points would you give to yourself based on the video you have created? Why? | Focus: PBL, foreign language skill, technical skill | |
| 5. Explain how you can make your video presentation better. | Focus: PBL, foreign language skill, technical skill | |

CFL learning experiences with PBL using TikTok

- | | |
|---------------------------------------------------------------------------------------------------------------|--------------------------------------|
| 6. Could you share valuable experiences when producing the TikTok video to accomplish project-based learning? | Focus: learning process, experiences |
| 7. In what ways did the TikTok project help you learn or practice CFL? | Focus: learning process, experiences |
| 8. Do you feel that using TikTok made the learning experience more enjoyable or meaningful? Please explain. | Focus: learning process, experiences |

Online discourse

- | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------|
| 9. Please provide a summary of the feedback you received from the TikTok platform that you think will help you improve. | Focus: Sociocultural | |
| 10. Does the feedback from social communities help you to improve? If yes, please specify the specific area in which it helps in your improvement. | Focus: Sociocultural | |
| 11. What would you do in response to the feedback? | Focus: Sociocultural | |
| 12. Would you recommend this method (using TikTok and PBL) to other language learners? Why? | General information | Wind-down question |

Fig. 3. Semi-structured interview questions' distribution

1.7 Data analysis

Qualitative data analysis seeks to obtain a deep understanding of phenomenon and is more inductive. Therefore, this study followed Creswell's (2009) data analysis process. First, the researchers replayed and listened repeatedly to each audio recording of interviews and became familiar with the words of the participants to develop a holistic sense. Then, the audio recordings were transferred into word document transcripts based on the Jefferson transcription system (2004). In-Vivo coding was implemented, and participants' actual language found in the data were coded as words or short phrases. This process of coding is called "first cycle coding" (Saldana, 2015) in order to summarise the basic topic of data.

To display the connection of each code clearly, this study applied the code mapping technique (Saldana, 2015) before moving to the second cycle coding (see Fig. 4). In the "first iteration" of code mapping, a large number of codes were identified. Followed by "second iteration", the initial codes were categorised resulting from comparing and sorting all the codes to determine which one seems to come together. During the "third iteration", the previous categories were further classified into more specific groups; some categories found in previous categories were downgraded into "subcategories". The analysis process then continued with the second cycle coding via focused coding. Focused coding is a more rigorous analysis that filters the codes and generates interpretation and description for emerging patterns, categories, and themes through constant comparative analysis. Eventually, the researchers applied the "code weaving" (Saldana, 2015) technique by integrating themes into narrative form to see how the puzzle pieces fit together and address the research questions.

