Exploring Learner Perception, Experience and Motivation of Using a Mobile App in L2 Vocabulary Acquisition

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ABSTRACT

In recent years, the widespread growth of mobile-assisted language learning using apps has made English vocabulary learning increasingly accessible. This study investigated students' perceptions of a vocabulary learning app developed by the researcher as a tool to help them to improve their L2 receptive vocabulary. The app, containing 20 levels, works with both iOS and Android. The participants were 14 undergraduate students at an English-medium university in Hong Kong. A qualitative methodology of semi-structured interviews captured a holistic overview and revealed students' perceptions of the app. The results suggested that Hong Kong university students have a strong motivation for acquiring an L2 vocabulary. Participants also indicated a preference for mobile applications using gamified features. The study highlights directions for future research into apps for English language learning.

KEYWORDS

INTRODUCTION

Today, nearly all language teachers and learners use digital technologies (Healey, 2018), providing exciting opportunities for effective, authentic language teaching which can motivate students (Kessler, 2018). These opportunities include rich, real-time and convenient mobile-assisted language learning (MALL), particularly through mobile applications (apps) that allow study anytime and anywhere (Duman et al., 2015; Godwin-Jones, 2017). However, there have been few recent studies into the success of MALL for L2 development (Burston, 2015; Shadiev et al., 2017).

Vocabulary learning is a major challenge when learning a second language, and it is the most frequently explored skill in current MALL studies (Burston, 2015). Mobile technologies can aid learners in learning a large number of vocabulary (I.S.P. Nation, 2001). Specifically, mobile learning allows L2 learners to learn in small bites (Sung et al., 2016) at their own pace, and to adjust the difficulty to match their proficiency (Rosell-Aguilar, 2018). Consequently, educators need to incorporate MALL into language teaching and learning (Burston, 2015). It is therefore vital to evaluate the design and perceptions of such technology for L2 learning. This study explores students' perceptions of one language learning app: *Alphabet vs Aliens @PolyU*.

LITERATURE REVIEW

In Hong Kong and beyond, there are increasing calls to incorporate independent learning using online platforms in teaching (Kessler, 2018). Apps have created many new avenues for students to develop their English proficiency (Chen et al., 2017). Chinese students want to utilise mobile technologies to develop their English competency (Zou & Yan, 2014). Thus, educators are naturally considering how to incorporate MALL in teaching (Wong et al., 2015). Apps now play a significant role in the effectiveness of language learning and classroom instruction (Rosell-Aguilar, 2018; Vurdien, 2017). However, the design of the apps and their use inside and outside the classroom may be quite different. MALL fosters independence and ubiquitous learning in informal settings (Burston, 2015), but there are still few studies of how L2 learners use apps outside the classroom (Stockwell & Liu, 2015). Mason and Zhang (2017) revealed that 94% of their Chinese participants used apps independently and recognised their importance for L2, but that learners only used a few of the features available. Thus, it is important to determine the features learners prefer and to tailor the app design appropriately.

Vocabulary acquisition is a focus of many studies, as it is essential to language acquisition (Duman et al., 2015), and recently, several vocabulary-learning apps have emerged (Chen et al., 2019). Effective vocabulary learning requires instruction that is versatile and systematic enough to encourage positive uptake (Nation, 2008). Moreover, teaching L2 vocabulary using MALL can improve learners' motivation (Zou et al., 2018). Educational technologists are therefore focusing on vocabulary app development (Godwin-Jones, 2017) and the ways apps can facilitate vocabulary uptake (Burston, 2015; Duman et al., 2015). This is particularly important in settings where learners cannot easily practice the target language, and thus they struggle to retain the vocabulary (I.S.P. Nation, 2001). Since there is no single way of becoming proficient in or learning a language, developers need to consider the needs of target learners, as some might prefer drilling and/or communicative practices, whereas others only want to learn vocabulary. Moreover, certain app activities are easier than others to design, such as vocabulary recall and grammar drilling (Rosell-Aguilar, 2018). Kim and Kwon (2012) established that most apps focus on recall and comprehension, and few involve collaborative learning. Reinders and Pegrum (2016) argued that educators should consider both L2 acquisition and pedagogy when evaluating apps. Consequently, it is vital to keep the intended target users in mind while developing activities.

