Exploration of university students' lived experiences of using smartphones for English language learning

Abstract
This study aimed to understand the nature of learning English in the digital age from students' personal 'learning lives'. Drawing on hermeneutic phenomenology's principles, this study conducted conversational interviews and obtained reflective reports from students over 5 months. The findings reveal that students' English learning experiences are sociocultural processes involving a complex interplay between learner agency, other agents, the cultural practices using smartphones, and the wider context. Furthermore, learning English using smartphones facilitates an approach to it or Computer Assisted Language Learning that embraces 'anytime' and 'anywhere' learning and involves a seamless integration of personal, social, formal, and informal learnings. Therefore, we propose smartphone-assisted English language learning (SAELL), addressing smartphone use for learning English, based on qualitative data and recent trends in the field. Future research should include rich qualitative evidence to support the SAELL framework in practice in multiple empirical settings. Empirical studies are mostly applied within university settings; however, the practical implications have more relevance to students, teachers, educators, and policymakers who may be involved in shaping novel smartphone learning spaces for formal and informal contexts.

Introduction
In recent decades, due to thier increased affordability, smartphones have been embraced globally by a growing demography (Salcines-Talledo, González-Fernández, & Briones, 2020). With their increasing and ubiquitous integration into users' lives, smartphones continuously adapt people's communication, work, study, entertainment, and life while promoting radical social and economic lifestyle changes (El-Hussein & Cronje, 2010). Students prefer smartphones over other devices for interactions, entertainment, and learning activities (Mammadova, 2019). Moreover, increasing evidence suggests that university students commonly access learning materials via learning management systems, sharing ideas and communicating with peers and teachers, following important announcements using smartphones (Al-Adwan, Al-Madadha, & Zvirzdinaite, 2018). Thus, we developed the following research question: to what extent does using smartphones facilitate a different approach for English language learning (ELL) experienced by our students?

Considering smartphones' growing ownership, scholars are attracted to mobile devices' evolutionary benefits to encourage learning and teaching (Pedro, Barbosa, & Santos, 2018). Hsu (2013) outlines several benefits for language learning provided by mobile technologies including flexibility, portability, and user-friendliness. However, mobile technologies and pedagogical landscapes' rapidly changing nature require frequent revisions of what constitutes learning in the ever-changing digital age (Kellsey & Taylor, 2016). Consequently, mobile learning (m-learning) has been constantly revitalised, supporting students' learning focusing on different perspectives including accessing meaningful, diversified, and authentic learning resources, improving mobility, equipping users with greater location accuracy for contextual learning, and enhancing availability and data security (Kukulska-Hulme & Viberg, 2018; Pedro et al., 2018). Therefore, scholars have been actively exploring the nature of m-learning, which was initially characterised by features such as immediacy, convenience, access, and mobility (Pedro et al., 2018). Research has since expanded to include personal and social perspectives and has explored affordances (Baran, 2014). This shift in focus emphasises individual learners and their contexts, learning requirements, needs, and preferences. Many studies focus mainly

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on m-learning's two sub-fields: 1) theorisation (Kearney, Burden, & Schuck, 2020) and 2) educational relevance (Almaiah & Alismaiel, 2019). However, most studies focus on m-learning's effectiveness and system design based on varied theoretical underpinnings from a quantitative stance (Lai, 2020); few examine individuals' appropriation of their smartphone adoption for learning-related purposes (Chan, Walker, & Gleaves, 2015; Gikas & Grant, 2013). Such lack of consensus on the essence, and the inadequate qualitative understanding of m-learning supports our rationale for a thorough phenomenological study on mobile technologies' contributions to individuals' personalised uses, thus, broadening the field's scope.

This study specifically focuses on ELL within Chinese universities, where English education and proficiency are widely acknowledged as personal and national assets (Hu, 2005). Students' passion for ELL has resulted in various innovative approaches that allow them to have a proactive role in mastering the language (Lai & Zheng, 2018). In China, education systems adhere to a centralised top-down approach, where universities guided by the Ministry of Education are commonly at the technological reform's forefront; nonetheless, they still lack the incorporation of information and communication technology in everyday teaching and learning (Hu & McGrath, 2011). For instance, learning platforms, Massive Open Online Courses, and other networked systems are widely used; nevertheless, individuals in formal settings commonly revert to traditional approaches in 'delivering' learning content. Students' smartphones are used principally in informal situations outside, rather than being integrated within, seminar rooms or lecture halls. Moreover, since COVID-19's emergence, Chinese higher education has shifted focus to technologically-based learning approaches (Bao, 2020), further accelerating mobile learning's implementation. Against such a backdrop, this study aims to explore the 'lived realities' behind such seemingly contradictory positions, through teaching English to non-native university students within the Chinese higher education system from a sociocultural perspective. This study describes Chinese students' lived experiences of using smartphones as a unique educational tool for ELL by exploring the acquisition, possession, and creation of meaning, using these devices within complex and fluid contexts for formal and informal university learning.

Literature review
ELL using smartphones
Several reasons account for smartphones use as this study's focus. Firstly, smartphones have become indispensable and intimate personal assistants. Such reliance has created an updated human-technology relationship, providing 'extensions of human cognitions, senses, and memory' (Moreno & Traxler, 2016, p. 78). Therefore, students' reasons for adopting smartphones may be different from other electronic gadgets because of their features (e.g. multi-tasking, various apps, and communication), personal attachment, and reliance (e.g. ubiquity across different contexts) (Anshari, Almunawar, Shahrill, Wicaksono, & Huda, 2017). Second, despite the increasing acceptance of smartphones for m-learning, most studies employ quantitative approaches, focusing on its effectiveness and system design (Chee, Yahaya, Ibrahim, & Hasan, 2017; Lai, 2020). These studies have confirmed these approaches' positive effects; however, many of their research designs are flawed, such as not having a specific experimental duration or sample size (Burston, 2014). Third, though some studies examine language learning using smartphones (Godwin-Jones, 2017; Klímová, 2018), only a few explore the unique pedagogical benefits of using smartphones as a subset of mobile technology and its associated services/functions, within universities based on students' lived experiences (Gikas & Grant, 2013). What students do with smartphones at the motivational and experiential levels, especially, individuals' experiences of adopting smartphones (Cochrane & Bateman, 2010) have not been adequately analysed. Consequently, Levy (2015, p. 561) has

recommended further research to 'dig deeper into learners' experiences by giving "voice" to it'. Considering the increasing significance of smartphones—which are adopted by millions of users daily, inside and outside the formal contexts of the ELL classroom—learners' voices are of great importance.

