TikTok in Mobile-Assisted English Language Learning: An Exploratory Study

Hengzhi Hu and Kehan Du

Abstract—Embedded in interactive and participatory Web 2.0 applications, the complex experiences of English as a foreign language (EFL) learners in the digital age have triggered considerable interest in mobile-assisted language learning (MALL). Abundant research notwithstanding, much remains to be explored in MALL, leaving unknown the multifaceted effects of specific technological applications on various aspects of learning. Placed in China's higher education context, the present mixed-methods study characterised by an exploratory sequential design intends to fill this gap by focusing on TikTok use in EFL learning. The initial qualitative study indicated EFL learners' contrasting perceptions of TikTok use in formal learning, centring on its possible effects on global language proficiency, speaking proficiency and affective learning typified by motivation for general language learning, motivation to speak English volitionally and willingness to communicate. Further quantitative research demonstrated that MALL, wherein TikTok was used to supplement classroom-based teaching, did not exert the profound effects on language learning as suggested by the qualitative participants and in previous literature and that learners were less motivated for English learning and communication, though their extrinsic motivation in speaking English increased. Despite the contradiction between these findings with previous ones, this preliminary study is assumed to be significant as it necessitates a critical attitude towards MALL in general TikTok-assisted EFL learning in particular, encouraging researchers to re-examine these issues in different socio-educational contexts and urging educators to ponder whether it is sensible to implement MALL with the assistance of digital applications, and if so, how to make it as efficacious as anticipated.

Index Terms—Mobile-assisted language learning, web 2.0 tools, English language education, English as a foreign language, TikTok.

I. INTRODUCTION

The roadmap of English language education (ELE) has experienced considerable changes in the era of scientific innovation, and the development of educational technology with the integration of Web 2.0 tools has given predominant rise to dialogue, namely the active and participatory co-evolvement with the technological applications, in the knowledge building process. In the context of English being

Manuscript received May 7, 2022; revised June 30, 2022.

Hengzhi Hu is with the Faculty of Education, Universiti Kebangsaan Malaysia (UKM), Malaysia (e-mail: p108937@siswa.ukm.edu.my).

Kehan Du is with Faculty of Education, Universiti Kebangsaan Malaysia (UKM), Malaysia, and School of International Education, Henan University of Engineering, China (e-mail: p110210@siswa.ukm.edu.my, dkh112@126.com).

the universal lingua franca, the availability of online language resources as a supplement to terrestrial resources accessed in settings on the ground is playing an increasingly important role [1] and promises learners undoubted benefits to effective learning of new language items and affective and social development of learning engagement and interaction in both informal learning and formal learning contexts [2]. However, by its very nature, informal learning is hard to define, observe and measure, which can be influenced by many situational and personal inhibitors. This encourages researchers to focus on formal, classroom-based learning settings instead, the value of which is that general principles can be drawn and applied to other contexts, providing new knowledge by recognising or challenging pre-understandings via critical reflection [3]. To that end, mobile-assisted language learning (MALL), which refers to the application of mobile devices and technology to enhance foreign language (L2) learning in traditional classrooms, has been considered the next frontier of research, the investigation of which can shed light on the future of education, especially under the current post-pandemic circumstance [4].

In Mainland China, the possibilities of technology-enhanced ELE have been acknowledged and are being exploited because it is a way to improve national English proficiency and promote China's internationalisation moves in the digital age [5]. Under the circumstance that rapid technological advances have encouraged the popularisation of Web 2.0 platforms among the public [6] and that the outbreak and recurrence of the Covid-19 pandemic have led online learning to be the norm [7], MALL has become particularly essential. However, although increasing attention of research has been devoted to MALL in China, a research gap has appeared due to the fact that most previous studies have emphasised the effects of MALL on language proficiency instead of the other effects it may exert [8] and that genetic terms, such as mobile devices, have been mostly studied without probing into specified tools [9]. To understand the diverse issues about the implementation of MALL, the researchers narrow down the scope of this paper to the use of *Douyin*, better known as TikTok, in English as a foreign language (EFL) learning because it is the most popular Web 2.0 application with Generation Z, the understanding of which can be "transferred into the push-power to engage these young students in their academic study in the modern digital arena" [10]. Since this issue of interest is still a young discipline with many questions left unknown, the present study is embedded in an exploratory paradigm, wherein the identification of research problems and hypotheses is prioritised before evidence of verification is sought.

doi: 10.18178/ijiet.2022.12.12.1755

II. LITERATURE REVIEW

In the past decades, tremendous changes have been witnessed in the field of applied linguistics in general and of technology-enhanced L2 education in particular. Growing out of the field of Computer Assisted Instruction and other related subjects, computer-assisted language learning (CALL), an approach to L2 education with the help of computers and computer-based resources, has initiated the reformation of language pedagogies since the late twentieth century, and it has been widely accepted as an effective tool to facilitate language learning [11]. The first decade of this century has seen the continuous growth of CALL, while the development of mobile devices and technology has promoted the emergence of MALL as a young but innovative approach to L2 learning. Nowadays, MALL is simply regarded as the "applications of smartphones in teaching languages" [12], but a more precise definition is that it is about "the formal or informal" use of "handheld, portable or wearable devices" in language learning, especially when situated learning offers specific advantages [13]. Compared with CALL, MALL tends to be superior with high "affordability, accessibility and functionality", which can "facilitate the accessibility of learning materials or interaction" amongst students, teachers and peers and improve "real-time collaboration, long-scale social interaction, creativity, personalization of learning and scaffolding" [14]. Web 2.0 tools are major platforms for the organisation of MALL. Although they are predominantly used as social tools, an explicit definition embedded in social constructivism is that Web 2.0 tools refer to a combination of applications, tools and technology (e.g. programmes and other software solutions), which can bring individuals together via a socially participatory and information-sharing network [15].