However, pedagogical and technical qualities may be mismatched in apps (Pareja-Lora et al., 2013), and some apps simply replicate what is already available (Burston, 2015). Despite this, students tend to use apps for learning, and apps can certainly provide a foundation for acquisition and regular input, becoming a potential motivator (Godwin-Jones, 2017).

Some L2 learners may be reluctant to use apps as learning tools because they normally use their mobile phones for personal and social purposes only (Wong et al., 2015). Other problems include difficulty in concentrating when mobile, and inadequate numbers of sample sentences for each target word (Lu, 2008). App writers must address these issues to overcome students' reluctance to use their mobile phones for language learning.

Song and Fox (2008) established that students at a Hong Kong university were motivated to acquire English vocabulary incidentally, collaboratively, and deliberately. Ma (2017) found that most L2 students actively build vocabulary, mainly outside the classroom. However, few studies, if any, have investigated Hong Kong students' perceptions of an in-house app specifically for this context. Understanding L2 students' perceptions of a vocabulary app is essential, as technology is indispensable in higher education.

Accordingly, this study explored students' perceptions of a new vocabulary app for L2 development. There were two research questions:

RQ1. What are students' attitudes towards using mobile apps, such as the *Alphabet vs Aliens @PolyU* app, for vocabulary learning?

RQ2. What features of the *Alphabet vs Aliens @PolyU* app motivate students to build their vocabulary range?

METHODOLOGY

This explorative, interpretive, qualitative case study investigated Hong Kong university students' perceptions of an in-house app, *Alphabet vs Aliens @PolyU*, for language vocabulary learning. Subjectively, the interpretive paradigm fundamentally concerns understanding people and what influences their behaviour (Babbie & Mouton, 2008); thus, it was the most suitable for this study. It revealed the full complexity of, and it provided in-depth insight on, utilising the app for vocabulary acquisition, providing thick responses that accurately reflect the lived experiences of the participants (Geertz, 1973) and their experiences of using the app. At an axiological level, the interpretivist paradigm is more concerned with relevance than rigor.

GAME DESIGN

Individual Game-Task Design

The researcher designed *Alphabet vs Aliens @PolyU* for this study to help students to expand their receptive vocabulary. The researcher developed the app using a game-based design that can engage and motivate students (Rosell-Aguilar, 2018) in which students complete challenges by discovering words in a letter grid – the longer the word, the higher the score.

The game has 20 levels. On Level 1, students must create four words of at least four characters within four moves. As the player progresses, the tasks become more challenging. In the individual learning phases, the vocabulary app delivers two types of feedback to students: instant and delayed. This includes whether their answers are accurate alongside thorough information on their performance. Additionally, students can listen to the pronunciation of words at the end of each level, and they can download the words and definitions to word banks on their phones. The feedback is primarily decontextualized, and it includes sample sentences incorporating each word as a different part of speech. This type of feedback is particularly important, because as users progress, the vocabulary challenges become increasingly complex, and players need deeper understanding of the English language. Players can also share their scores on the leader board and on social media. Previous studies highlighted that certain app activities are easier than others to design, such as vocabulary recall and grammar drilling (Rosell-Aguilar, 2018). Another key consideration is that when designing an app, the actual task the learners will perform and their familiarity with the device are important considerations (Godwin-Jones, 2017). Ehri and Rosenthal (2007) suggested that vocabulary acquisition should focus on three aspects: remembering the spelling, understanding the meaning and correct pronunciation. Since the researcher designed *Alphabet vs Aliens @PolyU* for low-level university learners, building vocabulary with this type of vocabulary activity and feedback, which are easy to assess, is suitable.

Background and Participants' Information

Via e-mail, the researcher contacted students who had previously expressed an interest in using the app via their English instructors. Invitations to participate went to 76 students, with 19 expressing an interest. The researcher selected 14 of these volunteers to mix gender, age, department, and origin. To represent the Hong Kong university population, mainland students and local Cantonese students participated, as they represent a sizable portion of the undergraduate student body. Students' ages ranged from 16 to 19, and they came from five different disciplines: Hotel Management and Tourism, Engineering, Nursing, Business, and Design. The inclusion of students from a variety of disciplines ensured a representative sample and a holistic overview of students' views. Letters outlining the purpose and procedures went to participants, and the researcher sought consent from all stakeholders. Table 1 shows participants' demographic data.