Individual perspectives

Sociocultural theory (SCT) has attracted increasing attention and made considerable contributions to second language learning's (SLL) social perspectives. It considers the historical, cultural, social, and contextual perspectives for learning a second language interpersonally and intra-personally (Ma, 2017). Based on Vygotsky's mediation theory, learning is a contextual social endeavour that is promoted by social interaction (Vygotsky, 1978) and mediated by tools (e.g. mobile technologies) (Wertsch, 1991). This indicates that SLL should be undertaken in natural surroundings combining personal, situational, cultural, and societal influences that shape the language's development. Such theoretical approaches accentuate SLL as the internalisation of mediation between learners and resources' ecology, including learning content, significant others, and specific tools (Luckin, 2010). Being significant social and cultural artefacts, mobile technologies play an important role as mediating tools for SLL (Thorne, 2008). Therefore, the emergence of smartphones may facilitate simultaneous and asynchronous interactions between language learners and others (e.g. teachers, peers, and friends) and can provide great support for SLL. Furthermore, easy access to the Internet can provide learners immediate access to inexhaustible resources and increase the opportunities for learning on the go, especially because of the free access to social media and web 2.0 technologies. ELL mediated by smartphones may lead to and push the boundaries of SLL and computer-assisted language learning (CALL).

The rapid development in technologies promotes CALL and mobile-assisted language learning's (MALL) theorisation and development. CALL highlights language learning across multiple contexts involving computer technologies (Egbert, 2005), whereas MALL refers to implementing mobile technologies in language learning, especially when portability and contextualised learning afforded by these technologies offer learning advantages (Kukulska-Hulme, 2012). These definitions recognise the affordances of various personal mobile devices that may create a new way of SLL characterised by continuity, spontaneity of access, and ubiquitous interaction. However, Jarvis and Achilleos (2013) argue that both CALL and MALL emphasise conscious learning, which may not appropriately represent the current status of young people's lived learning experiences with smartphones, where informal and incidental learning are emphasised (Chan et al., 2015). Moreover, we note a recent upsurge of interest in smartphones and smart technologies' potentials, including rich content deliverability, smooth knowledge sharing and interaction, and enhanced personal motivation and empowerment (Anshari et al., 2017; Godwin-Jones, 2017; Klímová, 2018). Although CALL and MALL dominate education technology, exploring the potential complementary approach (i.e. smartphone-assisted English language learning [SAELL]) is important to understand students' lived reality with smartphones for language learning.

As suggested, social and cultural factors are vital for understanding individuals' appropriation of ELL using smartphones. Pachler, Bachmair, and Cook (2010) mention that mobile device-mediated learning is regarded as a culturally embedded meaning-making process in formal and informal contexts, and cultural factors may influence engagement with new technologies (Viberg & Grönlund, 2013). Chan et al. (2015) recommend using a qualitative approach to better theorise learning phenomena using smartphones from cultural and social perspectives. This study focuses on the Chinese context, where cultural factors help shape individuals'

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learning journeys. Chinese education has been significantly influenced by its traditional and pedagogical culture (i.e. the Confucian tradition and exam-oriented system) (Guo, 2015). Therefore, this study expands current literature's scope by including contextualised social and cultural factors to investigate, from students' perspectives, the formal and informal use of smartphones for ELL.

Theorising smartphone-assisted ELL

Pachler et al.'s (2010) 'mobile complex' model is a useful starting point for conceptualising smartphone learning's cultural practices. This sociocultural and ecological model encompasses three interrelated components: agency, cultural practices, and structure. Agency indicates learners' autonomous capabilities to learn, cultural practices refer to formal or informal learning of cultural significance using smartphones, and structures are the sociocultural or technological environment within which learners are located. These interrelationships suggest that mobile technology appropriation is associated with an ecological relationship between these three factors. ELL using smartphones is a subset of MALL. It can be regarded as 'cultural practices' and can be mediated by both individual agency and structures. This framework highlights key elements that are beneficial for increasing our understanding of lived learning phenomena and theorises the mediating relationship between these key elements. Nevertheless, the model is a framework aiming develop a general understanding of m-learning. To fit this model into an ELL context, the model has been integrated into SLL theories including individual differences and SCT (Ma, 2017). The proposed smartphone-assisted ELL is a personal cognitive process initiated by learner agency and shaped by a wider context, cultural practices, and interaction with other agents (Figure 1):
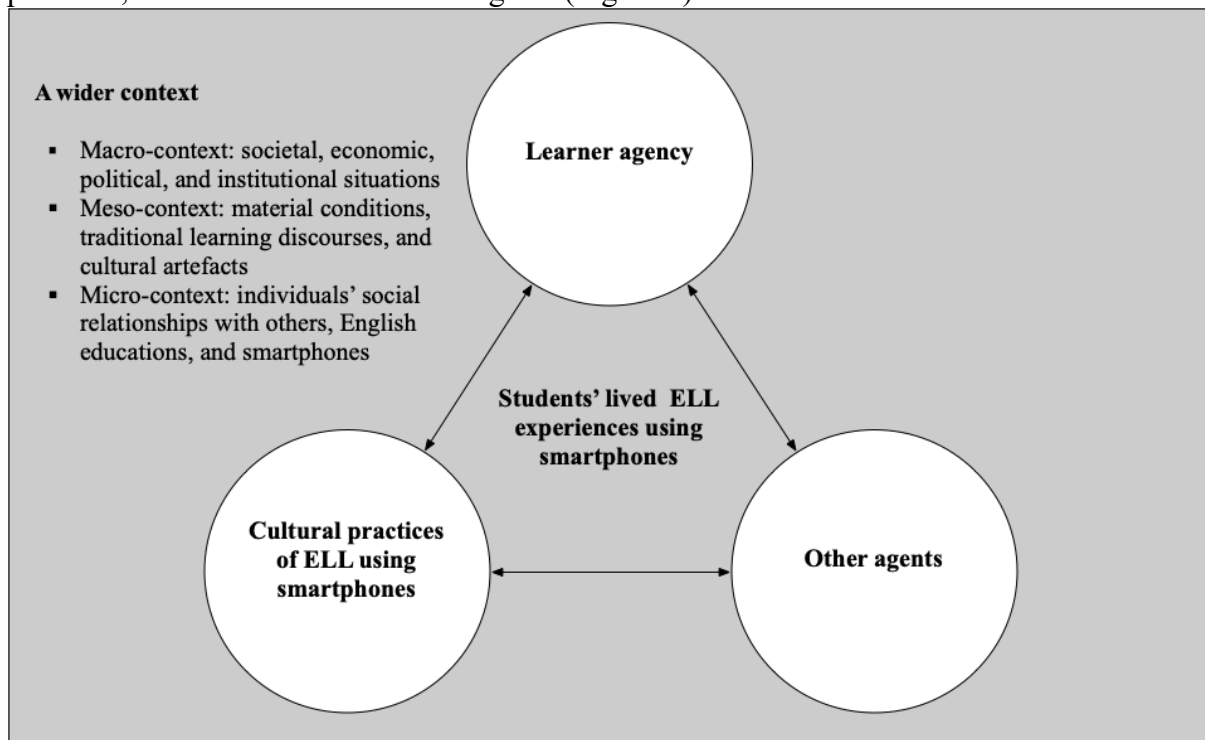

