



## **Exploring the Potential of Push Notification in ESL: A Qualitative Inquiry**

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### **Introduction**

Today, the use of technology in higher education institutions has bolstered levels of learner agency as well as generating new opportunities to create individual learning experiences, regardless of temporal or spatial challenges and limitations (Huang et al., 2019; Reyhav et al., 2015). Such development has empowered learners to shape and facilitate personalised learning by enabling them to access e-learning resources anytime and anywhere. This study developed an application or “app” portal that affords students access to language learning materials while allowing teachers to support their students’ learning by sending them push notifications: messages that pop up on the screens of mobile devices. The lack of an existing English as a second language (ESL) app prevents students and teachers alike from being able to capitalize fully upon the capabilities of MALL technology. Accordingly, the aim of this study is to gain insight into the use of a mobile app, iELC, which we specifically intend to complement the in-class language learning environment and to foster a culture of self-directed learning—outside the classroom—among students by affording them access to a variety of language resources in the ESL contexts of higher education institutions in Hong Kong. To structure this explorative and interpretive pilot study, we focus on the following broad research question: What were the students’ perceptions of using the iELC app and receiving push notifications to support their learning?

### **Literature Review**

In higher education institutions in Hong Kong and beyond, there is great emphasis upon efforts to maximize opportunities for student learning—and to optimise the resources with which learners may engage in their studies. As learners are becoming increasingly comfortable with accessing teaching and learning resources from their mobile devices (Huang et al., 2019), educators are considering how best to



incorporate MALL in ESL teaching (Wong et al., 2015), as learning is transformed into a spontaneous and ubiquitous process.

Studies have found that MALL resources and apps in particular play a noteworthy role in the effectiveness of language acquisition (Rosell-Aguilar, 2018). Specifically, they have the potential to promote language acquisition in relation to the skills of speaking (Burston, 2015), writing (Andujar, 2016), vocabulary (Kohnke, 2020; Kohnke et al., 2019, 2020), pronunciation (Hwang & Fu, 2019), listening comprehension (Azar & Nasri, 2014) and grammatical accuracy (Baleghizadeh & Oladrostam, 2010). Earlier scholarship has also shown that learners prefer to listen to audio and watch videos on their mobile phones to exploit “pockets of time” (Steel, 2012, p. 3) by engaging in more productive language activities (Lin & Lin, 2019).

Moreover, MALL resources have improved learners’ skills effectively in thinking and creativity, and their abilities to self-study and self-regulate (Zou et al., 2018), as well as language acquisition in formal and informal settings (Kukulka-Hulme & Viberg, 2018). Zou and Yan (2014) established that Chinese students are enthusiastic about the prospect of incorporating MALL into their approaches to learning to develop their English proficiency. Ma (2019) also suggested that Chinese learners who hope to acquire English as a second language are increasingly using apps. Learners believe that by utilising such resources, their creativity can be positively stimulated, and the comprehensibility of the target language can be extended. Although Chinese ESL learners’ passive learning style remains one key issue to the ESL practitioners, it seems that the use of mobile technologies can address such an issue (Kohnke, 2020; Zhang & Zou, 2020). To continuously engage students in the process-oriented language learning process, especially without the presence of teachers outside the classroom, the feature of push notification on apps bridges learning in and outside of class, leading to better results. Further research indicates that, if teachers send push notifications to their students’ mobile devices, levels of learner engagement in forthcoming learning activities (Pham et al., 2016) are likely to be greater. In employing push notifications as a communication channel, educators can also strengthen the lines of direct communication between teacher and student.

## Methodology

This pilot study adopted a qualitative interpretive paradigm (Richards, 2003) focusing upon the perceptions of students’ usage of an app portal, iELC, as an educational resource. This study explores what influences student’s behaviour and usage of the app by providing rich and in-depth insight to reflect their lived experiences (Geertz, 1973).

## Background and Participant Information

Fourteen first-year students studying logistics at an English-medium university in Hong Kong—and enrolled in an English for Academic Purposes course—participated in this study. The first author of this paper taught the course and invited the students to participate. The respondents all came from either Hong Kong or mainland China and were a culturally and linguistically homogenous group; Chinese was their L1 while English was their second language. Their level of proficiency in English was around IELTS 6.5. The participants’ ages ranged from 18 to 19. Eight participants were male while six were female. Ethical approval for the study was provided at the university level, with all participants giving informed consent.