Table 1. Participants' demographic data

Participant	Gender	Year	Major	Origin	L2
Jennifer	F	1	Nursing	Hong Kong	English
Sara	F	1	Design	Hong Kong	English
Michael	M	2	Business	Hong Kong	English
Michelle	F	3	Tourism	Hong Kong	English
Anna	F	2	Hotel Management	Hong Kong	English
Brad	M	2	Engineering	Hong Kong	English
Thomas	M	1	Business	Hong Kong	English
Sophia	F	3	Design	Hong Kong	English
Billy	M	1	Nursing	Mainland China	English
Elaine	F	2	Business	Mainland China	English
Anthony	M	3	Business	Mainland China	English
Dorothy	F	1	Engineering	Mainland China	English
Fanny	F	2	Design	Mainland China	English
Adam	M	3	Nursing	Mainland China	English

Data Collection and Analysis

Participants used the application for 3 weeks in- and outside the classroom. All 14 participants participated in interviews. The researcher developed an interview guide consisting of nine main questions to provide focus and to collect the same information from each interviewee (Kvale, 2006). The interview focused on the following questions:

- What is your view on using apps for language learning? Why?
- What did you find most useful about the app? Why?
- What did you find most interesting? Why?
- What did you find difficult to use? Why?
- What app features would you like to see? Why?

Interviews took place in English, varying from 22 minutes to 36 minutes. The researcher recorded and transcribed the interviews, and each participant received a pseudonym during the coding. Due to the flexibility of thematic analysis, the researcher used it to identify and analyse patterns in the data (Reicher & Taylor, 2005). As Braun and Clarke (2006) observed, thematic analysis can provide a rich, detailed and complex account of the data, as guided by key ideas and perspectives. Table 2 gives an example of the qualitative interview manual coding:

These extracts highlight how each interviewee stresses a certain function (e.g., definition, pronunciation) as important when selecting vocabulary apps for L2 development.

RQ1. What Are Students' Attitudes Towards Using Mobile Apps, such as The *Alphabet Vs Aliens @Polyu* App, for Vocabulary Learning?

The first question established students' general perceptions of using mobile apps for vocabulary learning. The results confirmed the results of previous studies: using mobile devices for English language and vocabulary learning is prevalent among Hong Kong students (Ma, 2017; Zou et al.,

Table 2. Manual coding example

Interview	Coding
Jennifer: get the definition of the words and also see how the words are used in a sentence so I can use them in my studies	Function/Definition/Usage
Ted: pronunciation is really important to me	Function/Pronunciation/Importance

2018). Ten participants accessed their mobile phones regularly to look up English words (definitions and/or pronunciation) either through online dictionary websites or by playing gamified apps (e.g., tinycards, PowerVocab). Participants also highlighted that it was less time-consuming and more convenient to use mobile devices, as Michael described:

Before, when I used a paper dictionary, it could take several minutes to find a word. Now it takes seconds. Yes, it is very quick and more helpful.

Fun

Elaine and Brad described using mobile vocabulary apps as fun. Although using mobile devices for vocabulary learning was not a requirement, both found it increasingly helpful. As Elaine said:

Some games are really fun. We collect points, compete against our friends and it doesn't feel like studying … and I learn new words I can use in my writing. And the last thing I want to do is study another English textbook like in secondary school, so playing games helps me relax, and I can actually learn something which I can use in my assignments.

Moreover, six interviewees described the app as more fun and engaging than traditional tools such as flashcards and word lists. This is very pertinent, because fun and engaging learning is more motivating, and it often leads to better outcomes (Ahn & Lee, 2016). Jennifer, Sara, and Anthony noted this idea:

It is so much better than highlighting and writing down every word that I don't know.
It is fun and easy to play because I can use my finger to drag letters on the screen, so I don't have to push and push things.
Once I start to play, it's easy to lose track of time. I had only planned on playing for 5 minutes, but when I looked up, I had played for 20 minutes already.

These are encouraging comments, and they show that well-designed vocabulary apps increase the time students spend acquiring vocabulary. Additionally, such apps can lead to strong student correlations between learning outcomes and improved learning performance. Previous studies have found that games can stimulate and engage learners' language acquisition and motivation (Ma, 2017; Sung et al., 2016).