Figure 1. The theoretical framework for smartphone-assisted ELL

Learner agency can be described as individual differences between learners, reflecting an individual's ability to impact their learning. Individual differences involve factors such as motivation and strategies, explaining variations in SLL outcomes within the same contexts (Dörnyei, 2006). Learner agency can, thus, be understood as a dynamic complex system

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involving motivation and self-regulation (Mercer, 2011), driving individuals to be actively involved in constructing their learning.

'Other agents' refers to interactions with others for SLL-related purposes. These agents can be teachers or peers who can provide advice, resources, and scaffolding to help the learners progress. Vygotsky's zone of proximal development (Vygotsky, 1978), referring to the gap between learners' actual developmental level and their potential, can be applied to SLL by bridging the gap through social interactions with more knowledgeable individuals (Lantolf, 2000). Thus, we propose that the conceptual framework should consider social interaction by including 'other agents' to better understand SLL processes.

'Cultural practices' refers to using cultural products and the tools used in SCT to engage in learning practices. These practices focus on how learners choose the appropriate tools to construct individualised learning contexts. Mobile technologies serve as important mediating tools for facilitating communication between learners and others in the SLL process. The mobile feature of 'situatedness and temporariness' may differ from other types of technologies because learners adapt smart technologies to their immediate needs. Learners may choose a certain mobile app because of their temporary needs and interests in incidental learning.

Finally, 'a wider context' refers to 'structure', predefining implementing educational technology. This context comprises a macro-context, meso-context, and micro-context. Thus, students' lived experiences of smartphone-assisted ELL are contextually bound. Broadly speaking, the Chinese society is collectivistic and hierarchical, where individuals are inclined to demonstrate high levels of conformity and abide by authority. Moreover, students have created a collective 'culture of learning' that values memorisation, is exam-oriented and disciplined, and privileges attentive learning (Loh & Teo, 2017), making social and cultural characteristics important indicators of students' learning behaviours. Individually, university students are regarded as digital learners (Bullen, Morgan, Qayyum, & Qayyum, 2011) whose complex use of smartphones may differ from that of previous generations. Therefore, our approach is an ethnographic journey that enables us 'to engage in [our] own learning journey towards a deeper understanding of the phenomenon being studied, the strategies adopted, and [our]selves as researchers' (Ajjawi & Higgs, 2007, p. 633).

Lived experiences
Gewirtz, Ball, and Bowe (1995) maintain that studying higher education within students' lived experiences is important for understanding their social, economic, cultural, and educational choices. Given (2008) highlights that lived experiences can be defined as personal experiences, choices, and the knowledge gained from these experiences. This study addresses a unique learning phenomenon using smartphones and answers the question, 'What does it mean to learn using smartphones?' based on students' experience. Considering this, we approach learning by examining students' personal 'learning lives', and their experiences, opinions, and sense-making are our analysis' focus.

Thus, this study aims to explore smartphone-assisted ELL's nature, based on students' personal 'learning lives', from a sociocultural perspective and potentially explore the interrelationships between the proposed constructs. Since smartphone-assisted ELL comprises different embedded phenomena, our specific questions are:

- What are the lived experiences of ELL with smartphones?
- What are students' opinions of such learning?

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- How does ELL using smartphones contribute to a different approach to ELL or CALL from a sociocultural perspective?

Methodology
Method and participants
We used convenience sampling strategies to invite eligible participants. Ten students studying English as a compulsory subject at a university in China were chosen to participate, considering their gender and educational backgrounds. Although the participants were from one Chinese university, they were of varying gender, age, family backgrounds, and academic disciplines. Thus, reasonably representing university-level English language learners. Our sample comprises:
- Gender: five males and five females.
- Academic disciplines: one student each from business, education, English, tourism management, automation, and information confrontation; four students from electronic engineering.
- Age: 19–22-year-olds (representing university students) from different grades (years 1–4 in the university system).
- Residence prior to university: Beijing, Gansu, Guangxi, Guizhou, Hebei, Hubei, Tianjin, and Zhejiang.

Table 1 contains the participants' demographic details.

Pseudonym	Gender	Age	Household residency	Education background
Daniel	Male	22	Tianjin	Business management, 4th year
Han	Female	20	Zhejiang	Electronic engineering, 3rd year
Hao	Male	21	Zhejiang	Automation, 3rd year
Juan	Female	20	Gansu	Electronic engineering, 3rd year
Long	Male	19	Hebei	English, 1st year
Meng	Female	20	Tianjin	Tourism management; 3rd year
Qi	Female	20	Beijing	Electronic engineering, 3rd year
Qing	Male	19	Anhui	Information confrontation, 1st year
Song	Male	20	Guangxi	Electronic engineering, 2nd year
Ting	Female	20	Guizhou	Education, 2nd year

Table 1. Participants' demographic information

The data were collected using interviews and follow-up questionnaires in two phases. Firstly, using WeChat, we conducted semi-structured interviews over five months in Mandarin Chinese to facilitate smooth and in-depth discussions. The study was conducted during a COVID-19-related strict lockdown. Therefore, we conducted online synchronous interviews as an alternative to in-person interviews, in line with our university's standard ethical procedures. All interviews (n=10) were recorded and transcribed. The online interviews were conducted at a time and location chosen by the participants and lasted approximately 45 minutes. Besides, we conducted a pilot study with one student who was not one of the interviewees aiming to get feedback regarding the timing and the interview guide's clarity (see in appendix). Based on the feedback, we further refined the interview questions. We maintained careful 'hermeneutic alertness' (van Manen, 2016), which entailed a degree of reflexivity concerning participants' situations and stories beyond the face value of their experiences. The interviews included three parts: 1) demographic information; 2) students' ELL experiences across different contexts; and 3) students' experiences regarding smartphone usage for SLL. The second part comprised questions prompting students' elaboration on their ELL behaviour, motivation, and strategies, while the third focused on students' usage, experience, and evaluation of smartphones for ELL. The interview guide was designed based on the research aim and the pertaining questions. After

the interview, the participants were asked to complete open-ended questionnaires focusing on providing learning evidence (e.g. e-notes' screenshots and e-vocabulary list), and a brief account of their experiences and justification of such learning. All participants returned the questionnaires, probably because we established good rapport during the online interviews. There were three main points of contact with the participants: the pre-interview contact, interviews, and follow-up email with the open-ended questionnaire.