## Data Collection and Analysis

Participants used the application in- and outside the classroom for a 5-week intensive EAP course. Data were collected through semi-structured interviews to facilitate an in-depth exploration of the participants’ experiences and perceptions (Cohen et al., 2011) with the application. The authors

developed the interview guide, which was designed to elicit insight into the participants' experiences. The interview guide consisted of the following broad questions:

- What is your view on using mobile devices for language learning? Why?
- How did you react to receiving push notifications? Why?
- What resources did you find helpful? Why?
- What did you find most useful about the app? Why?

Each interview was carried out in English and lasted for an average of 39 minutes. The interviews were recorded and transcribed, and each interview was coded as "S1," "S2," etc. Qualitative data from the interviews were subjected to iterative thematic analysis (Braun & Clarke, 2006) to provide a rich, detailed and complex account of the data. Each transcript was analysed manually by each author, themes were compared and reworked, and a final set was agreed on. Participants completed two member checks through e-mail to establish the trustworthiness of the qualitative data (Nowell et al., 2017).

## Materials

The lead author created an app portal, iELC, to afford students access to additional learning resources. Using a platform of this kind enables us to align the online and offline English teaching and learning resources; to bring them together through a single access point in the form of an easy and comprehensive learning resource. Thus, a key consideration when designing the app was that it would expand and enhance learning and teaching experiences to improve learning outcomes. For example, the iELC app allows students access to English language centre (ELC) online courses (private online courses) that have been developed in house, guidance about how to develop the relevant skills for job interviews and referencing guides—as well as tools to practice their pronunciation and to sign up for workshops and individual consultations with English teachers (See Figure 1).



Figure 1. Home screen.

The app was used inside the classroom to provide learners with an alternative way to access learning content (e.g., referencing, pronunciation, language learning activities) to complete in-class activities to avoid traditional monotonous learning patterns. Similarly, outside the classroom, students used the app to be more informed about and accountable for their language learning by having access to other language opportunities such as online courses (e.g., MOOC, SPOC). They were kept in the loop via push notifications and updated calendar events (e.g., language workshops, seminars).

The app also enables students to receive push notifications after registering by using their official university e-mail account and selecting the course in which they are enrolled (see Figure 2) from their teachers, which informs them about important course updates, assignment deadlines and independent sites for language learning (see Figure 3).

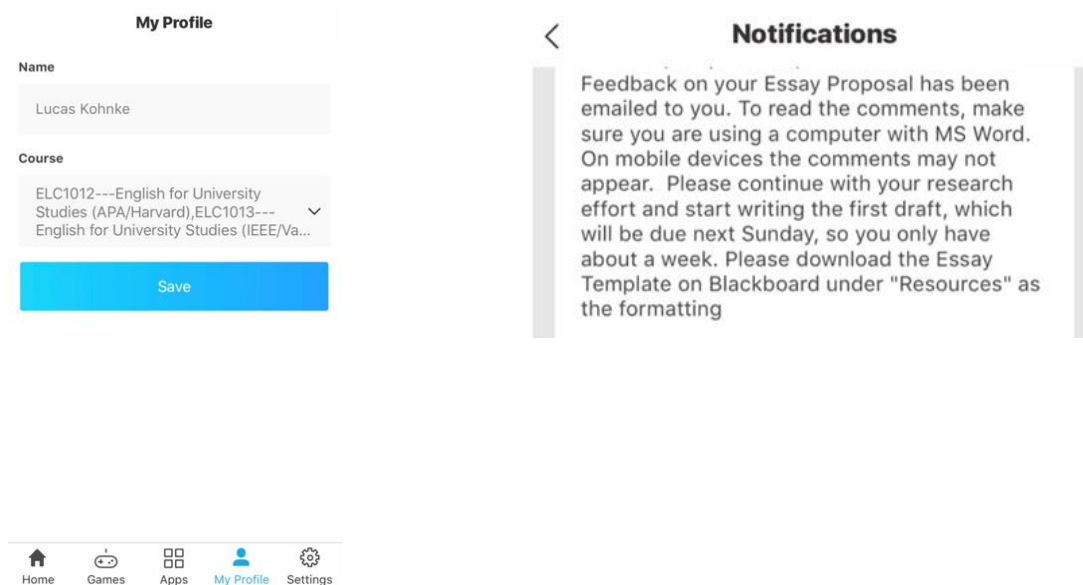


Figure 2. My profile.

Figure 3. Push notification.

## Results and Discussion

During the qualitative data analysis, three main themes emerged: motivational aspects, push notifications and iELC features. In the discussion that follows, we incorporate extracts from the participants’ interviews to give voice to their experiences, thereby providing a thick description of their perception of MALL and iELC as accurately as possible.