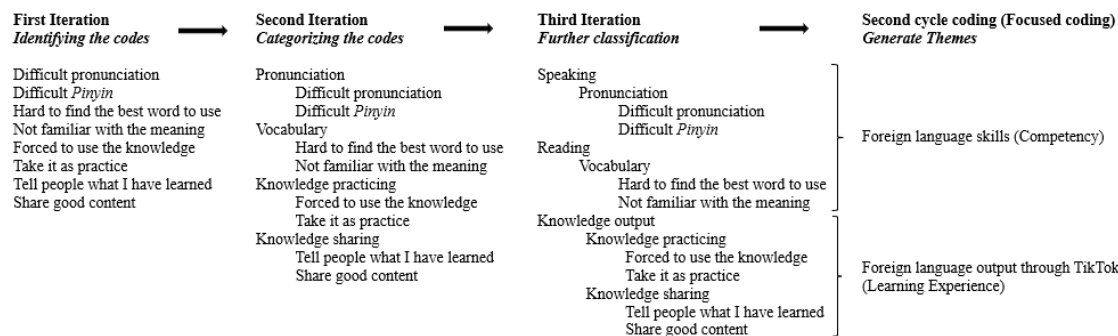
Example: Learning process

Fig. 4. The coding process

1.8 Reliability and validity

To ensure reliability and validity, the interview questions underwent expert review. Subject-matter specialists assessed the items for linguistic clarity, relevance, and appropriateness, while measurement experts evaluated aspects such as length, structure, writing style, and comprehensibility. The panel confirmed that the procedures supported conversational flow, fostered positive engagement, and encouraged participants to share their experiences meaningfully. Respondent validation was employed to further strengthen data reliability: participants received the finalized interview transcripts and were invited to verify accuracy, resolve inconsistencies, and provide additional comments. Following data collection, two authors independently coded the transcripts. Subsequent discussions were held to identify and resolve any discrepancies in their analyses, ultimately reaching consensus on the coding framework, categories, and thematic structure.

The PBL approach was implemented via an open TikTok community involving both instructors and students. While the platform's openness facilitated broad participation, it also posed potential risks to feedback consistency and introduced platform-related bias. The instructors' group comprised language specialists, fellow Chinese language educators, and students, whereas the student group primarily consisted of peers with some of whom were Chinese language learners, alongside a few fluent speakers. To enhance the diversity and reliability of feedback, students were instructed to tag their instructors and ensure their videos were publicly accessible, thereby extending the reach beyond their immediate peer network. Additionally, students explicitly indicated in their posts that they were seeking constructive, educational feedback. These strategies contributed to improving the credibility of responses and supported deeper, reflective engagement.

5. RESULTS**1.9 Students' views about their level of competence to fulfil the CFL PBL process**

In precise, the "competencies" here encompass both linguistic mastery (metalinguistic) and procedural/project skills (project-related), which together determine students' confidence and effectiveness in the CFL PBL process. According to Table 1, the results presented students' concerns on their mastery of CFL skills in terms of speaking (pronunciation and tone), reading (vocabulary), and writing (sentence arrangement and translation). This indicated that students need assistance in the metalinguistic field to effectively fulfil the CFL PBL process, especially during the preparation phase. Whereas on the aspect of students' competence to perform PBL, besides concerning the project preparation, students encountered challenges in the subsequent phases of topic definition and creating project situations. In short, students

experience a lack of confidence in their competence to fulfil the CFL PBL process during the constructivism and constructionism phases of project production, which could potentially impact the presentation outcome.

Table 1. Coding table of students' views on competencies

Excerpts from interview transcript	Categories/Subcategories/ Codes
The pronunciation is difficult Getting to look after the right Pinyin for every word Difficult to ensure correct pronunciation, Pinyin, and spelling The tone is challenging	CFL skill Speaking Pronunciation
	Tone
	Reading Vocabulary
Not familiar with the meaning of certain word Hard to determine or organise the word/vocabs needed Hard to find the easiest/best word to use Hard to find Malaysian used words	Writing Sentence arrangement Translation
	PBL skill Topic definition Create

1.10 Students' perceptions of their CFL learning process using TikTok as a PBL platform

In general, the students conveyed that they were enjoying the overall learning process, feeling happy, excited, and having fun. Considering the excerpt below:

I really enjoyed the experience creating the script with my teammates. We spent days watching some short Chinese drama in TikTok and shared among us in the group during the one-week mid-semester break. Then, we discussed and wrote the script. We added some humorous content because we think that learning new languages should be enjoyable. We feel excited by sharing our video in TikTok. We get to share and obtain feedback from our friends at other campuses, it was hilarious as one of them asked when the next episode is...I hope this activity can be extended to other universities so we can also watch and learn from them. (P13/14:50:30)

It was a new experience for them to conduct PBL using TikTok, and the learning process reinforced their confidence and pride in creating high-quality CFL videos that reflect their learning efforts. Extending from the excerpt above, other students also provided specific perspectives on their overall learning process, as coded in Table 2.