Data analysis and interpretation

Since this is an interpretive hermeneutic phenomenological study, thematic and interpretative phenomenological analyses were conducted (Smith & Shinebourne, 2012; van Manen, 2016) to create the thematic structures of 'smartphone-assisted ELL'. Firstly, the translated interview transcriptions were carefully and repeatedly read and coded for emerging themes. Then, adopting the highlighting approach, a detailed reading at sentence or cluster level was conducted. Thereafter, through holistic reading, we further explored the responses' segments and sub-segments, based on our research questions (see Figure 2). Specifically, the main themes collectively depict students' lived experience of smartphone-assisted ELL, focusing on the three main foci proposed in the research questions (i.e. general picture of the lived experiences of smartphone-assisted learning and students' perceptions: themes 1 and 2; pedagogical characteristics and potential barriers related to smartphone-assisted ELL: themes 3 and 4). The lived smartphone-assisted ELL experiences' structures were grouped into sub-themes, considering the different aspects of students' learning behaviour and the sub-aspects of their engagement. The emerging themes were highlighted at a sentence or cluster level comprising 'me and my smartphone', 'self-regulation and motivation', 'difference', and 'a wider context of smartphone learning resistance'.
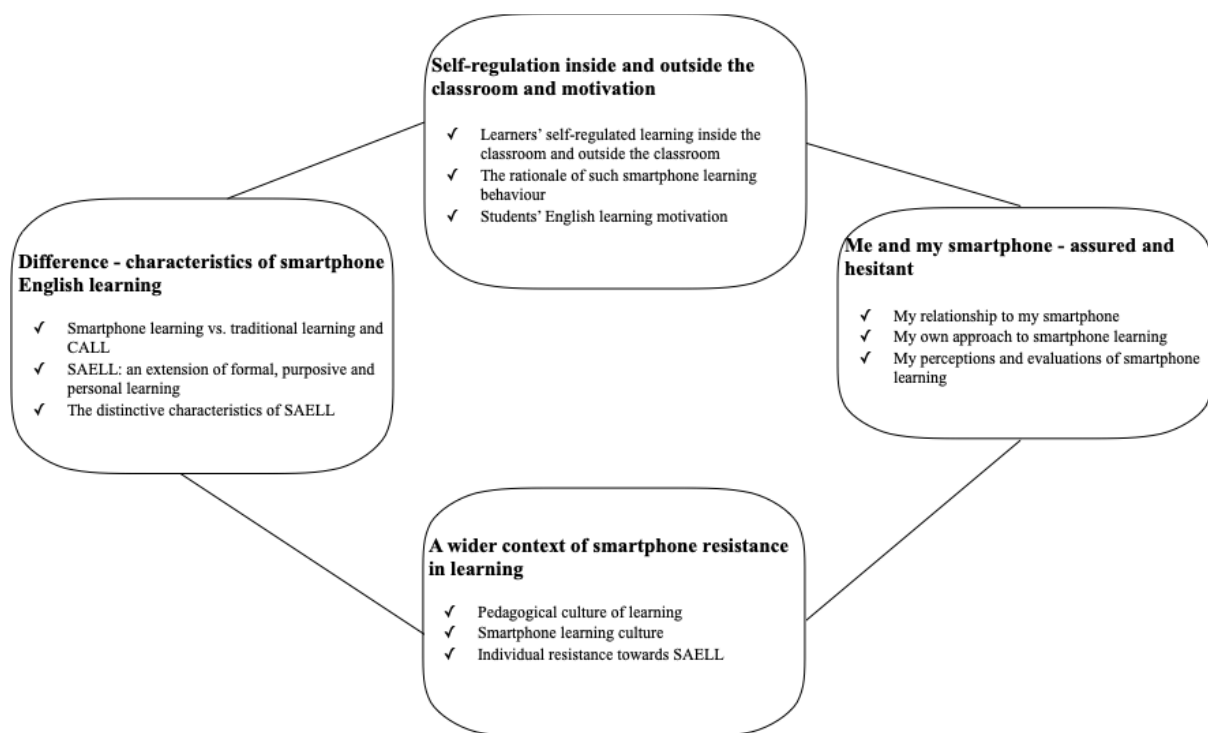

Figure 2. Thematic map of students' smartphone-assisted ELL

Results

Theme 1: 'Me and my smartphone'

Although all participants used smartphones daily, they showed diverse patterns. This theme identified half of the participants as 'assured smartphone learners', whereas the remaining were considered 'hesitant smartphone learners' (see Figure 3).

The 'assured' users expressed their dependency on smartphones by describing them as 'a friend', 'a book to be opened every day', 'an inseparable tool', or 'a buddy'. Thus, they valued their smartphones as an extension of themselves. This intimacy exhibits both physical contact and psychological attachment. They used their smartphones to complete daily tasks; nevertheless, their phones were means to experience their world, construct sophisticated meanings of it, and build intimate interpersonal relationships. One student (Qi) stated the following:

'I use my phone constantly for all sorts of tasks like talking to my friends, searching for information, watching video clips, and playing games. My mum always complains about it. I still remember during summer break, she took my phone away for three days! I felt lost, as if I had been cut off from the outside world'.

These 'assured' users actively adopted smartphones for their ELL owing to smartphones' benefits. This resonates with Kukulska-Hulme and Viberg's (2018) view on mobile phones' affordances. For example, Song's involvement with smartphone learning in informal settings is reflected by his personal interests and autonomy:

'During my second year, I discovered my language-related weaknesses, such as listening and speaking. Then I started using my smartphone, after the class, to help improve. Listening to TED talks or speeches on various mobile apps are a great help!'

All the 'assured' users had positive views on smartphone-assisted learning and expressed their willingness to undertake smartphone-assisted academic learning. Contrastingly, the 'hesitant smartphone learners' acknowledged their phones' technological aspects rather than its educational benefits, leading to a limited adoption, as demonstrated by Juan:

'I use the smartphone for learning but mostly use mobile apps to memorise vocabulary. It is convenient and accessible, especially when you are outside. However, I prefer to use traditional methods because it is more productive… Generally, my smartphone-mediated learning is limited mostly to when I am outdoors.'

Reasons for such hesitations may be distraction (*Qi:* '*I am easily distracted by pop-up messages and app notifications*), smartphones being less effective (*Juan: 'I find it more useful to review and self-learn by taking notes using paper and pen*), or (smartphones' technological disadvantages (*Han: 'if I am in the library, I use a laptop rather than my phone because of the screen size'*).