The benefits of using Web 2.0 applications to assist L2 learning are manifest, such as increasing learners' engagement and self-confidence, improving language proficiency, offering a comfortable learning environment, promoting communication and collaboration in and out of classrooms, etc [16]. There is a mixed variety of Web 2.0 tools, including not only those well-established ones (see the examples listed in [14]) but also emerging ones developed by researchers and teachers based on existing resources (e.g. the website Science World developed by Yıldırım and Gürleroğlu [17] in response to the distance education amid the Covid-19 pandemic). In China, TikTok can be assumed to be the most predominant Web 2.0 tool among the new generation [10]. To some degree, this rise can be attributed to the Great Firewall (i.e. a combination of legislative actions and technology in China), which prevents Chinese netizens from accessing the mainstream Web 2.0 tools used in other socio-educational contexts. However, the distinct features of TikTok are also the reasons for its popularity. Specifically, the social dynamics of TikTok videos, which are a result of the interactions and relationships between and among people, advance the communication of information and make knowledge and skill sharing accessible when users feel more engaged in short but explicit videos [18]. This phenomenon is explained by Khlaif and Salha [19] from the perspective of nano-learning, who suppose that TikTok "enables the delivery of small learning units in a short timespan" to make learning objectives achievable. A more detailed interpretation has been done by Adnan, Ramli and Ismail [20], who, based on user analysis, suggest that the features of TikTok and the short videos on it adhere to the spatial contiguity principle (users learn best when text and visuals are physically near one another), temporal contiguity principle (individuals acquire information at the highest level when corresponding words and visuals are simultaneously presented on the screen), pre-training principle (people learn more efficiently when their existing knowledge is triggered because of previous experience in something), multimedia principle (people learn faster when words and visuals are combined) and image principal (displaying visuals on TikTok promotes more effective information communication). In this regard, they propose TikTok is a valuable Web 2.0 tool for ELE, especially under the umbrella of multimedia learning, wherein the combination of pictures (e.g. illustrations, animation and videos) and words (e.g. printed or spoken text) can facilitate learning.

In acknowledgement that the working mechanisms of TikTok can assist learning, researchers have attempted to supplement classroom teaching with TikTok and presented a favourable picture regarding students' and teachers' perception of this application when used appropriately in formal learning contexts [21]-[23]. Meanwhile, the effects of such a combination have also triggered great research interest. Many researchers have proven the benefits of TikTok, denoting that it can help learners to develop certain language skills under the umbrella of MALL. Given the interactive nature of TikTok and the resources on it, most of this body of research has focused on L2 speaking at a macro level. For example, Zaitun, Hadi and Indriani's [24] research has shown that allowing EFL students to use TikTok to complete storytelling tasks could improve speaking proficiency. Herlisya and Wiratno's [25] study has generated the same finding but appears more insightful, as the researchers have also touched upon the positive effects of TikTok on learners' confidence in English communication and attributed all these effects to the features of TikTok, namely up-to-dateness, interactivity, authenticity and relevance to learners' interests and experience. Zhen et al. [26] have also acknowledged these features, and their study has demonstrated that the TikTok application could help English language learners develop not only speaking proficiency at a macro-level but also proficiency in the use of grammar, vocabulary, pronunciation and communication strategies at a micro-level. Similarly, Ferstephanie and Pratiwi's [27], [28] research has also moved beyond the general picture that TikTok use facilitates EFL students' global speaking proficiency and presented subtler findings that the sub-skills and knowledge fluency, pronunciation, content, nonverbal (e.g. communication, creativity) required in English communication could also improve. Most of these studies have mentioned the affective benefits of TikTok and suggested that MALL could boost English learners' self-confidence or motivation. However, the only one that has provided credible empirical evidence is Ferstephanie and Pratiwi's [27], in which the application of TikTok in classrooms is proved to be effective to improve learners' motivation in speaking English as a result of the interactive,

innovative and enjoyable features of the online resources.

It is interesting to note that although MALL is a topic of significant interest in China with a great deal of previous and ongoing research, the endeavour focusing on a specific Web 2.0 tool or application is rare [9]. That is why all the studies reviewed above have been conducted out of China's context but placed in Southeast Asian countries, where educational policies have actively supported MALL [29]. These TikTok studies have mainly focused on effective learning and affective learning, which appears limited compared with a much wider research agenda that covers multifaceted issues (e.g. learning experience, conflicts between informal learning with classroom education, assessment and evaluation, ways of integrating mobile technology with curriculums) [30]. However, in China's context, much remains to be empirically explored regarding the use of TikTok in MALL before the push-power mentioned by Zhai and Razali [10] can be truly achieved to engage learners of the digital age in active L2 learning. This justifies the design and the implementation of the present study.

III. METHODOLOGY

research adopted an exploratory mixed-methods design, prioritising the collection and analysis of qualitative data followed by quantitative ones. Specifically, this study followed the taxonomy development model with eight research stages (i.e. collecting qualitative data, analysing qualitative data, reporting qualitative results, developing hypotheses for testing, collecting quantitative data, analysing quantitative data, reporting quantitative results, and interpreting all the findings), the strength of which was that the researchers could identify the important variables pertinent to the phenomenon of interest and examine them quantitatively to generate meaningful findings [31]. Given that there was a lack of comprehensive understanding about MALL [8] and TikTok use in language learning in the research context [9], this design was appropriate as it could inform the researchers of the important variables in the studied phenomenon and then allow them to examine the relationships of the variables.

A. Qualitative Research Design

A convenient sample of 23 students was recruited with informed consent from the accessible population in a Chinese higher education provider, whose demographic information was recorded in Table I. To answer the research question 'What are students' perceptions of TikTok use in English learning?', unstructured interviews focusing on open discussions with the participants were conducted in Chinese, the advantages of which were that the researchers could probe for a real sense and ask for clarification of the participants' understanding of a situation [30]. The size of the participants was deemed sufficient for in-depth interviews as per the suggested range between 20 and 30 [32]. The collected data were transcribed, translated into English using back-to-back translation methods and input into NVivo 12.0, wherein they were thematically analysed as per the following steps: getting familiar with the data, reducing the data into small chunks with codes generated, generating broad themes

from the codes, reviewing and modifying the themes, defining the themes and reporting the findings. To ensure the trustworthiness of the qualitative research, triangulation (collecting data from multiple cases), member checking (inviting the participants to check the translation and interpretation of the interview transcripts) and thick description (providing a detailed account of the research findings) were done by the researchers.