Table 2. Coding table of students' perceptions on learning process

Excerpts from interview transcript	Categories/Subcategories/ Codes
We are having so much fun doing work together.	PBL process Cooperation
TikTok does not have many strict rules to follow. Many people use TikTok. It is a trending application nowadays. Our videos will be watched by everyone. Easy to access. Simple to upload. We can learn language from TikTok videos.	TikTok's feasibility Flexible Popular Widespread Ease of use Knowledge input TikTok's suitability for PBL Perceived usefulness

Excerpts from interview transcript	Categories/Subcategories/ Codes
TikTok makes students happy during the PBL project. Students become more reliable and creative in producing videos.	CFL knowledge output through TikTok Knowledge application/ practising
It forces us to use the knowledge learned in class. We memorise and understand the script, it helps us to remember Chinese words. We take it as practice. We can share what we learned to our friends and family. TikTok is the best platform to tell others that I have learned Chinese and decent at applying it. TikTok can be a medium for someone to share good content.	Knowledge sharing
TikTok can be a medium to get good feedback from viewers.	Discourse Feedback

According to Table 2, students think that learning CFL with PBL using TikTok assists cooperative learning. Regarding the TikTok platform's feasibility, student-centred learning practices were being elevated because students were given high flexibility and opportunity to perform their work based on their creativity. Students claimed that TikTok is a user-friendly application with trending features that are suitable for today's educational needs. For instance, students could showcase their work to a broad audience; and in turn, they could also gain knowledge input from the work shared by others. The findings affirmed that TikTok is a suitable platform for PBL to support students' CFL learning due to its perceived usefulness. On the aspect of CFL knowledge output, TikTok served as a catalyst for students to apply and practise what they had learned beyond the confines of the classroom. Thereby, students could obtain constructive feedback from the TikTok communities which underscored the significance of discourse or interaction in the PBL process.

1.11 Online discourse: Students' perceptions on the sociocultural aspect of using TikTok for CFL through PBL

Based on the results, students' perceptions on the sociocultural aspect can be discussed from two perspectives, as shown below.

Students' perceptions on the feedback received from the TikTok platform

As per the researchers' observations on the TikTok platform, aside from encouraging comments such as "Keep it up!" "Good job!" from peers and viewers, students also received 75% constructive feedback from the professionals (e.g., foreign language instructors, target language practitioners) among the TikTok communities. For example:

Metalinguistic aspect:

We won't put "Zàijiàn" after the sentence "Míngwǎn bā diǎn jiàn".

The pronunciation of "go" should be "qù"(sounds like "chuee" not "chu").

Besides saying "Zhègè shèshī hěn dà", you can also say "Zhègè túshūguǎn hěn dà".

The Chinese word for "siblings (boys)" should be "xiōngdì".

Project production:

The content, situation, and storyline are rich, creative, and interesting.

Unfortunately, the story is far too brief. The content could be more interesting by adding more elements in the final scene.

Presentation:

The flow of presentation is smooth, and the transition is appropriate.

A creative presentation that incorporates popular and pertinent Chinese music within the Chinese community.

This study found that students did not receive any critical or negative comments, which are often unhelpful for supporting constructivist thinking. On that note, students demonstrated a high level of satisfaction and positive attitude upon receiving constructive feedback. According to the details summarised in Table 3, the feedback was affirmed to be valuable in strengthening student's language error awareness, confidence, and learning motivation. Students believe that they could gain improvement on their target language skills with the assistance of constructive feedback. Most importantly, it assures them to produce comprehensible language output that meets their foreign language learning objectives. Besides, the feedback also aids in improving students' PBL process in terms of project construction and presentation.