Sophia stressed that it is difficult to understand academic words, as they can have multiple meanings, and that by playing *Alphabet vs Aliens @PolyU*, she can see them in use in a sentence after she has completed a level. This is particularly pertinent, as nuances of English words are challenging for L2 learners (Crib & Wang, 2019). Other participants made similar comments, stating that seeing words spelled out in sentences was particularly helpful.

Stress/Pressure

Students highlighted the pressure they feel, with extensive reading before and after each lecture, and limited time to practice the language. As Dorothy and Anthony said:

We are asked to read several academic articles before each lecture. They are super difficult to understand and take me hours to get through. Where can I find time to sit down and practice English? I just look up the words quickly on my phone to help me get through each reading.
The words we have to learn are very technical, and by using online dictionaries and games, I can see and learn their meaning quickly and move on to the next assignment. Any minute I can save is helpful.

This anytime, anywhere affordance of mobile devices increases the flexibility of learning, and it allows students to use short periods of spare time to focus on learning (see Ahn & Lee, 2016; Sung et al., 2016), as Billy emphasised:

Currently, I try to play the game a few times a week for a couple of minutes each time.

Ease of Access

It was also germane to discover how frequently students use mobile apps, allowing us to gauge how regularly they target vocabulary learning. Thomas and Adam answered:

I use Alphabet vs Aliens @PolyU or another app such as tinycards to practice English while travelling to the university, but I don't use it daily – it is very random.
I use dictionary apps daily when completing the reading homework, as it has [a] direct translation between English and Chinese, which helps with the difficult academic words.

Problems

Two participants mentioned mobile devices in general, highlighting that smartphones and tablets created problems for them. Tiny screens and lack of certain plug-ins slowed down their learning speed. Jennifer and Sara mentioned:

It is frustrating that some apps keep crashing and can't be played on my iPad.
I mean, it is convenient, but it is hard to read the words and instructions on my phone.

Anna pointed out:

I prefer to use my mobile phone for my personal use. I need some space from always thinking about school.

This highlights that using mobile apps to learn English is not consistently beneficial, and that not all students see the value of mobile devices in the learning process. Mobile devices can be limited by hardware and design, so app designers need to bear this in mind.

MALL, with its anytime and anywhere flexibility, helps students to acquire English on their own terms (Ma, 2017). In Hong Kong, students must often enroll in 6-7 classes per semester, and they are under intense pressure to complete coursework, so high efficiency is vital for MALL. Specifically, the opportunity to learn between classes or while commuting to school provided added value, as Fanny stated:

It is easy to play while on the bus to school.

Nearly all interviewees mentioned the convenience of short bursts of learning activity. Thus, the ubiquitous nature of vocabulary apps is appealing to students.

The second research question explored students' preferences for features of the app that motivate them and/or are beneficial in their vocabulary acquisition. The researcher asked participants what they think about the app features in *Alphabet vs Aliens @PolyU*.

RQ2. What Features of The *Alphabet Vs Aliens @Polyu* App Motivate Students to Build Up Their Vocabulary Range?

App Design

The interviewees felt that the app features helped in their vocabulary acquisition. Participants pointed out the rich content (including sample sentences and pronunciation), organised structure and clear functions. Interviewees highlighted that not only do they see lexical and grammatical descriptions of the words, but the app also provides illustrative sentences and pronunciation. These functions were vital to their motivation, as Elaine and Dorothy illustrated:

It is great that I can get the motivation to learn the word and also see how the word is used in a sentence so I can use it in my studies
Pronunciation is really important to me, because when I start working, I need to say these words correctly.

Students consider these two aspects increasingly important for them in subsequent years for their courses and future employment. Seven of the interviewees mentioned that features should stimulate their interest in learning English. According to Michael:

There is nothing worse than if an app has limited vocabulary, or the words are not relevant.

Brad expanded on this point:

The app should be visually appealing, not just a white background with a word and definition. It should be like a game, where we collect points and can win stuff.

Several interviewees liked to download words with their pronunciation. This was particularly useful for Sara, Thomas and Adam, who review vocabulary while they commute to school in the morning. Others reiterated these two points; thus, students consider apps great tools for learning new vocabulary, but the apps should be visually appealing, and they should include multiple functions to motivate students to play, which correlated with previous studies (Zou et al., 2018).