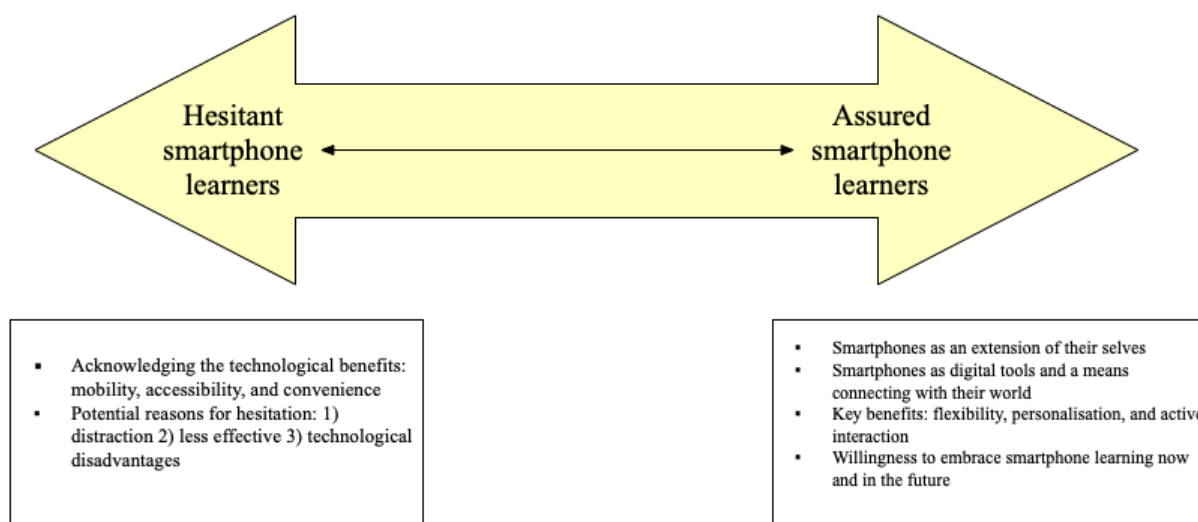**Students' smartphone use behaviour continuum for English language learning**

Hesitant smartphone learners

- Acknowledging the technological benefits: mobility, accessibility, and convenience
- Potential reasons for hesitation: 1) distraction 2) less effective 3) technological disadvantages

Assured smartphone learners

- Smartphones as an extension of their selves
- Smartphones as digital tools and a means connecting with their world
- Key benefits: flexibility, personalisation, and active interaction
- Willingness to embrace smartphone learning now and in the future

Figure 3. Students' smartphone usage behaviour continuum for ELL

<u>*Theme 2: Self-regulation inside and outside the classroom and motivation*</u>

Smartphones were adopted by the learners to adopt various learning behaviours based on their motivation and desire to exert control over how and what they learn using their smartphones. These mobile learning habits may vary inside and outside the classroom. Specifically, half the participants rarely used their phones in class, and the others used them for simple tasks of short durations. They engaged in common in-class actions supporting vocabulary learning and after-class revisions including 'checking the dictionary' and 'taking photographs'. Informally, all participants confirmed their active use of vocabulary and listening apps, according to their personal needs and preferences. Many reported willingness to use their phones outside the classroom to develop receptive skills and to engage in various learning practices such as reading, listening, or interacting with classmates using social networking platforms. Both the formal and informal use of smartphone for ELL demonstrate students' capacity for regulating their learning inside and outside the classroom. Such self-regulated learning can be exemplified in the following excerpts:

Qing stated:

'I check unfamiliar vocabulary using a mobile dictionary during class. Sometimes, I take photos of teachers' slides because I do not have enough time to make notes – nothing else. […] After class, I mostly use my smartphone for doing my routine vocabulary exercise. Besides that, I sometimes watch documentaries on Bilibili, like BBC documentaries.'

Meng said:

'After class, I mainly use the mobile phone to learn English. I have four mobile apps. I use Kekenet English for reading and listening to English articles and practicing the listening exercise for tests. I use Iciba dictionary to check English words. I use Baicizhan lexical app to memorise vocabulary lists and read English novels. I also use the Fanfiction app to read English novels and learn the authentic English used by native speakers.'

Moreover, the participants' smartphone-assisted learning was strongly associated with their ELL motivation, which was closely linked with self-regulation. All the participants viewed

ELL pragmatically, which affected their choices. For instance, they highlighted the College English Test's (CET) importance. Since it is a benchmark for graduation, students memorise the CET vocabulary lists. Four students were interested in Western culture, therefore, they watched English films. Two students believed that mastery of native-like pronunciation was a status symbol, therefore, they accessed authentic language resources to practise pronunciation. This shows that students' autonomous ELL is driven by their learning motivation and interests, guiding their choices of specific learning tools and resources. This is demonstrated by Juan's motivation (e.g. *gaining high test grades*) and actions (e.g. *using vocabulary apps for memorising vocabulary lists and doing mock tests*) and Ting's learning interests (e.g. *improving her pronunciation*) and actions (e.g. *using English-speaking mobile apps to imitate the accents in famous English movies*).

Theme 3: Distinctive characteristics of smartphone ELL from a pedagogical perspective
Smartphone-assisted learning is different from traditional formal learning and CALL; nonetheless, it may be embraced since young students are increasingly engaging with their smartphones and learning can take place while using their smartphones.

Firstly, smartphone-assisted learning can link formal and informal learning by providing students opportunities to extend formal learning with informal self-directed learning by reviewing what was taught in class or revising sections that they may have missed or want to consolidate. Specifically, the participants suggested the possibilities of 'checking out' video recordings after class, 'applying' what had been learned into practice and providing different approaches to language learning for a better understanding, as expressed by Ting. The screenshots provided by Ting (Figure 4) show her informal choices of watching ELL videos using mobile apps (i.e. MOOC and Bilibili) to complement formal learning.

'I like to use my phone to watch educational videos in Bilibili, where people like to share useful and, most importantly, practical educational videos. I find them useful as they are short but pragmatic. Additionally, I can post questions using the function, Danmu to get immediate answers from other online learners.'

Bilibili, which is similar to YouTube, exposes students to fun videos or live streaming and offers more language learning opportunities than traditional video-sharing platforms through online peer interactions via Danmu, a function through which users can leave comments that are superimposed across the screen when the video plays. Here, smartphone-assisted learning bridges the gap between formal and informal learning by consolidating the structured knowledge and creating additional learning opportunities in informal contexts.