Table 3. Coding table of students' perceptions on the feedback

Excerpts from interview transcript	Categories/Subcategories/ Codes
	Feedback values
I can identify the imperfectness and mistakes of my Chinese language.	Imperfectness & mistakes
Highlight the area that needs improvement.	Area that needs to be improved
Make me realise what I should work on.	
The positive feedback always makes us feel confident and pushes us to be better.	Enhance confidence
Constructive criticism motivates me.	Motivation
	Metalinguistic awareness
I can identify mistakes in pronunciation, grammar, and tone.	Pronunciation, grammar, tone
I was told to improve my pronunciation.	Pronunciation
So that I can accurately pronounce the Pinyin.	
It does make me take note of important pronunciations that I overlooked.	
I learn how to speak more fluently.	Speaking fluency
	CFL output
So that I can apply what I learned in Chinese correctly...other people will understand what I say.	Comprehensible output
It can help me to improve my video.	Project production improvement
	Video content
It provides us with the missing point of our video.	
	Presentation effort
It suggests that I practise and remember the script.	Practice and memorising
	Normalise the language
It helps us to normalise the language into our mind, so next time we use it, our skill can improve	

Students' perceptions on the upcoming actions to be taken in response to the feedback

Students believe that the most effective way of ensuring the accuracy of their metalinguistic practices was to strengthen their knowledge input fundamentally from learning resources (textbooks, workbooks, lecture notes). They acknowledged the necessity of enhancing their proficiency in the target language by enhancing their knowledge of vocabulary, pronunciation, sentence structure, and language components. Subsequently, they could seek assistance from their Chinese friends or native speakers to facilitate their language learning, such as asking them to correct their sentence structures or pronunciation consistently. The feedback inevitably fosters students' awareness of their level of competence of mastering CFL and enforcing further actions to make up for deficiencies.

Regarding the project production to fulfil the CFL PBL process, students emphasised the significance of group discussion as the most effective approach to preparing a high-quality project outline. The content should not be limited to the textbook or syllabus to make the project more interesting. After getting feedback from TikTok, students think that it is necessary to create new elements, specific subtitles, and unique scenes to spice things up. Technically, students suggested using better sound and graphics to make the video more appealing; regarding this matter, they should strengthen their editing skills. When it comes to project presentation, students discovered that it is essential to promote a variety of presentation

methods in order to engage the audience. It is imperative that they show their best efforts in practising the delivery of the content.

6. DISCUSSION

The first research question generally points towards students' views of their current competence to accomplish PBL when learning CFL. According to students' perspectives, the primary concern that impeded their PBL process was their mastery of Chinese metalinguistic knowledge (e.g., pronunciation, tone, vocabulary, sentence arrangement, and translation). In fact, foreign language learners commonly encounter perceived difficulties in mastering Chinese metalinguistic knowledge, not only during PBL, as stated by Chua et al. (2020). This study anticipated that such an issue would arise in other CFL teaching methods too, which the upcoming investigation ought to consider.

As a significant contribution of this study, this study further interpreted that students were demonstrating a specific level of metalinguistic awareness, which implies that they are mindful of the need for support to enhance their deficiencies. The innovative idea proposed by this study emphasised the suitable use of TikTok as a platform for online-based PBL as well as a media for receiving feedback and encouragement that facilitate students' metalinguistic awareness and self-repair motivation (Suprihatin & Kurniawan, 2023). It is identified to be well-suited to students' learning needs. In this regard, Tao (2016) suggested that metalinguistic awareness is indicative of the conscious effort and self-monitoring of Chinese language beginner learners' utterances for accurate Chinese language production. Hence, upcoming linguistic research should be employed to strengthen the development of learners' consciousness.

In the meantime, this study also discovered students' concerns regarding creative and critical thinking during the process of selecting and creating the topic for their CFL PBL project. This study's finding is contrary to several studies arguing that PBL enhances higher education students' creative and critical thinking (Hao et al., 2024; Lesmana et al., 2023); however, this study concurs with Mayeshiba et al.'s (2018) study, indicating that the mastery of higher-level thinking skills by higher education students remains a challenge in today's educational context. It is highly probable that the negative impacts on creative and critical thinking are owing to the students' limited knowledge in Chinese metalinguistics. Hence, in this study, creative and critical thinking represent another area of concern, beyond students' mastery of Chinese metalinguistic knowledge. Instructors might address this by scaffolding linguistic concepts, offering differentiated instruction, and integrating thinking skills frameworks to build deeper understanding. On that note, it offers a new path for future research on the relationship between metalinguistic knowledge and creative and critical thinking in the PBL context.