Gamification

Participants were motivated by features such as time limits, hints, and a scoring system. Most agreed that the interactive, gamified nature of the app brought learning to life. They highlighted the leader board and social media integration, where they could identify and compete with friends. Michelle, Sophia, and Billy noted this as follows:

I really like seeing how my friends are doing.

I like that I can see the top three scores and then who scored similarly to me, because in some apps, I can only see the top scores.
When I see that my friends have new high scores on Facebook, I feel like playing and beating them.

As this illustrates, gamified functions (ranking, scoring) motivated students, and they were very conducive to vocabulary learning. This correlated with previous studies (van Eck, 2006). Most interviewees believed that gamified elements motivated and stimulated their engagement more than traditional learning approaches (Chen et al., 2019).

Simplicity

Interviewees highlighted simplicity, particularly the usability and design of the app, including text size, a clean interface, and the relatively few clicks necessary to use it. As Adam noted:

It is straight to the point: I don't have to go through various steps before I can play.

Most participants indicated satisfaction with the app; however, four interviewees did not like the user interface, which underlines the necessity of an attractive interface design. Despite this, they agreed that the two functions were very helpful, as Michelle and Thomas illustrated:

It was really helpful to be able to download the words and definitions. I can access them any time, and this helps to revise the new words.
Pronunciation was a really cool feature, and I have used it a lot to work on my own pronunciation.

Repetition

Participants stressed that randomly generated words and the ability to replay each level were a good opportunity to learn. Nevertheless, Sara could not "repeat" words that she was not getting right. So, although interviewees considered the app fun and engaging, they did not always consider it effective. One interviewee commented that the levels are too challenging. Moreover, Elaine said that it would be better if they could pick which level to play, as players must complete some very basic levels before coming to the advanced ones, which is time-consuming.

Overall, the students appeared enthusiastic about using MALL and apps to acquire vocabulary. *Alphabet vs Aliens @PolyU* appealed to students due to its ease of use, and they generally found the interface intuitive and the app conducive to vocabulary acquisition. The app was enjoyable, and they were motivated to play it. This study highlights the importance of mobile apps in motivating students' enthusiasm for English language learning (Chen et al., 2017).

CONCLUSION

The aim of this study was to capture a holistic overview of Hong Kong university students' perceptions of using a mobile app for vocabulary learning. Most students supported using apps in L2 vocabulary learning, and in general they were satisfied with the application. Moreover, undergraduate students in Hong Kong are increasingly using apps to acquire English vocabulary independently to complete coursework and to improve their chances of gaining future employment. Many of the students felt it time-consuming and challenging to acquire the necessary vocabulary for their academic courses, and they felt that apps could make the learning process more efficient. Students highlighted the anytime and anywhere flexibility as a particular strength, which they used while commuting to university. Participants generally reported that example sentences and opportunities to practice pronunciation were the most beneficial and motivating features. Overall, participants appreciated the competitive,

gamified nature of L2 vocabulary learning, and they valued the opportunities to compete against each other and the app through the scoring system and time-limit features.

In this relatively small-scale, qualitative study, only 14 students participated due to practical limitations. The major limitation of the study was that it did not measure the students' actual vocabulary improvements; rather, it relied purely on their perceptions. Therefore, future studies should include a large-scale, mixed-methods study to include more participants and to measure their improvements using pre- and posttests. A longitudinal study is necessary to ascertain the long-term effectiveness of the vocabulary application, such as sustainable mobile learning and long-term motivation.

Pedagogical Implications

This study highlights the importance of the time students need to acquire the necessary vocabulary to complete university. English language teachers might need to revise existing vocabulary teaching to suit the needs of individual students better. They could do this by revising existing teaching material to include a vocabulary bank with the vocabulary students need to complete the course. Moreover, specifically incorporating vocabulary apps in their courses could help to optimise students' vocabulary acquisition.

Second, students clearly seek out apps with specific features. Incorporating gamified elements such as time limits, hints, scoring and leader boards is worthwhile. Undergraduate students in Hong Kong are increasingly using apps to improve their vocabulary range, and thus it is vital that both teachers and software developers meet students' needs and wants by creating an engaging and stimulating learning experience. For the success of future app development for English language learners in Hong Kong and beyond, it is important that developers can facilitate and support app development and subsequent usage by students. The study has expanded our knowledge of Hong Kong students' mobile app preferences for vocabulary acquisition, and it will guide future app developments.

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