Secondly, students' lived experiences demonstrate two types of learning practices: incidental and purposive learning. Students tend to shift between these two based on their academic needs and the affordances of the digital devices. Incidental learning is generally spontaneous and has a short duration (e.g. 'learning on the go') because it is a by-product of other activities (Kerka, 2000). This is confirmed by the participants, who browsed mobile apps such as lexical apps (where they incidentally picked up well-structured English sentences) or video-sharing apps (where they serendipitously chose English movies and began learning). This is observed in Long's statement:

'I listen to podcasts or audio resources when I am on the go. It is like a habit, and I practise listening skills while I am on the move and pick up something unexpected.'

Sometimes, students conduct purposive learning driven by their cognitive goals (e.g. passing examinations, completing assignments, and collaborating with peers). However, only half the participants confirmed adopting smartphones for purposive learning of a longer duration, whereas the others indicated that they used laptops to complete these projects because of their technological advantages (e.g. a bigger screen size and the ability to complete complex tasks). Regarding purposive learning, Daniel noted accessing authentic English materials and online courses:

'I normally use mobile apps to access authentic and free resources or take online English lessons for the IELTS examination.'

Participants initiated different learning strategies to cope with incidental and purposive learning. For incidental learning, they tended to be serendipitous regarding their preferred learning channels or approaches, whether it be reading (textual), videos (visual) or music or podcasts (auditory). Whereas, for purposive learning, participants were inclined to conduct learning activities based on their interest, motivation, and academic requirements, which required a high level of metacognitive strategies (e.g. planning, review exams, and reflections).

Lastly, another two types of learning emerge from the participants' lived ELL experiences: personalised learning, and collaborative and social learning. Specifically, all the participants engaged in personalised learning driven by learner agency. This is consistent with Ma's (2017) study, thereby, demonstrating that learner agency is important in MALL. Pachler et al. (2010) also suggest that mobile users proactively shape their individualised learning contexts. Consequently, learners create an innovative approach to fulfil their personalised and autonomous learning, driven by their ELL motivation, as expressed by Long:

'I am interested in immersing myself in English literature and culture. I enjoy watching documentaries about Western culture. This encourages me to learn English.'

Besides, the participants reported that smartphones were valuable for collaborative and social learning. Although students mainly participated in personalised smartphone-assisted learning, social learning was welcomed at varying degrees. Sub-themes including sharing files, discussing assignments and team projects, and receiving feedback from teachers without the restriction of time or location emerged, as Daniel commented:

'I am preparing for the IELTS. It is lonely, as I do not know anyone to turn to. One day, I joined a group online where most students have the same goal. We share tips and learning materials. I also post questions, and someone always responds very quickly. This helps me remain motivated.'

Participants move fluidly between formal and informal, incidental and purposive, and personalised and social learning in their daily smartphone practices. These types of learning approaches co-exist on a continuum of smartphone-assisted learning driven by learner agency (see Figure 5). Participants' data indicates that smartphones support a dynamic and complex approach for learning without clear boundaries. The different learning approaches complement each other and contribute to students' overall understanding of the virtual and non-digital world.

Figure 4. Examples of students' personalised ELL using smartphones (e.g. Bilibili and MOOC)
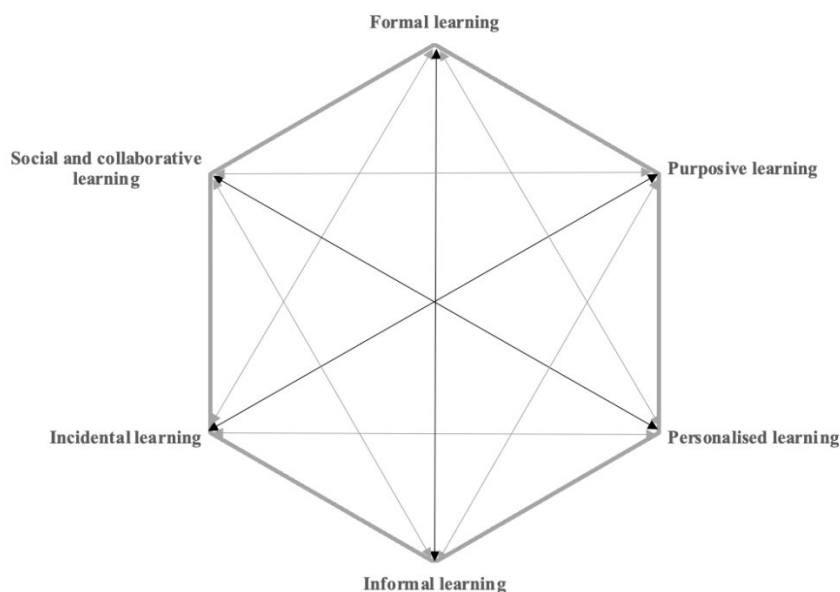
Figure 5. Students' smartphone-assisted ELL continuum from a pedagogical perspective

Theme 4: Wider context of smartphone resistance in learning
Contextually, all the participants collectively reported a strong interest in completing their exams and focusing on their academic achievements. This reflects the wider context of the Chinese pedagogical culture (e.g. passive and exam-oriented). Almost all the participants showed similar learning patterns including rote learning and undertaking mock tests. The learning culture was mostly cognitive, non-communicative, and passive. This reflects a traditional learning discourse's meso-context, representing the sociocultural structures deep approaches to smartphone-assisted learning. Consequently, this type discussed earlier. This habitual learning culture and its patterns impede innovative and of learning becomes a 'surface' approach as suggested by Parpala, Lindblom-Ylänne, Komulainen, Litmanen, and Hirsto (2010), where learning related to rote memorisation with lower levels of questioning and understanding, as demonstrated by Juan:

'I mostly use memo apps daily to memorise CET 6 vocabulary. English learning is more related to reading aloud, memorising grammatical rules and vocabulary...But when it comes to the exam periods, I find it more useful to review and self-learn by taking notes using paper and pen.'

This further expatiates Juan's viewpoint, that 'smartphones are less effective', as a potential drawback of the first theme. This reflects the contextual factors of the pedagogical culture (i.e. emphasising examinations) and traditional learning culture (i.e. collective learning strategies such as memorisation and note-taking), which may hinder the complete acceptance of smartphone learning.

Individually, the participants generally considered the value of 'having fun', thus, taking a utilitarian view of smartphone learning. This position reflects how students' perceptions and behaviours are driven by their motivation. The 'entertaining' element of smartphone-assisted learning reflects the micro-context, involving individual social relationships with their smart tools (i.e. the association of smartphones with entertainment tools) and their personal relationships with ELL, which to some extent undermines their engagement with smartphone-

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assisted ELL. Therefore, learners are likely to engage in less serious learning (e.g. fragmented learning) with short time durations, as Han stated:

'I normally use my smartphone for some fun activities, for example, listening to music and podcasts, when I am on the move… However, when I am in the study room, I use my laptop or shift to traditional ways.'