TABLE I: THE QUALITATIVE PARTICIPANTS' DEMOGRAPHIC INFORMATION

Gender	Male: 43.5% (<i>N</i> = 10) Female: 56.5% (<i>N</i> = 13)		
Year Level	Undergraduate: 73.9% ($N = 17$) Postgraduate: 26.1% ($N = 6$)		
Age	19-23		
Age Main Course	Economics: $N = 4$ Philosophy: $N = 3$ Law: $N = 3$ Education: $N = 3$ Literature: $N = 3$ Engineering: $N = 2$ Science: $N = 2$ Medicine: $N = 1$ Agriculture: $N = 1$ Art: $N = 1$		

B. Quantitative Research Design

Based on the qualitative findings reported below, several important variables were detected, including MALL, global English proficiency (GEP), oral English proficiency (OEP), L2 learning motivation (L2LM), L2 speaking motivation (L2SM) and willingness to communicate (WTC). Accordingly, the purpose of the quantitative research was to confirm or reject the following null hypothesis: using TikTok in a MALL-based EFL classroom could improve GEP, OEP, L2LM, L2SM and WTC. Therefore, a quasi-experimental study characterised by non-equivalent groups and pretest-posttest design was conducted in the same research context. An experimental group (EG) and a control group (CG) were selected purposively with informed consent, who had similar demographic information (see Table II). As undergraduate students, the participants had to take College English (CE)¹ as a compulsory course of English studies. Both the groups were taught by the same CE teacher in a formal educational context. The EG was treated by a well-designed curriculum that encouraged TikTok to be used to supplement classroom language teaching and learning², with the CG instructed by regular teaching approaches. The intervention lasted for thirteen weeks, with the pretests and posttests organised before and after the intervention.

Five instruments were used in the study. First, a mock College English Test Band 6 (CET-SET6) was prepared to measure the participants' English proficiency. The test included four sections (i.e. listening, reading, writing and speaking). The total score of the first three sections represented a student's GEP, with OEP separately quantified by the last speaking section. The test booklets had been used

¹ CE is a compulsory course for Chinese university students, whose main programmes are not related to English studies.

² Due to the page limit, the intervention, namely how TikTok was used in the study, was not described in this paper. A very alike curriculum can be found in [40], with the instructional approaches similar to the ones reported in [10] and [25].

in other research, with established validity and reliability [33]. Besides, three questionnaires on a five-point Likert scale ranging from 'strongly disagree' (1 mark) to 'strongly agree' (5 marks) were prepared to measure L2LM, L2SM and WTC. They were the Questionnaire on L2LM designed based on Gardner's [34] Attitude and Motivation Test Battery, Questionnaire on L2SM adapted from Noels et al.'s [35] motivation questionnaires based on self-determination theory, and Questionnaire on WTC adapted from the one created by Mahmoodi and Moazam [36]. The L2 motivation theories underpinning these questionnaires basically accorded with the themes summarised in the qualitative research data. Before the study, the adapted questionnaires had been translated into Chinese and pilot-studied, which displayed sufficient validity and reliability (see Table III). The collected data were processed in Statistical Package for the Social Sciences 25.0. Due to the violation of some prerequisites for parametric tests, non-parametric tests were run to compare within-group and between-group statistics.

TABLE II: THE QUANTITATIVE PARTICIPANTS' DEMOGRAPHIC

INFORMATION					
	EG	CG			
Number of Participants	42	41			
Gender	Male: $N = 19$	Male: $N = 17$			
	Female: $N = 23$	Female: $N = 24$			
Year Level	Year 3 (und	lergraduate)			
Age	22-23				
Years of English Learning	13-15				
Faculty/Course	Economics and Finance				
Number of Students Passing	42	41			
College English Test Band 4 ³					

	BLE III: DETAILS OF THE QUEST Construct	Number	Cronbach
		of Items	alpha
Questionnaire	motivation intensity (MI)	10	.89
on L2LM	desire to learn English	10	.87
	(DTLE)		
	attitude to English (ATE)	10	.78
	Total	30	.82
Questionnaire	extrinsic motivation (EM)	9	.92
on L2SM	intrinsic motivation (IM)	9	.90
	Amotivation	3	.80
	Total	21	.93
Questionnaire	willingness to communicate	6	.85
on WTC	with native speakers		
	(WTC-NS)		
	willingness to communicate	6	.93
	with native speakers with		
	non-native speakers		
	(WTC-NN)		
	willingness to communicate	8	.86
	in classes (WTC-IC)		
	Total	20	.87

IV. FINDINGS

A. Qualitative Findings

A mixed variety of findings were reported, presenting the participants' different views (see Table IV). The first main finding centred around learners' expectations that TikTok should be embraced in formal learning contexts. Although

informal learning with TikTok was mentioned in the interviews, most students (N = 17) hoped for the integration of TikTok use with traditional classroom-based English learning (see Theme 1), supposing that the meaningful online learning resources presented in the forms of interactive short videos could supplement classroom teaching and bring positive learning outcomes. All of them believed that MALL could contribute to their GEP when TikTok was applied (see Theme 2). When asked to give detailed information about the language learning outcomes, most of these students (N = 14) maintained that the learning resources on TikTok mainly focused on the languages used in oral communication situations and thus could also improve their OEP (see Theme 2). However, when asked about how to achieve TikTok-assisted learning, most interviewees did not offer any meaningful responses, with only a few students (N = 3)mentioning that teachers could play the TikTok videos in classrooms to assist in teaching new language items or ask students to make TikTok videos to present what had been taught (see Theme 3).

On the same broad theme of formal learning, however, some interviewees (N=6) were cautious about the role of TikTok and opposed to TikTok-assisted learning, believing it was not as practical as expected to improve either GEP or specific skills at a macro-level (see Theme 4). When asked to give reasons, some students (N=4) stated that they could not see the educational value of TikTok as an entertaining application, with the others (N=2) admitting that their reservations over TikTok-assisted learning simply arose from the fact that they had not experienced any mobile learning and thus could not imagine how TikTok could be integrated into English classes or handled by students and teachers.

Another main finding was that the participants entertained contrasting opinions as to the motivation-enhancing effect of learning English on TikTok. In other words, their L2LM varied. Some interviewees (N = 13) spoke highly of TikTok-assisted learning, admitting it was engaging to learn English while indulging in pastime online (see Theme 5). They further explained that different from the learning materials (e.g. textbooks) used in the classroom, the interactive learning materials, especially the short videos, could create an engaging and participatory learning environment related to their interests and experiences and thus improve their MI (i.e. the effort made into English learning), DTLE (i.e. the desire to learn a language and achieve certain goals) and ATE (i.e. a positive feeling with language learning). In contrast, some students (N = 7) had a totally negative standpoint on MALL-based English learning, maintaining that they were not motivated for this type of learning (see Theme 6). They mentioned they could learn new language items from authentic TikTok videos, whereas they further explained that it was the TikTok teachers' radically critical attitude to what was taught in English textbooks or offline classrooms that made them feel demotivated for English learning. Neutrally, the remaining participants (N = 3) approved of mobile language learning but had suspicion about it, and their opinions were a critical combination of the above views (see Theme 7).