### Motivational Aspects

The dominant theme that emerged from the interviews confirmed previous studies’ conclusions that ESL learners find it motivational to incorporate mobile devices (e.g., smartphones, tablets, laptops) in their learning (Godwin-Jones, 2017; Huang & Yu, 2019). Most participants began the interviews by discussing how using their mobile devices felt natural and motivated them to complete both in- and out-of-class activities. One participant (S5) commented that “My cell phone provides instant help and resources,” and, when probed further, elaborated: “I can access the online dictionary, course links and files I have saved.” This view that mobile devices facilitated learning by allowing instant access to language resources was deemed motivational by eight of the interview participants. As two of them reported,

*You know, it is a lot quicker using my iPad to look things up than searching pages of course notes. I can do my work better by using my phone. (S12)*

*This saves a lot of time, and actually, I think it can improve my English and is not so boring. (S14)*

This identification of mobile devices as an essential tool that suits students' learning needs was summed up by S8:

*I use my phone from [the time] I wake up in the morning to text friends, look at my calendar, and play games and watch videos. I use my phone when I'm studying at home and in the library and it makes me feel this is the right thing to do.*

These comments reflect the overall impression that mobile devices generate new and exciting opportunities, and they are more convenient and time-efficient than other forms of learning. This echoes studies by Zou and Yan (2014) and Kohnke (2020), in that Chinese students are excited about MALL in developing their English proficiency. Additionally, today's students are highly mobile (Read & Barcena, 2016) and prefer to access language-related materials digitally (Healey, 2018). This is pertinent, because MALL is perceived as motivational and stimulating; there are often better learning outcomes in terms of language acquisition (Ahn & Lee, 2016).

While most of the students provided overwhelmingly positive quotations in support of MALL resources, S6 asserted that smartphones could be distracting and negatively impacted his ability to concentrate inside the classroom. This sentiment was reiterated by S9, who remarked: "When I'm in the classroom, I prefer not to use my phone, because I might check Facebook and lose concentration." Moreover, most participants expressed overall satisfaction with the app. However, three, interviewees expressed reservations regarding the user interface. S8 found it too rudimentary, requiring more "animation and moving parts to motivate me to use it." Despite this, most of the participants found the app simple to use and easy to navigate. S14 remarked: "It is very easy to locate the information, and the text and colours are clear." S6 echoed this by stating: "The blocks are big, and I can locate quickly what I'm looking for." Generally, the students seemed to be enthusiastic about exploiting MALL and the intuitive capabilities of the app, which contributed to its usability and to maximise their learning.

Some participants stated that they used laptops for more cognitively demanding tasks. One participant indicated that, although using her mobile phone allows her to engage more with the content on a surface level in class, she is more likely to concentrate when using her laptop, because she perceives that doing so facilitates multitasking and deeper learning better. This finding complements those of Lai and Zheng's (2018) study of higher education students in Hong Kong who used their mobile devices to learn. Although a few of the participants were sceptical about using mobile phones, the vast majority remarked on the important roles their mobile phones play in their daily lives. Indeed, ESL students are increasingly expected to use technology in their learning, and they considered their phones extensions of their lives, which motivated and aided their learning anytime and anywhere (Kohnke & Ting, 2021).

## **Push Communication**

It was also germane to discover the participants' experience with the push notification function in the iELC, and the way, if any, in which it allowed their teacher to support their learning. The participants reported that the push notifications they received from their teacher were initially unexpected and, to a degree, distracting. For example, S4 commented, "So, I looked at my screen and surprisingly there was a message reminding me to complete the homework." S11 recounted why he, at first, felt distracted by the messages: "I was having lunch with my family and my phone vibrated and there was a message from my teacher." Unlike S4 and S11, who reported that they found the push notifications distracting, the responses from other participants revealed that—after the initial learning curve—they found the messages engaging and agreed that these messages increased the sense of student-teacher communication.

This point is exemplified in the following words from S1: “I liked the messages. It felt like the teacher cared and wanted to make sure [I] came prepared, and I appreciated the reminders.” The participants felt that the push notifications improved their relationships with their teachers as well as their engagement with the course materials while blending their learning inside and outside class. S7 stated that she felt stronger engagement with the course material and had an easier time focusing: “Before, I wasn’t always sure what to do, but the messages are short and told me exactly what I should be doing.” The specific nature of the messages was something the majority of participants highlighted as being a positive attribute of receiving push notifications. S2 noted:

*Teacher e-mails tend to be long, and it is not easy to always figure out what I should be doing. Plus, I don’t always check my e-mails.... When I receive the push notification, there is only a short sentence, so I know immediately what I should be doing.*