Addressing the second research questions, the study's findings adhered to the constructive and construction theories under John Dewey's experiential philosophy. Students were given the opportunity to engage in direct experiences that facilitated the development of CFL skills by incorporating a cutting-edge social media platform into PBL. Aligned with Aziz and Dali's (2023) study, incorporating TikTok in PBL improves students' learning engagement, enjoyment, and motivation; it is indeed an innovative way to create an effective online learning experience. The students declared that they obtained loads of engaging and informative information from TikTok prior to commencing the production of their video project. Students gained rich input that facilitated their language knowledge practices through ready-made videos from TikTok, as highlighted in Julianti and Pratiwi (2023) and Suropto et al. (2023) studies. This has protruded John Dewey's experiential student-centred learning notion, which asserts that students constructed knowledge through experiences during the PBL project preparation process; and subsequently progress to language construction, topic selection, and video creation through "learning by doing".

During the PBL process using TikTok, similar to other PBL research (e.g., Torrijo et al., 2021), students indicated that the learning process effectively enhanced cooperative learning. With the effort of cooperative learning within the context, students fulfilled Merrill Swain's Output Hypothesis in terms of producing

written (script) and presenting spoken (video) language outputs. Sun (2020) furthered that the establishment of long-lasting metalinguistic accuracy in the students' target language can be achieved through the production of comprehensible output and the provision of learning reinforcement through appropriate feedback and self-reflection. Students declared that the throughout PBL process using TikTok, from the preparation to evaluation stage, could increase their confidence and pride in the production of high-quality CFL learning outcomes, supported by Febliyanshah's (2022) study. As a summary, students' perspectives reported in this study proved that TikTok is a useful and suitable platform for online-based PBL which assures benefits for CFL learners. Using TikTok for PBL supports foreign language students' language input and output via innovative ways, in addition to facilitating reflective commentary.

Regarding the reflective commentary facet, it can be related to the Vygotsky's sociocultural aspects of using TikTok for CFL through PBL that influenced students' beliefs, behaviours, and attitudes, addressing the third research question. Upon receiving feedback from TikTok, it helped the students to rethink their metalinguistic competence, inner strength (e.g., confidence, motivation, resilience), and the implementation of a comprehensive PBL process to fulfil their CFL learning. Highlighted by Sihag et al. (2023), video-based social media platforms, such as TikTok, which were employed in this study, can offer valuable insights, rendering them a novel resource for improvement. Thus, according to the constructive feedback, students summarised a list of upcoming actions to be taken to improve CFL through PBL using TikTok: (1) increase students' Chinese language competence by utilising a variety of learning resources and engaging in active communication with native speakers in the learning context; (2) group discussion or cooperative learning should be taken as an essential approach to conduct CFL PBL; (3) foster creativity among CFL learners; (4) improve students' technical skills; and (5) practice makes perfect.

As mentioned earlier, when leveraging social media as a teaching tool, instructors must account for both feedback quality and platform bias, each of which is shaped by the community that populates it. Future research should investigate community-moderation protocols and algorithmic transparency to encourage balanced, constructive interactions and reduce echo chambers. It should also explore digital literacy interventions that empower students to critically evaluate comments and recognise bias, as well as hybrid feedback models that blend automated sentiment analysis with human review to filter out low-value or harmful input. Longitudinal studies will then be needed to assess how these combined strategies influence learners' metacognitive growth and language development over time.