Moving beyond the discussion of L2LM in a broad sense, some participants paid special attention to the effects of

³ College English Test Band 4, also known as CET4, is a nationally standardised English proficiency test in China, which is organised for university students. It belongs to the battery of College English Test, which also contains College English Test Band 6.

TikTok-based learning on L2SM or WTC. Different from the above findings, the ones in this category merely reflected the interviewees' either positive or negative attitudes. A few participants (N = 3) spoke highly of the educational resources on TikTok, stating that they had been more prepared to speak English, with high EM (i.e. motivation coming from external forces, such as rewards, beyond the speaking activity itself) and IM (i.e. an inherent tendency to extend one's capabilities) (see Theme 8). However, there were more participants (N = 6)

disagreeing with the motivational effects of TikTok on English-speaking activities, supposing that they were less externally motivated, more demotivated (see Theme 9) or had less WTC-NS, WTC-NN or WTC-IC (see Theme 10) owing to feelings of inadequacy caused by the overcorrecting and hypercritical nature of some online educational videos concerning different aspects of English communication (e.g. pronunciation, grammar, vocabulary).

TABLE IV: THEMES OF QUALITATIV	E FINDINGS WITH EXAMPLE (DUOTATIONS
--------------------------------	---------------------------	------------

Theme	Sub-themes (if any)	S Example Quotations
1. Formal Learning		 Student 1: "I suppose the up-to-date learning resources on TikTok are a good supplement to textbooks and classroom learning." Student 5: "Those short videos (on TikTok) are interesting, which can help me improve my English if used properly in classrooms." Student 12: "(The educational short videos on TikTok) can improve my English because they are interactive and authenticI hope they can be used in my university classes." Student 17: "My English has improved while having fun on TikTok, (and) I hope this will happen in my English classes." Student 23: "Why not include TikTok in our classes? That will help us learn English in an interesting way."
2. Positive Effects on Language Learning	GEP	 Student 2: "TikTok use can definitely improve my English." Student 3: "If TikTok is used in my English classes, my English will improve." Student 4: "I believe my English has improved after using the learning resources on TikTok." Student 5: "The interactive feature of TikTok can improve my language skills." Student 7: "I think TikTok is a perfect supplement to my English learning, which can improve my English." Student 12: "I can learn and improve English more easily with the help of TikTok in classes."
	OPE	 Student 4: "I have watched lots of short videos about the words, phrases and sentences I can use in oral English communication. They are helpful." Student 5: "Many TikTok influencers are teaching you how to improve oral English with better pronunciation and use of vocabulary, grammar and slangThey are effective and successful in doing so." Student 23: "I got a high score on the spoken English test. I guess it should be attributed to the authentic language items I have learned from TikTok."
3. Ways to Use TikTok in Formal Learning		 Student 12: "It will not be a bad idea to have some English videos (retrieved from TikTok) to be played in our English classes." Student 17: "We can watch TikTok videos first and then remember and practise the language items taught." Student 23: "We cannot only learn new languages from TikTok but also present what we have learnt in TikTok by making videos or things like that."
4. Ineffectivenes s of TikTok		 Student 10: "(TikTok use) is useless for my overall English studies in university(and) it assures me of nothing to get a high test scoreBecause there is a discrepancy between what is taught in university with what is taught on TikTok." Student 16: "TikTok is mostly for fun, and many educational videos on it have an entertaining nature, tooI cannot figure out how it can be combined with classroom teaching and how it will improve my spoken English." Student 22: "I do not know if TikTok will work because we have never had a class (like using a mobile application to assist classroom learning) before."
5. Increased L2LM	MI	• Student 1: "I enjoy learning English on TikTok, and it has motivated me to make more effort to learn English."
	DTLE	 Student 5: "That (learning English on TikTok) is encouraging(and) mobile learning has encouraged me to learn in a more interesting way." Student 14: "The learning resourceson social media are authentic and engaging, making me eager for English learning." Student 15: "I have learned some useful expressions from TikTok and used them in my English classes. My teacher praised me for that, which has encouraged me to learn more."
6. Decreased L2LM	ATE	Student 18: "I have never thoughtEnglish learning could be so interesting (with the use of TikTok)." Student 22: "Whenever I watch those English learning videos on TikTok, I feel frustrated, defeated and illiterateThe other day, a TikTok teacher said 'eat breakfast' was a stupid mistake, which should be replaced by 'have breakfast'. This makes me self-doubting because I always use the formerThere is another TikTok teacher, who is a native speakerHe is critical with Chinese people's pronunciation and accent, though they do not interfere with understandingWhen what I have learned from school is totally disproved, I feel like I am a loser in English learning."

7. A Critical Attitude to the Motivational Effects of TikTok	,	 Student 7: "It would be enjoyable to learn something from TikTok and have it in class, but how to enjoy these benefits really depends on how TikTok is used in classCurrently, I am not sure (if we can emotionally benefit from MALL)." Student 11: "Sometimes, they (TikTok and the videos on it) are interesting and can stimulate me to learn English, but they can also be stressful, especially when the influencers insist on me completely abandoning the English phrases or expressions I have learned in school."
8. Increased	EM	• Student 20: "I feel satisfied when learning something useful for my oral English tests because they assure me
L2SM		of a high score."
	IM	• Student 6: "I feel proud of myself when using the English expressions that I have learned from TikTok in
		classes(and) I want to learn more."
		Student 21: "I used to feel stressed and reluctant to speak EnglishWhile after learning some useful phrases
		on TikTok, I have become more confident in speakingThis encourages me to learn more and speak more."
9. Decreased	EM	• Student 22: "Compared with those TikTok influencers, my English pronunciation sounds worseI do not
L2SM		want to be laughed at by others. So, I prefer to avoid speaking English when I need to do it."
	Amotivation	Student 10: "Honestly, I feel less motivated to speak English after watching some TikTok videos about
		English learningbecause the TikTok teachers are critical of my pronunciation and vocabulary use in speaking."
		Student 12: "That is demotivating when someone else like a TikTok English teacher is too critical of your
		speaking proficiency."
10. Decreased WTC	WTC-NS WTC-NN WTC-IC	• Student 10: "If your speaking skill and all the knowledge related to it are criticised to be wrong by those seemingly trustworthy TikTok influencers, you will not be willing to speak English as well with your foreign teachers, classmates or anyone because of a sense of failure."