Meanwhile, some participants assumed that smartphones' 'fun' characteristics can be problematic for those who lack self-control, leading to distraction. This is a barrier to cognitive and purposive learning, which leads to students' limited use of smartphones for serious learning. Han's statement further reflects reasons for the limited adoption of smartphones for learning:

'I do fun things on my phones like chatting with my friends or playing games. Learning does not seem to be my first choice. Even when I use my smartphone for learning, I am easily distracted and end up doing these irrelevant things.' (Han)

The wider cultural and individual context of learning can hinder smartphone-assisted ELL from being completely accepted. Contextually, learning's unified culture may impede students' completely embracing smartphone-assisted ELL seamlessly. Individually, its 'fun' characteristics and multi-functionality may lead to superficial learning or distract students who lack self-control, hindering them from becoming assured smartphone learners. Therefore, the participants critically assessed smartphone-assisted learning's value based on their individualised contexts and the wider pedagogical and cultural contexts.

Discussion

Considering this study's aim, students' lived ELL experiences are sociocultural processes, reinforcing Pachler et al.'s (2010) conceptualisation in that the three key elements (i.e. agency, structures, and cultural practices) jointly influence smartphone-assisted ELL's nature. We extended these theoretical underpinnings by illustrating the complex interplay between four elements—'learner agency', 'other agents', 'cultural practices', and 'a wider context' (see Figure 6). These elements and their interwoven relationships describe the overall landscape of smartphone-assisted ELL based on students' lived experiences. The learners demonstrate dynamic capabilities and agency resulting from individual motivations for ELL, translating into diverse learning actions. The learners with extrinsic and intrinsic motivations employ different cognitive processing that leads to a variety of mental and physical activities, resulting in ELL. These learning actions are driven by the learner themselves, including cognition (e.g. using vocabulary apps for memorising vocabulary lists, check mobile dictionary, or practising receptive skills), self-regulation (e.g. using apps for self-directed learning such as imitating the English accents), entertainment-based learning (e.g. listening to English songs and watching English movies), and interactions with others (e.g. engaging in the collaborative learning tasks and interacting with others). This resonates with Mercer's (2011) suggestion that learner agency driven by motivation and self-regulation is the clear link between students' motivation and their self-directedness for ELL.

'Other agents' include teachers, classmates, and online peers who share learning resources and aid with ELL. The interactions between learners and other agents can be facilitated using smartphones, which are not bound by time or space. Interaction is an indispensable part of SLL, and the current smart technologies accelerate such communication by providing convenience, mobility, and ubiquity.

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Our findings reveal that smartphone-assisted ELL differs from the culturally accepted forms of formal education and the well-established CALL. Informal settings provide features including ubiquity, mobility, authenticity, and personalisation (Kukulska-Hulme & Viberg, 2018). The smartphone-assisted ELL approach allows students to explore digital worlds and transpose valuable knowledge into the non-digital world. Therefore, smartphone-based activities can supplement or extend traditional formal learning. Pedagogically, the data also suggest that learners shift between different learning modes (i.e. personalised or social, formal or informal, and purposive or incidental) in the ELL process. Thus, dynamic and complex learning has ambiguous boundaries and criss-crossed various forms of learning approaches. The data also demonstrate language learning's macro-, meso-, and micro-contexts. Macro-contextually, China is an information society where people proactively use smart technologies to accomplish daily goals. Institutions have embraced technology, especially during the COVID-19 pandemic. Meso-contextually, the culture emphasises traditional learning methods such as assessment-based and learning-by-rote approaches. This may negatively influence adopting smartphones for learning. Micro-contextually, students mostly hold pragmatic opinions regarding ELL. This motivates their smartphone use to be achievement-oriented, focusing on vocabulary memorisation and improving exam outcomes. Students' relationships with themselves and other agents create unique personalised learning contexts for collaborative and interactive learning environments that are beneficial for knowledge construction and information transposition between the digital and face-to-face contexts.
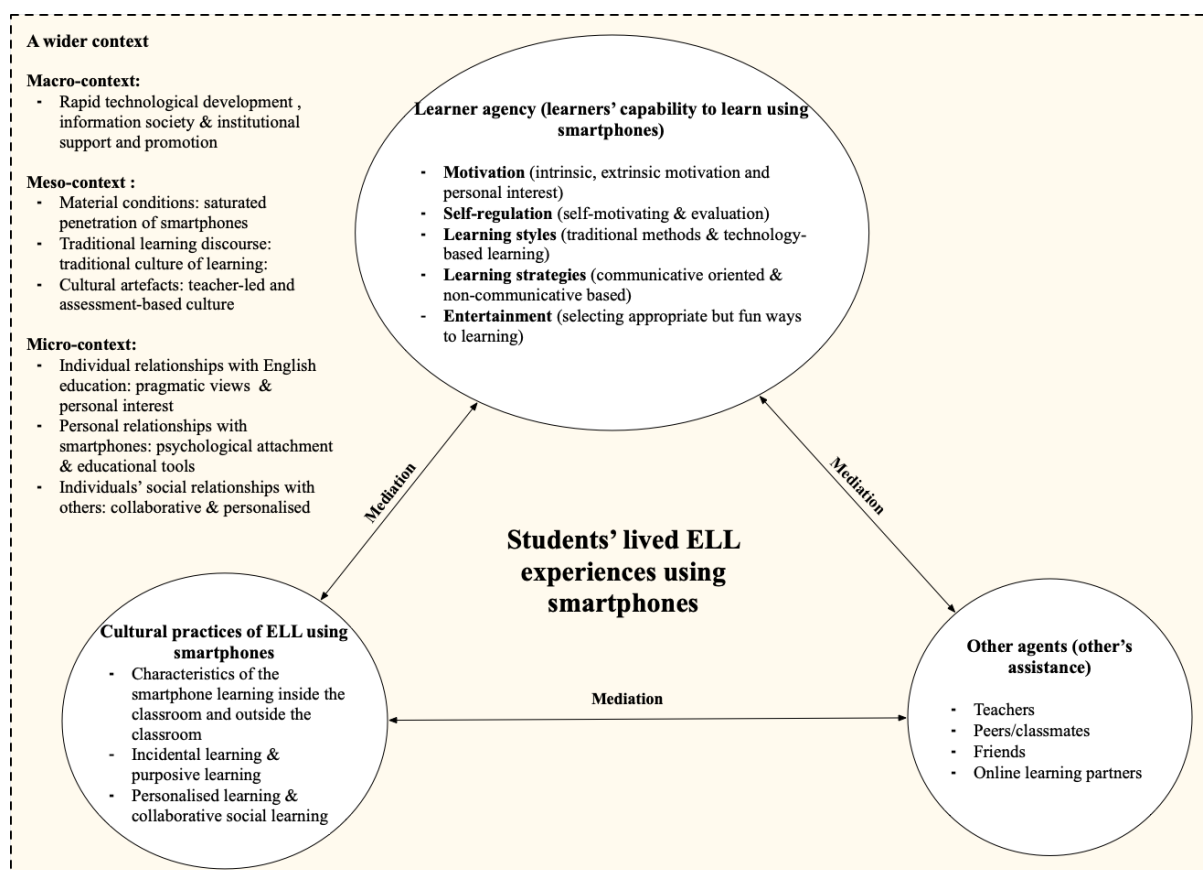

