

University of Tartu
Faculty of Social Sciences
Institute of Education
Curriculum: Educational Technology

Dawit Hailu

The Antithesis of Smartphones Popular Use Among Chinese University Students: A
Perceived Relationship Between The Frequent Use of Smartphones For Acquiring English
and Rate of Proficiency

MA thesis

Supervisor: Katrin Saks, PhD

Tartu, Estonia, 2022

Abstract**The Antithesis of Smartphones Popular Use Among Chinese University Students: A Perceived Relationship Between The Frequent Use of Smartphones For Acquiring English and Rate of Proficiency**

The ubiquitous nature of smartphone use globally and in China has undoubtedly outpaced other digital tools. Despite the upward trend, current research studies have yet to offer greater insight into the role of smartphones in language acquisition. The use of mobile learning has been found instrumental in the teaching and learning of EAL/ESL in China and elsewhere, but with mixed results. The aim of this study is to explore the relationship between a perceived frequent use of smartphones and the rate of proficiency. The study used a mix of descriptive and correlational research designs. A digital survey collected 185 self-reported data using a non-probability convenience sampling from Master of Laws upper-level English language learners at the China University of Political Science and Law (CUPL). The results showed small but statistically significant positive relationship between frequency and proficiency. The higher language proficiency rate students perceived *with* smartphones than *without* provided strong support for the outcome. Further research should estimate the influence controlled variables have on the relationship using structural equation modeling (SEM).

Keywords: *Chinese university students, Smartphones, English Acquisition, Frequency, proficiency, behaviourism, mobile learning.*

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Chapter 1

Introduction

In recent years, digital mobile technologies have increased exponentially, leading the way to the use of highly sophisticated and powerful smartphones (Farr & Murray, 2016). This has shaped the way people communicate and share information on social media and acquire second and foreign languages (Farr & Murray, 2016). Following the ongoing trend, smartphones have become the most popular and connected digital tools globally, thanks to the integration of the internet (Beierle et al., 2020). Investigating the use of smartphones, Sung and Poole (2017) argued that the unprecedented adaptation of smartphone users worldwide is evident due to its ubiquitous influence on people as much as it is on education. For instance, the number of smartphone users across the globe has already surpassed the *six billion* mark, and it is expected to increase by a few hundred million in the next decade (O’Dea, 2022).

In China, the number of smartphone users compared to any other country is equally a fascinating development. Currently, there are almost more than *one billion* smartphone users in China, which are projected to outpace the rest of the world by more than one million by 2026 (Slotta, 2022). According to Beierle et al. (2020), smartphones also offer a variety of applications that can be used at any time and anywhere, permitting WiFi access. Thus, this makes smartphones unique mobile devices for learning foreign languages thanks to their mobility, functionality and accessibility (Barrs, 2011). To attest this further, Barrs states that they can also be used efficiently and simultaneously for multitasking purposes such as making calls, sending instant messages, recording video/audio, accessing the internet, using social networking apps, and mobile-based dictionaries and flashcards, to mention a few. Indeed, many students choose smartphones over personal computers to personalize learning at their own pace (Sad et al., 2020). However, for Barrs, owning and using smartphones at an increasing rate does not necessarily mean that they are always used for language acquisition to drive more significant improvements in proficiency. According to *China Internet Network Information Center* [CINIC] (2021), “As of June 2020, the proportion of Chinese Internet users using mobile phones to access the internet reached almost 100%” (p.19).

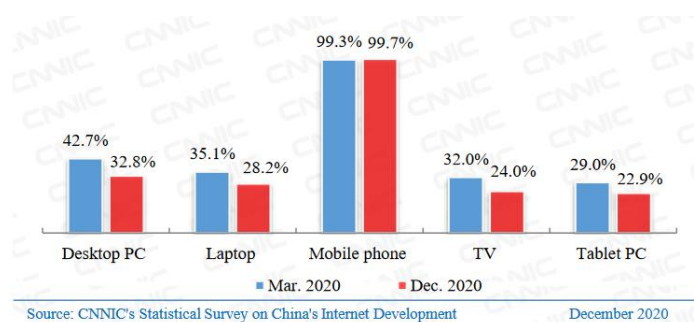


Figure 1: Chinese people (CINIC) Usage of internet access on digital devices.