Variable	Construct	Pretest		Posttest		EG		CG	
		Mean	<i>p</i> -value	Mean	<i>p</i> -value	Mean Difference	<i>p</i> -value	Mean Difference	<i>p</i> -value
		Difference		Difference		(Pretest-Posttest)		(Pretest-Posttest)	
		(EG-CG)		(EG-CG)					
GEP		2.27	.45	2.87	.13	5.32	.01	4.87	.03
OEP		78	.87	.53	.08	.94	.02	1.23	.000
L2LM	MI	14	.24	.33	.14	38	.52	-1.27	.000
	DTLE	31	.12	-1.05	.000	1.53	.001	.32	.76
	ATE	.87	.04	-1.65	.000	.94	.04	.29	.81
	Total	.42	.13	-2.37	.000	2.09	.000	66	.13
L2SM	EM	.21	.54	1.21	.000	-2.54	.000	51	.23
	IM	.11	.37	19	.82	.53	.52	.26	.18
	Amotivation	.15	.62	28	.13	1.74	.000	.39	.32
	Total	.47	.19	.74	.08	.27	.48	.14	.23
WTC	WTC-NS	.95	.01	-1.01	.001	1.77	.000	.48	.06
	WTC-NN	38	.32	-1.57	.000	2.01	.000	.36	.47
	WTC-IC	33	.71	.69	.07	54	.09	-1.52	.000
	Total	24	17	-1 89	000	3 24	000	- 68	14

B. Quantitative Findings

Mann-Whitney Tests were firstly run to compare the between-groups statistics. As shown in Table V, the EG and CG generally had the same level of GEP, OEP, L2LM, L2SM and WTC (p > .05) before the study, though a few statistically significant differences were found in certain questionnaire constructs (i.e. ATE and WTC-NS). After the intervention, the EG and CG made a similar level of achievement in the GEP (p = .13) and OEP (p = .08) posttests. However, the EG had a generally lower level of L2LM (p < .001) than the CG, with less DELE (p < .001) and a less positive ATE (p < .001). However, no statistical difference was found between the EG's and CG's posttest scores of L2SM (p = .08), indicating that they had a similar level of L2SM in general. However, the EG had much higher EM than the CG (p < .001) after the study. Regarding the participants' WTC, a significant difference was found in the total test score (p < .001), with the EG having less WTC-NS (p = .001) and WTC-NN (p< .001).

The paired samples Wilcoxon tests were run to compare each group's pretest and posttest scores (see Table V). For the EG, the participants improved GEP (p = .01) and OEP (p = .02) after the intervention. Nevertheless, they had decreased L2LM after the intervention, with the mean

difference being statistically significant (p < .001). They particularly had decreased DELE (p = .001) and ATE (p = .001)= .04), indicating that they were less desired to learn English with a relatively negative attitude to the assistance of TikTok. However, no statistical change was found in terms of their MI (p = .52). Moreover, although their general L2SM (p = .48)and IM (p = .52) did not change, they had a higher level of EM (p < .001) and amotivation (p < .001). Regarding WTC, the participants became less willing to engage in communication activities after the intervention, with the pretest score outweighing the posttest one (p < .001). Significant statistical differences were also found in WTC-NS (p < .001) and WTC-NN (p < .001), suggesting that the students were less willing to undertake communication activities with native speakers and non-native speakers. However, no statistical difference was found regarding WTC-IC (p = .09). The students in the CG also made considerable progress in GEP (p = .03) and OEP (p < .001). Different from the EG, significant statistical differences were not found between the pretest and posttest of L2LM (p = .13), L2SM (p = .23), WTC (p = .06) and most of the pertinent constructs. However, the CG had a much higher level of MI (p < .001) and WTC-IC (p < .001) after the study, denoting that the regular teaching approaches encouraged the participants to make more effort in language learning and to participate in speaking activities in class.

V. DISCUSSION

The qualitative findings of the present study first revealed that the participants held a dichotomy of views on the effectiveness of TikTok use in English learning, with one side supposing that making use of TikTok could assist the development of GEP in general and OEP in particular, in contrast to the other side of students stating that TikTok use was of little effect on their English learning. The latter part of the findings raises a suspicious voice that has not been reported in most previous research, which instead has only presented an affirmative view of students and teachers on the effects of TikTok use [21], [23]. To verify the null hypothesis that TikTok use under the umbrella of MALL could improve English proficiency, a quasi-experimental study was conducted. The results demonstrated the EG in a MALL environment and the CG instructed by regular language teaching approaches had the same levels of GEP and OEP before and after the study and that they both made considerable learning progress under different instructions. On the one hand, the finding that the EG made remarkable learning progress is in line with the ones generated from most previous research with pretest-posttest designs, which has also shown the positive effects of TikTok [24], [25], [27] or other similar Web 2.0 applications [37] on the development of general language proficiency or speaking proficiency. On the other hand, the result that MALL was no more effective than regular pedagogical approaches contrasts the previous findings that mobile learning tends to be a better approach to **ELE** [38],questioning the effectiveness technology-enhanced learning.

Previous literature seems to have exaggerated the effects of either Web 2.0 tools in general or TikTok in particular on L2 learning in an over-optimistic way by seeing MALL as a much more productive way of teaching than the most commonplace classroom-based teaching. Although some challenges (e.g. lack of appropriate learning resources on Web 2.0 platforms, entertaining nature of Web 2.0 applications) of mobile learning have been pointed out [16], cautioning researchers and educators against being credulous of the panacean effects of MALL, it has been generally taken for granted that the mixed variety of Web 2.0 tools are beneficial for language learning, with mainstream research output solidifying this view. According to the present study, the benefits of MALL itself to L2 learning are undeniable, and it must be admitted that for L2 learners and educators in the new age, the "Web 2.0 tools and social media applications surround(ing) all of them...provide opportunities for learning and teaching" [22]. However, whether MALL is better than traditional approaches to L2 education is tentative, necessitating the re-consideration of the question "Does the use of this mobile system lead to improvement in the acquisition of a specific language skill?" [30] and requiring researchers to continue investigating the multifaced effects of using modern technology to assist teaching. Meanwhile, L2 learners should also be advised against over-trusting MALL and taking it as the best solution to language learning, as

Pengnate's [39] study, along with the qualitative phase of the present research, indicates that learners may easily prioritise the assumed strengths of MALL and thus overlook the potential problems with it.