Figure 6. Sociocultural framework for smartphone-assisted ELL

Regarding the first research question, students proactively engage in smartphone-mediated learning activities with a preference for informal learning. This is reflected as the 'cultural practices' of smartphone-assisted ELL. Learners' appropriation of smart technologies is

confined to wider contexts determined by the learner agency and is promoted by the interaction between learners and other agents. Smartphone-assisted ELL is a multi-perspective, complex, and fluid individual and collaborative endeavour. It complements formal learning and is a unique and fruitful approach, assisting students with multiple areas of learning. It also incorporates social aspects and personal preferences, where they become part of the learning culture as the pedagogical structure required for formal education (Chan *et al.*, 2015). Moreover, students' smartphone-assisted ELL is highly subjective and personalised with a strong preference for vocabulary learning. The universal adoption of smartphones in China and the significant investment in its research (Wang, Liu, & Zhang, 2018) corroborate the idea that further adoption is likely to be based on users' preferences and specific learning approaches.

Regarding the second research question, this study affirms the general positive views on the learning outcomes of smartphone-assisted ELL, consistent with other studies (Almaiah & Alismaiel, 2019; Viberg & Grönlund, 2013). Students also consider smartphones as 'double-edged swords', complaining of the 'overwhelming entertainment-related' features that create distractions resulting in increasing disengagement and disruption (Pedro *et al.*, 2018). Such distractions can be attributed to smartphones' multifunctionality (e.g. entertainment and interaction) and students' lack of self-management abilities (e.g. distracted by pop-up messages from social media apps and lack of concentration while using smartphones for learning). This love-hate relationship with their smartphones contributes to learners' smartphone-related behaviours being characterised by incidental, personalised, and often fragmented learning.

Regarding the third research question, this study reveals learners' choices of technological tools for different dimensions of ELL, which may complement the traditionally accepted formal learning and CALL. Learning driven by personal agency features self-directed and personalised learning based on individual differences. The tasks' nature and technological characteristics are important for determining students' acceptance of smartphone-assisted learning. Furthermore, psychological attachment and self-identity development are also supported by smartphone-mediated learning practices, potentially making SAELL a part as well as an extension of CALL. Thus, SAELL no longer reflects a change of medium for learning; instead, it may push the boundaries of CALL using smart technologies not just as mediating tools but also as sources of various concrete pedagogical approaches where learner agency is at the centre. Compared to the serious learning that occurs within formal contexts emphasised by CALL, the participants highlight the importance of informal smartphone-assisted learning with fragmented and incidental learning as asserted by Lai and Zheng (2018). This study also confirms Kearney, Schuck, Burden, and Aubusson's (2012) proposal suggesting that students can proactively adopt personalised and social learning and have immediate access to learning based on their individual and collective interests and needs.

In sum, our study makes a strong case for further research on CALL addressing smartphone-assisted ELL, that is, SAELL, based on the digital generation's lived experiences. Despite CALL's importance, the following are reasons for implementing this complementary approach: SAELL's unique characteristics that seamlessly bridge formal and informal contexts; students' psychological attachment to smartphones; and smartphones' pedagogical and technological affordances. Our attempt to extend CALL echoes Jarvis and Achilleos's (2013) proposal, Mobile Assisted Language Use. Our study furthers this by examining smartphones' role as both advanced technological devices and inseparable psychological assistants in students' lived ELL experiences. Therefore, we define SAELL as the implementation of smartphones in the field of ELL for personal, academic, and social purposes in formal and informal contexts by taking advantage of various smartphone affordances

including ubiquity, portability, learning opportunities, personalisation, socialisation, and cultural authenticity.

Limitations and future directions
Firstly, owing to practical constraints, only ten students participated in this study. The results may have been skewed since the limited sample may have comprises participants who are motivated to use their smartphones for ELL. Additionally, these findings' generalisability may be limited. Future studies should employ larger samples with varied demographic backgrounds to examine SAELL. Second, this study centres on students' perspectives and their metacognitive account of their learning behaviour through semi-structured interviews. While valid, this type of study is exploratory and perceptions-based. Specifically, students may misinterpret the smartphone use in formal or informal settings because of culturally-bound perceptions of smartphones as 'entertainment tools' with an 'unstructured nature'. Future studies should consider adopting multiple research methods to generate an all-inclusive picture of SAELL, comprehensively exploring formal and informal smartphone-assisted ELL or by examining an updated model using rich empirical evidence and advocating for an extended, comprehensive, and self-directed mobile learning framework within or beyond the classroom.

Conclusion
This study meets the research aim and provides valuable insights into smartphone use from students' perspectives, bridging the gap between theory, contextual understandings, and stakeholders' exploration of smartphone learning. Thus, recommendations are to customise the smartphone-assisted formal education into an adaptive, personalised, and informal smartphone learning approach to meet the current generation's needs. This study provides valuable insights for key stakeholders for implementing well-informed curriculum innovations and pedagogical practices. Additionally, institutions and educators should recognise that informal learning is more than an inferior counterpart to formal learning because students perceive it as a significant type of learning that can be tailored towards individual needs, paces, and interests. Furthermore, learner agency should be prioritised because it is the starting point in defining an individual's adoption of any technology. Pedagogically, the gap between mobile affordance and students' actual use of it indicates that teachers should introduce collaborative activities and create an interactive and supportive environment where students feel comfortable sharing and conducting smartphone-assisted social learning. Finally, considering the 'mobile complex' (Pachler et al., 2010), this study adds one crucial aspect (i.e. other agents) that plays an important role in SLL and CALL in designing an authentic SAELL framework.

Disclosure Statement
- The manuscript contains anonymised data and abides by the British Educational Research Association's guidelines.
- The authors confirm there are no conflicts of interest.

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