7. LIMITATION AND SUGGESTIONS FOR FUTURE RESEARCH

There are some limitations to the present study. This case study was conducted in a single undergraduate-level CFL course, which is unavoidable to the generalisability issue. The findings require validation through future research with diverse participant groups in different contexts. With 75% of participants identifying as male and 25% as female, the study reflects a gender imbalance that may shape the findings. While the results offer insight into the predominantly male cohort, this limits generalisability to more gender-balanced populations. Future studies should consider more representative sampling to strengthen transferability across contexts.

Besides, interview was the only method of data collection employed in this study, which could diversify the data collection method and expand the research by involving stakeholders. This study purely presented students' subjective perspectives on the application of TikTok in PBL to facilitate students' learning of CFL. It is possible that future research could conduct a more comprehensive investigation to measure or evaluate the effectiveness of integrating TikTok into CFL through PBL. In addition, future research should also consider TikTok's potential risks such as platform bias, privacy concerns, and exposure to inappropriate comments to provide a more balanced and comprehensive understanding.

Despite the limitations, this study has the potential to be replicated with other language courses that involve higher education students to explore their perspectives of incorporating prevalent social application (e.g., TikTok) on their perception of PBL. This study establishes a novel research idea for future research to broaden their investigation.

8. IMPLICATIONS AND CONCLUSION

The findings of this study have significant implications for the advancement of an innovative foreign language instructional approach, particularly in the context of teaching and learning CFL. Although this study was conducted within a single institutional context, its relevance extends beyond. As Malaysia's largest university, where Chinese is the most widely taught foreign language, the findings offer valuable insights into online and blended learning that may inform practices at other institutions engaged in foreign language education. In light of this, foreign language instructors are advised to deliver language knowledge through innovative ways and conform to the technological needs of contemporary learners. This includes designing PBL tasks that treat social media as authentic performance spaces, where students can creatively showcase their linguistic skills. Pre-task scaffolding should focus on raising metalinguistic awareness, helping students recognise the deeper structure of language before diving into collaborative projects. Additionally, implementing structured peer-review training can enhance feedback quality, fostering more reflective and constructive exchanges among learners.

Furthermore, this study demonstrated the effective integration of PBL and TikTok which can significantly improve the learning of Chinese language among students. This offers instructors a comprehensive insight into the PBL process that utilises TikTok; as well as the communicative feature of the TikTok application, which significantly supports the online discourse in blended foreign language classrooms. To go further, this study anticipates wider collaboration between instructors and professionals that enables more meaningful PBL using TikTok communicative features. Nonetheless, instructors are suggested to consider the current obstacles encountered by the students in the learning context, especially on the metalinguistic aspect, in order to assure the efficacy of TikTok in foreign language PBL.

In conclusion, this study offers insight into higher education students' perspectives regarding the integration of TikTok into PBL in the context of CFL learning. From the students' perspectives of their ability to produce a foreign language project through PBL using TikTok, this study illustrated their primary concern regarding their inadequate mastery of metalinguistic knowledge of the Chinese language. Students asserted that they require assistance in this matter, which is related to their critical and creative cognition. TikTok is prevalent due to its sociocultural context and communicative feature, which enable the collection of constructive feedback from the community and promote reflective commentary. This aligns seamlessly with Vygotsky's sociocultural theory, which posits that learning and development are deeply rooted in social interaction and the cultural tools available within a community. This study also gathered students' comprehensive view on their overall experiences in learning CFL through PBL using TikTok. The findings were proven to be adhered to John Dewey's experiential philosophy, affiliated with constructivism and constructionism theories; it too adhered to Merrill Swain's Output Hypothesis, in which CFL students have been actively engaged themselves in the production of comprehensible output. Eventually, based on students' perspectives, this study summarised upcoming actions to be considered to enhance the future integration of TikTok in PBL to facilitate students' CFL learning.

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10. CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

11. AUTHORS' CONTRIBUTIONS

Leow Min Hui: Conceptualisation, methodology, formal analysis, investigation and writing-original draft;
Norhaslinda Hassan: Conceptualisation, writing- review and editing, and validation.

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