Access to the internet on mobile phones, but specifically on smartphones, could also be one of the primary explanations for various applications' ubiquitous and frequent use. Indeed, without access to the internet data or WiFi, the use of any applications - be it educational or entertainment on smartphones - would be nearly impossible as it would be for a pair of scissors to function without one or the other. Subsequently, among internet users in China, social media communication and education combined - categorized as "Others" - are as high as over 40% of the top four categories (CINIC, 2021). This indicates that greater internet penetration in China plays a complementary role in yielding a higher usage of multimedia applications (social and news media) on smartphones. This could explain why 94% of younger, more educated and higher-income Chinese between 18-34 own a smartphone (Poushter, 2017). The question then becomes to what extent it is known how much of the frequent use of smartphones for general purposes among the younger and more educated Master of Laws students at the *China University of Political Science and Law* (denoted CUPL hereafter) are explicitly used to acquire the English language.

Within the context of teaching and learning, technology has continuously amplified the use of smartphones, the internet, and various *English Acquisition Resources (EAR)*¹ simultaneously. Barrs (2011) stated that when the use of technology continues to be normalized in people's daily lives and in acquiring a foreign language, there is an unprecedented redefinition of the nature of learning using smartphones. However, prior research studies on the subject matter have yet to fully engage with the continuous trend seen concerning the frequent use of smartphones and the level of English language proficiency that could be attained. Therefore, this study employed a quantitative design method to establish and analyze descriptive and correlational data linked to closely related variables by collecting a large number of self-reported numerical data using a digital survey.

¹ Both human and material resources to support and enhance language acquisition with or without smartphones.

Justification of the research problem

The use of smartphones for language acquisition purposes has yet to be significantly exploited in classrooms, at home and on the go. Due to side effects, there is also a reluctance to accept the idea of a smartphone being utilized as a part of the *Bring Your Own Device* (BYOD) progressive learning paradigm. Thus, a descriptive and inferential study should be conducted if, in fact, the language acquisition value can be gained out of the ubiquitous nature of smartphone use seen both globally and also in China. Specifically and quantitatively, the immediate utility of smartphones toward language acquisition is not well defined and understood. Many researchers have identified negative impacts on learners due to the frequent use of smartphones. For instance, Liu et al. (2016) found smartphone addictions in high school students associated with the frequent use of smartphones and gaming. Furthermore, high-frequency usage of smartphones is associated with poor sleep among Chinese college students (Huang et al., 2020). These negative results are connected to the frequent use of social media such as Wechat, Sina Weibo (Twitter of China), QQ, Alipay, Taobao and NetEase Music and video (TikTok), among Chinese university students (Dai et al., 2021).

Despite possible side effects, social media and language applications on smartphones offer language learners frequent interactions with English speakers at any time and anywhere (Sung & Poole, 2017). Subsequently, the expected concern has overshadowed the other side of the same coin that smartphones as user-friendly and accessible digital tools might also bring about positive outcomes by improving English language proficiency. Currently, many schools are not ready to accept the idea of powerful digital tools such as smartphones to be used for personal learning and are banned completely; and young people see the traditional way of learning as irrelevant to their skills and real-world interests; thus, the conflict over the use of mobile technology has raged on (Balacheff et al., 2009). However, smartphones offer a personalized variety of learning opportunities that can be provided within classrooms and outside. In some instances, using a smartphone for social media interactions is done inevitably and organically in English without thinking about the expected outcomes of acquiring proficiency. Hence, to what extent smartphones could be instrumental for acquiring a higher rate of proficiency level in the English language is little known.

The goal of the study

The main objective of this study is to investigate the relationship between the perceived frequency of smartphone usage for acquiring the English language and the rate of proficiency level. Smartphones are widely used multi-functional and multi-purposeful digital tools. Hence, this study's objective is to showcase that they can also support and enhance language acquisition in various ways at any time and anywhere. Through a quantitative data collection and analysis, the study attempts to discover an association, identify most English language skills developed with smartphones, *English Acquisition Resources* (EAR) utilized, and controlled variables that could interact with the correlational outcome. In addition, the study will contribute to the ongoing body of research work related to mobile learning within the field of educational technology and how people learn in a world of perennial limitless access to and integration with technology.