Another aspect of the findings is about the impacts of TikTok use on affective learning. The qualitative phase of the study demonstrated contrasting views, leaving much uncertainty about whether TikTok was a practical tool to create an engaging learning environment. This finding alone has already contrasted the commonly accepted idea that TikTok as one of the most popular Web 2.0 tools can engage L2 learners and enhance their motivation [27]. To further verify the motivational effects of TikTok, three variables reflected in the interviews were identified (i.e. L2LM, L2SM and WTC) in accordance with classical L2 motivation theories [34]-[36]. In the quantitative research, the EG and CG basically had the same degree of motivation, whereas after the study, the former had far lower L2LM and WTC than the latter, with statistical differences found in many constructs (i.e. DTLE, ATE, WTC-NS, WTC-NN). Within-group analyses further confirmed this situation and showed that the EG had decreased motivation for both general language learning and speaking. Specifically, the EG became less desired to learn English or willing to communicate with native and non-native speakers, with a less positive ATE and a strong sense of amotivation in speaking activities. However, both between-groups and within-group analyses suggested the EG had higher EM after the study, indicating that this group of learners became more motivated for L2S because of external factors. This general situation contrasted with the one of the CG, which generally did not see any change in motivation levels but had increased MI and WTC-IC.

Based on these findings, a critical attitude should be held towards the affective impacts of TikTok use and MALL. On the one hand, the integration of classroom-based learning with Web 2.0 applications did not produce the motivational effects expected by most interviewees but somehow discouraged learners from engaging in general English learning and communication. This rejects previous findings, which have presented a positive outlook on affective learning in MALL with the assistance of TikTok [27] or other similar applications [40]. Although the participants mentioned in the interviews that the attention-catching features of the TikTok videos made them self-distrustful with English learning or communication, this explanation seems tentative, with much remains to be explored about the psychological experience in TikTok use [41]. On the other hand, the EG learners' EM improved owing to MALL. Theoretically, this implies the learners got more motivated to speak English because of external factors coming from outside forces rather than within the person. A possible explanation can be Al-Maroof et al.'s [42] research finding that learners' perceived usefulness and practicability of TikTok and similar applications can contribute to EM, as well as Escobar Fandiño, Muñoz and Silva Velandia's [43] assumption that learners in mobile learning demonstrate a strong tendency to EM driven by the external reinforcements that originate in the contingency relationships formed with the educational contexts. Nevertheless, due to the different scopes their research has been placed in, few compatible insights can be drawn for the present study. Instead, it can be only maintained that the motivation for learning EFL under MALL can be a complex process, which necessities the re-consideration of the research question "Does a mobile learning approach have beneficial effects on motivation or affective aspects of learning?" [30].

Moving beyond the discussion of whether supplementing classroom teaching with TikTok is promising, the study has also highlighted the need to reconsider if general MALL is suitable in different educational contexts. The rationale of this appeal rests not only on the findings of the study but also on the possible problems with mobile learning. Previous literature has ascertained various issues of MALL, whereas most of them are associated with a lack of appropriate devices and technological support, unfamiliarity with the learning tools, difficulty in managing students' use of Web 2.0 tools, etc [44]. However, it must be admitted that EFL learners may "have negative attitudes toward the new technologies in general and MALL in particular simply due to some personal factors and preferences" [44], which requires teachers to take learner factors into account when deciding whether to implement MALL or not, and if so, how to do it. Furthermore, when there is not "a clear pedagogical framework" substantiating MALL, a "lack of interest and reluctance in the learners" may become the case [2]. This entails educators carefully designing and developing a MALL-based curriculum when they intend to apply new technology to complement traditional classroom-based teaching.

VI. LIMITATION

The principal limitation concerns the exploratory nature of the study. The prioritisation of qualitative research has made it challenging to decide which items of data to use and how to use them to generate quantitative measures. In this regard, this study may have merely presented some issues of the studied phenomenon, with the others of the same importance neglected. According to South, Levitt and Dewulf [45], "results from a single exploratory case study are necessarily inconclusive but can produce tentative hypotheses and interesting ideas to be pursued by other investigations". From this perspective, it must be admitted that the study has served the purpose to grasp and formulate an understanding of the issue at hand, though its findings need to be further investigated in future research. Additionally, non-probability sampling technique was adopted in the quantitative phase of the study with a relevant small sample size, which could not enable the researchers to generalise the findings to a larger population of interest. Although generalisation is a public problem for educational research, researchers can still take more rigorous designs into consideration, aiming for drawing more profound findings from MALL. Last, the entire study was placed on the notion of MALL and did not consider informal learning, though some participants had mentioned it in the initial qualitative phase of research. This leaves another gap to be filled by researchers, whose work is to investigate the role of TikTok or similar applications in less structured and controlled learning.

VII. CONCLUSION

Embedded in China's educational context, this exploratory study has presented university EFL learners' mixed views on TikTok use in formal language learning, centring around effective learning pertinent to GEP and OEP and affective learning associated with L2LM, L2SM and WTC. Further quantitative research has presented a less favourable picture of findings, suggesting that although utilising TikTok to assist ELE under the umbrella of MALL can facilitate language proficiency, this type of learning mode cannot exert as substantial effects as anticipated on language learning when compared with traditional classroom-based learning. Meanwhile, the affective benefits of TikTok when used to assist in L2 teaching are questioned. Although the participants in the study have become more externally motivated for English-speaking activities under the instructions of MALL, their decreased L2LM and WTC cannot be neglected.