S12, meanwhile, described a typical notification: “the message says complete Activity 3, read pg. 4, and I feel like I haven’t missed an important e-mail.” These comments illustrate the simplicity and clarity with which push notifications can communicate messages. The interviewees also expressed their preference for receiving push notifications over a great number of e-mails due to the reading time saved. S13 said that no longer having to navigate the “e-mail jungle” helped her to streamline her time. She further remarked that she did not have to concentrate as much to get the gist of teachers’ messages. The participants’ experiences with push notification supports earlier MALL research that their engagement increases (Pham et al., 2016). As the participants mentioned, push notifications provided new constructive opportunities for the students to access content and enabled the teacher to support them with additional language resources anytime and anywhere (Reychav et al., 2015).

Participants discussed the advantages of both the app and push notifications in great depth. However, they also expressed concerns about being able to receive messages while being unable to reply to them. For instance, S10 stated: “It would be helpful if we could reply to the push notifications”; likewise, S9 remarked: “While I appreciate the push notifications, it could be even more convenient if we could chat with our teacher using the app.” These two quotations exemplify several of the participants’ perceptions of the limitations of one-way push notifications. Feedback from learners is particularly important for the sustainability and improvement of the app. Although participants were satisfied with the app overall, they felt that it could be rendered more useful for facilitating interaction and learning experiences.

## **iELC Features**

The interviewees felt that their use of the iELC app strengthened their study abilities in- and outside class. Overall, they were enthusiastic about incorporating the app into their study routines to develop their English proficiency; the resources that were available through the app facilitated their learning. Interviewees highlighted the fact that they were encouraged to use the app to access resources—through, for example, the booking and workshop function or the vocabulary app—both during face-to-face classes and outside the physical classroom through push notifications. S2 commented that, because of push notifications, “[N]ow I realise I could use some extra help, so I make an appointment immediately.” S13 added that, through push notifications, the teacher “reminded us to use the referencing guide when we wrote the referencing list.” S14 asserted that she found the calendar particularly helpful when she was searching for suitable workshops.

Nearly all the participants found the referencing and pronunciation resources immensely helpful in completing activities and assignments. S5 enthused: “When I write my essay, it is good to know how to cite correctly. My teacher always tells me I have done it incorrectly, so this helps me to check it myself.” S11 reflected: “For me, pronunciation is difficult, and I need a lot of practice. I like that I can listen to the pronunciation of sounds and repeat [the sounds] as I practice.” The participants’ statements confirmed overall that iELC and apps in general can aid in the language learning acquisition of both receptive and productive skills (Burston, 2015; Godwin-Jones, 2017). Earlier studies (Rosell-Aguilar, 2018) found that

ESL learners can improve both receptive and productive skills by using MALL, so these findings are encouraging.

Although participants praised many of the app's resources, which enabled them to learn English anytime, anywhere, they did not view all the functions as integral to their studies. Thirteen of the participants thought the social media integration was not very useful; S3 stated: "I can check Instagram directly using the [Instagram] app; I don't need it to be in the school app." This comment highlights the fact that, although the participants enjoyed the learning resources and receiving communications from their teacher, they still regarded social media as for personal use only which is similar to previous studies by Ma (2019) and Levy and Steel (2015). Overall, the resources of iELC appealed to students, and they generally found that the push notifications increased their engagement with the course content.

## Conclusion

The aim of this study was to explore Hong Kong university ESL students' perceptions of an app, to understand and cater to these students' learning needs in a digitized learning environment better and to inform future app design. Our findings suggest that most participants found the iELC useful and thought it helped them to access language learning resources. Participants generally expressed positive attitudes towards the app and were motivated to use it. A few participants mentioned that receiving push notifications from teachers initially raised their stress levels—but did not disrupt their learning. Instead, participants found this feature convenient, helpful and encouraging overall, as it reminded them of important deadlines and additional resources.

In this study, we have also confirmed previous studies (Kohnke, 2020; Ma, 2019; Zou & Yan, 2014) that MALL can increase Chinese students' enthusiasm for and engagement with English language learning. Participants noted that the app's convenience, ease of access and clarity of content facilitated an efficient and positive user experience. These results provide credible evidence that iELC can serve as a valuable teaching and learning resource and can motivate students to use English language resources both inside and outside the classroom.

This study was an initial pilot test of adopting push notifications as a delivery mechanism for course-related information and resources. App development is still evolving in accordance with users' needs and will drive future approaches to language learning. Future studies could investigate the extent to which students used various resources (e.g., referencing and pronunciation), and include a longer intervention to afford a more holistic understanding of students' experiences.

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