Chapter 2

Theoretical Synergy and Literature Review

a. Behaviourist theory

Before attempting to explain the use of smartphones for language learning purposes using a contemporary theory, it might be helpful to start from the context of a broader and older theory of learning. This approach allows the study to link the past (general) and present (timely-specific) for a better understanding of language acquisition that could be made possible using a smartphone. Behaviourist theory is one of the earliest and widely known theories of learning. In the 1950s, Skinner coined the process of "operant conditioning" to explain human behaviours in general and how humans learn in particular (Freyberg, 2006). Freyberg argues that behaviourism was quickly adopted in teaching second language acquisition.

From the perspective of "operant conditioning," Skinner (1965) defined the concept as any learning process that is subject to a behavioural response that can be strengthened by positive or negative reinforcements (stimuli) according to environments and situations. E. L. Thorndike inspired Skinner's theoretical elaboration in 1898's "Law of Effect" theoretical framework that specific actions followed by higher results can occur more frequently, and those by lower results might occur less frequently. Skinner explained the process as an action (operant) that can occur at any time and anywhere to generate consequences (outcomes), making responses less or more frequent. The *operant* factor here is a dynamic behaviour, and the reinforcement is the *conditioning*. For Skinner, the term is understood as an adjective

(operant behaviour) and a noun to name the behaviour explained by consequences (1965). For instance, when an individual decides to use a smartphone more frequently or less frequently can be interpreted as a response taken according to stimuli (using social media) which is an operant behaviour in itself. The behaviour, in this case, is the frequent use of a tool which is an action (operant) according to the environment's stimuli - followed by reinforcements.

Furthermore, Skinner (1965) provided a detailed explanation that the process of operant conditioning is not just about understanding and explaining frequent human behaviour. However, it is also about how behaviour can be maintained and improved after acquisition. He argued that reinforcements could positively affect and improve over time, but they depend on other factors such as time, tools and relevance. Skinner also thought a learning machine could be used as technologically superior teaching and learning tool with contingencies reinforcement. Following Skinner's interpretation, modern digital tools such as smartphones can be used as powerful teaching machines out of necessity and practicality. Hence, according to Skinner, under suitable conditions of a state of mind, intentions and motivations, a behaviour (an operant response) might go from lower to higher.

The increased frequency of usage also depends on other personal characteristics of the individual learner and a variety of learning preferences taken into consideration (Skinner, 1965). For instance, the frequent use of smartphones for acquiring the English language might depend on multiple stimuli (the use of different applications) to get a higher rate of responses (outcome) followed by appropriate reinforcement (feedback). Such reinforcements certainly might change in terms of frequent responses to stimuli (visual ESL puzzles) and how learners navigate learning tools. If the reinforcement is positive (encouraging and constructive feedback), learners might continue using a smartphone to achieve a higher proficiency rate; if not, the opposite might happen.

In addition, smartphones might provide a greater or lesser extent of stimuli depending on the operating systems and user-friendly interfaces that could lead to better interactions with multimedia learning applications (videos-based ESL activities). Indeed, a language learner might decide to increase or decrease his/her frequent behaviour in using apps depending on the quality and functionality of smartphones. Other reinforcements, such as motivational cues, are essential to maintain and improve acquisition (Skinner, 1968). If a learner does not receive positive stimuli from using a learning tool but from the smartphone itself, he argued that the user behaviour might decrease gradually over time due to a lack of motivation. If the behaviour of smartphone use no longer reciprocates with more significant improvement in English, there will not be further interests to act upon; Skinner called this outcome an

"operant extinction" (p.69). Therefore, it is quite evident to assume that all frequent behaviours, whether towards the use of smartphones in general and mobile learning in particular, are conditioned and shaped by the environmental, social, cultural and technological stimuli. Arguably, it can be assumed that the environment shapes us all in terms of how we think, learn and do things.