Nevertheless, these findings are inconclusive, the further examination of which is needed not only in China's context but also in other socio-educational systems. At least from the study, an important implication is that instead of wearing rose-tinted glasses, both researchers and educators should take a critical look at the implementation of MALL and the multiple effects it may exert on differing aspects of learning. It should also be noted that this study is merely a preliminary one that has investigated some of the possible issues faced by Chinese EFL learners when using Web 2.0 applications to assist formal language learning, and there is still a much wider research agenda to explore. For example, although the qualitative participants have somehow ascribed their demotivation for language learning to the overcorrecting features of the learning resources on TikTok, the legitimate reasons for the quantitative findings that decreased motivation has been experienced are still uncertain owing to the exploratory nature of the study. This necessitates an explanatory paradigm to be held in future studies to answer not only 'what-effects' questions but also 'why-importance of cause' ones.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

H.H. and K.D. jointly conducted the research, analysed the data and wrote the paper. They have read and agreed with the published version of the manuscript.

ACKNOWLEDGMENT

Special thanks are extended to the participants of the study.

REFERENCES

[1] P. Benson, Language Learning Environments: Spatial Perspectives on SLA, Bristol, U.K.: Multilingual Matters, 2021.

- [2] D. P. Sam and R. Shalini, "Limitations and advantages in implementing MALL in the tertiary ESL classrooms: A review," *International Journal of Recent Technology and Engineering*, vol. 9, no. 5, pp. 27-32, January 2021.
- [3] A. Rogers, The Base of the Iceberg: Informal Learning and Its Impact on Formal and Non-formal Learning, Berlin: Verlag Barbara Budrich, 2014.
- [4] V. H. Shinas, C. N. Ly, and S. Y. Ozden, Cases on Practical Applications for Remote, Hybrid, and Hyflex Teaching, USA: IGI Global, 2022.
- [5] S. Zeng, English Learning in the Digital Age: Agency, Technology and Context, Singapore: Springer, 2018.
- [6] C. M. Paul and H. J. Liu, "Technology and innovation in China's EFL classrooms," *Digital Transformation and Innovation in Chinese Education*, USA: IGI Global, 2018, ch. 9, pp. 163-175.
- [7] C. S. Rong and M. S. H. B. Abdullah, "English language education in the Mainland of China: A review of selected research under the Covid-19 pandemic (2020-2021)," *Open Access Library Journal*, vol. 9, no. 2, February 2022.
- [8] Z. Chen and J. Jia, "Twenty years of MALL in China: Review and prospect," *Foreign Language World*, vol. 2020, no. 1, pp. 88–95, April 2020.
- [9] F. Li, S. Fan, and Y. Wang, "Mobile-assisted language learning in Chinese higher education context: A systematic review from the perspective of the situated learning theory," *Education and Information Technologies*, April 2022.
- [10] X. Zhai and A. B. Razali, "An overview of the utilization of TikTok to improve oral English communication competence among EFL undergraduate students," *Universal Journal of Educational Research*, vol. 9, no. 7, pp. 1439-1451, June 2021.
- [11] P. Hubbard, An invitation to CALL: Foundations of Computer-Assisted Language Learning, Asia-Pacific Association for Computer-Assisted Language Learning, 2021.
- [12] F. Nekoobahr, J. Hawkins, K. L. Santi, J. R. S. Antonelli, and J. L. Thorpe, "Identifying and evaluating language-learning technology tools," *Handbook of Research on Modern Educational Technologies*, *Applications, and Management*, ch. 10, pp. 160-177, 2020.
- [13] V. F. Fitriani, "Portraying EFL students' learning styles in unitilizing mobile-assisted language learning: How to be a good language teacher?" *Journal of Teaching & Learning English in Multicultural Contexts*, vol. 4, no. 1, pp. 34-45, June 2020.
- [14] T. A. S. Mohammed, B. N. Assam, and M. Saidi, "The use of Web 2.0 tools in the foreign language classroom," *Journal of Educational and Social Research*, vol. 10, no. 2, pp. 177-190, March 2020.
- [15] L. Li, New Technologies and Language Learning, London, U.K.: Bloomsbury Publishing, 2017.
- [16] M. S. A. A. Halim and H. Hashim, "Integrating web 2.0 technology in ESL classroom: A review on the benefits and barriers," *Journal of Counseling and Education Technology*, vol. 2, no. 2, pp. 1-8, May 2019.
- [17] M. Yıldırım and L. Gürleroğlu, "A teaching suggestion in the COVID-19 disease pandemic period: the educational website enriched by Web 2.0 tools," *International Journal of Web-Based Learning and Teaching Technologies*, vol. 17, no. 2, pp. 1-17, March 2021.
- [18] Q. Zea and H. Jung, "Learning and sharing creative skills with short videos: a case study of user behavior in TikTok and Bilibili," presented at the International Association of Societies of Design Research Conference 2019, Manchester, U.K., September 2-5, 2019.
- [19] Z. N. Khlaif and S. Salha, "Using TikTok in education: A form of micro-learning or nano-learning?" *Interdisciplinary Journal of Virtual Learning in Medical Sciences*, vol. 12, no. 3, pp. 213-218, September 2021.
- [20] U. I. Adnan, S. Ramli, and I. N. Ismail, "Investigating the usefulness of TikTok as an educational tool," *International Journal of Practices in Teaching and Learning*, vol. 1, no. 2, pp. 1-6, August 2021.
- [21] N. Afidah, N. K. Sari, and H. Hanifah, "Investigating students' perspectives on the use of TikTok as an instructional media in distance learning during pandemic era," *DINAMIKA: Jurnal Kajian Pendidikan Dan* Keislaman, vol. 6, no. 2, pp. 47-68, December 2021.
- [22] M. Baytekin and A. Su-Bergil, "The role of web 2.0 and social media tools in foreign language learning," TOJET: The Turkish Online Journal of Educational Technology, vol. 20, no. 2, pp. 104-115, April 2021.
- [23] R. G. P. Fahdin, "Student's perception toward the use of Tik Tok in learning English vocabulary," *Khazanah: Jurnal Mahasiswa*, vol. 12, no. 2, p. 61, January 2021.

- [24] Z. Zaitun, M. S. Hadi, and E. D. Indriani, "TikTok as a media to enhancing the speaking skills of EFL Student's," *Jurnal Studi Guru Dan Pembelajaran*, vol. 4, no. 1, pp. 89-94, March 2021.
- [25] D. Herlisya and P. Wiratno, "Having good speaking English through Tik Tok application," *Journal Corner of Education, Linguistics and Literature*, vol. 1, no. 3, pp. 191–198, January 2022.
- [26] L. S. Zhen, F. N. Zainuddin, M. A. M. Zin, and M. M. Yunus, "It takes two to tango: Using TikTok Duet Challenge to improve conversation skills," *International Journal of Academic Research in Progressive Education and Development*, vol. 11, no. 1, pp. 170-185, January 2022.
- [27] J. Ferstephanie and T. L. Pratiwi, "TikTok effect to develop students' motivation in speaking ability," *English Journal for Teaching and Learning*, vol. 9, no. 2, pp. 163-178, December 2021.
- [28] J. Ferstephanie and T. L. Pratiwi, "The effect of TikTok to develop students' speaking skill: a classroom action research," Wiralodra English Journal, vol. 6, no. 1, pp. 1-12, March 2022.
- [29] H. Farley and H. Song, "Mobile learning in Southeast Asia: Opportunities and challenges," *Handbook of Mobile Teaching and Learning*, Berlin: Springer, sec. 4, pp. 403-419, 2015.
- [30] A. Kukulska-Hulme, "Reflections on research questions in mobile assisted language learning," *Journal of China Computer-Assisted Language Learning*, vol. 1, no. 1, pp. 28-46, September 2021.
- [31] C. A. Mertler, Introduction to Educational Research, 3rd ed. USA: Sage, 2021.
- [32] K. Vasileiou, J. Barnett, S. Thorpe, and T. Young, "Characterising and justifying sample size sufficiency in interview-based studies: Systematic analysis of qualitative health research over a 15-year period," BMC Medical Research Methodology, vol. 18, 2018.
- [33] H. Hu, N. E. M. Said, and H. Hashim, "Killing two birds with one stone? A study on achievement levels and affective factors in content and language integrated learning (CLIL)," *International Journal of Learning, Teaching and Educational Research*, vol. 21, no. 4, pp. 150-167, April 2022.
- [34] R. Gardner, *The Attitude Motivation Test Battery: Technical Report 1*, London, Canada: University of Western Ontario, 1985.
- [35] K. Noels, L. Pelletier, and R. Vallerand, "Why are you learning a second language? Motivation orientations and self-determination theory," *Language Learning*, vol. 50, no. 1, pp. 57-85, February 2000.
- [36] M. Mahmoodi and I. Moazam, "Willingness to communicate (WTC) and L2 achievement: The case of Arabic language learners," *Procedia Social and Behavioral* Sciences, vol. 98, no. 2014, pp. 1069-1076, May 2014.
- [37] K. Kusmaryani, B. Musthafa, and P. Purnawarman, "The influence of mobile applications on students' speaking skill and critical thinking in English language learning," *Journal of Physics: Conference Series*, vol. 1193, April 2019.
- [38] T. Devana and N. Afifah, "Enhancing students' speaking skill and motivation through Instagram Vlog," in *Proc. 4th SULE-IC 2020 Conf.*, 2020, pp. 358-363.
- [39] W. Pengnate, "Students' attitudes and problems towards the use of Mobile-Assisted Language Learning (MALL)," in *Proc. the 5th ICBIR Conf.*, 2018, pp. 590-593.
- [40] J. Shao, "Research on network resources and mobile-technology-assisted curriculum design of university spoken-English course," M. S. thesis, Nanjing University of Posts and Telecommunications, Nanjing, 2019.
- [41] C. Montag, H. Yang, and J. D. Elhai, "On the psychology of TikTok use: A first glimpse from empirical findings," Frontiers in Public Health, vol. 9, March 2021.
- [42] R. Al-Maroof, K. Ayoubi, K. Alhumaid, A. Aburayya, M. Alshurideh, R. Alfaisal, and S. Salloum, "The acceptance of social media video for knowledge acquisition, sharing and application: A comparative study among YouTube users and TikTok users' for medical purposes," *International Journal of Data and Network Science*, vol. 5, no. 3, pp. 197-214, June 2021.
- [43] F. G. Escobar Fandiño, L. D. Muñoz, and A. J. S. Velandia, "Motivation and e-learning English as a foreign language: A qualitative study," *Heliyon*, vol. 5, no. 9, September 2019.
- [44] E. Mohammadi and Z. S. Shirkamar, "Mobile-assisted language learning: Challenges and setbacks in developing countries," *Cross-Cultural Perspectives on Technology-Enhanced Language Learning*. USA: IGI Global, ch. 10, pp. 172-186, 2018.
- [45] A. J. South, R. E. Levitt, and G. P. M. R. Dewulf, "Stakeholder network dynamics in public-private partnerships," *Public-Private Partnerships* for Infrastructure Development, Cheltenham, U.K.: Edward Elgar Publishing, ch. 2, pp. 35-59, 2019.

Copyright © 2022 by the authors. This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited ($\underline{\text{CC BY 4.0}}$).



Hengzhi Hu obtained his bachelor of arts in French degree from Shanghai International Studies University, Shanghai, China in 2016, and master of teaching in secondary education degree from Monash University, Melbourne, Australia in 2021. He completed his pre-service teacher education and training placements in Australia and has been working as a language teacher in various international teaching contexts for over five

years. Currently, he is a PhD candidate in the Faculty of Education, The National University of Malaysia (UKM). His research is mainly in the areas of second language teaching and learning. His latest indexed publications include "Killing two birds with one stone? A study on achievement levels and affective factors in Content and Language Integrated Learning (CLIL)", "Factors pertinent to L1 use in L2 classroom: A case of Content and Language Integrated Learning", and "Computer-delivered English listening

and speaking test in Zhongkao: Test-taker perception, motivation and performance".



Kehan Du obtained her bachelor's degree in English studies from Zhengzhou University, China in 2011, and the master's degree in TESOL from York University, England in 2014. Currently, she is a lecturer and research director in Henan University of Engineering. Meanwhile, she is doing her PhD research at The National University of Malaysia (UKM). Her research is mainly in the area of TESOL.

Her recent publications include "Exploring the strategy of lexical conversion in English translation skills", "Research on IELTS teaching in Sino-foreign cooperative schools based on OBE Concept — Example of China-Australia Project of Henan Engineering College", and "Exploring the Application of Cooperative Teaching Mode in College English Translation Teaching".