However, many researchers criticized Skinner's process of operant conditioning that was tested on animals and then generalized towards the understanding of human behaviour in language learning. One of the many critiques is Naom Chomsky (2013), who has strongly dismissed Skinner's (1957) "verbal behaviour" analogy as a flagrant claim without substance because the human complexity of learning cannot be compared to a laboratory experiment using animals. Chomsky argued that it is not the case that a language can only be learned through reinforcements followed by stimuli and responses. He fortified his claim by stating that it is a commonly known fact that people can learn a new language from their environment, and other complex internal utterances support language development independently of reinforcement from the environment. He believes language acquisition is a matter of human complexity that is primarily biological within the individual learner; thus, the need for more research on this greatly outweighs the external factor of making arbitrary claims based on an experimental study in a lab.

Let us take a real-world example of how smartphone use can facilitate language acquisition using the process of "*operant conditioning*" under the theory of behaviourism. For instance, Khan Academy is a free digitally-sophisticated learning app designed for smartphones. Learners can choose what to learn and how at any time and anywhere based on their prior level of knowledge and skills. Students can choose their current level of knowledge in English to sharpen their skills, track their progress, learn at their pace on the go, and get immediate feedback (*About this app*, 2021).

The app provides interactive and user-friendly exercises, videos and quizzes to stimulate learners' responses. In the process, learners receive real-time reinforcement or feedback through visually appealing charts and scores to correct mistakes or advance straight to the subsequent acquisition level (*About this app*, 2021). The feedback can be both negative or positive reinforcement for learners to monitor their progress and continue in the learning tasks to improve upon them. The app can also be viewed as complementary stimuli to the frequent use of smartphones for learning purposes. In this case, both the smartphone and the app go hand in hand to function as "operant conditioning" for learners to control and manage their learning behaviour. To sum up, the above behaviourist principles of learning can indeed

be linked to mobile learning theory because the principles are also afforded to mobile device use: repetition (frequent use and practice), objectivity as what and how to learn, activity (learning by doing), and most importantly, feedback as positive or negative reinforcement (Malone, 2003).

b. *Mobile learning theory (ML)*

To understand the frequent use of smartphones, this section briefly touches on the theoretical significance of Mobile learning to draw a linkage to behaviourist theory. ML is an evolving theory that seeks to understand and explain the world in terms of contemporary teaching and learning methods using mobile devices. One of these methods is MALL (*Mobile Assisted Language Learning*) which has been adopted and continues to be associated with digital technologies such as the use of smartphones and applications (Burston, 2014; Chinnery, 2006; Rodriguez et al., 2013). ML needs to be tinkered with language learning tools to enhance language learning. For instance, MALL provides learners with managing their learning by practicing smaller chunks of communicative language while getting real-time feedback and motivational cues from peers and instructors (Sad et al., 2020). This new way of shaping language acquisition on the go has made ML a fashionable and emerging trend within the context of higher and personalized education that is currently sweeping across the world (Mittal et al., 2020).

One of the emerging digital technologies is the use of smartphones for mobile language learning. Mittal et al., (2020) pose interesting questions, "When we talk of mobile learning, what exactly are we talking about? Is it the learner who is mobile or is it the technology which is mobile?" (p. 2). To answer this question, Pegrum (2014) states that mobile devices can be used in any point of departure and anywhere in between unremittingly but also both learners and learning are mobile, and they cannot be separated. However, ML theory is not associated only with the use of smartphones, but the difference is that smartphones offer multiple affordances such as a closer learning proximity to the learner (Berge, 2013). The affordability of smartphones across the world has also led to the affordances of a high level of connectivity and use of a myriad of learning applications (Pegrum, 2014). This indicates there is a less confined learning process and outcome because of affordability enabling affordances of individual liberty to acquire a personalized and customized knowledge and skills without constraints of space and time. According to Kim and Kwon (2012), summarized in figure 2 below, "The mobile learners can develop a sense of

individuality, community, and ubiquitousness in learning, which might bring them the enjoyment of having a certain amount of freedom and independence" (p. 34).

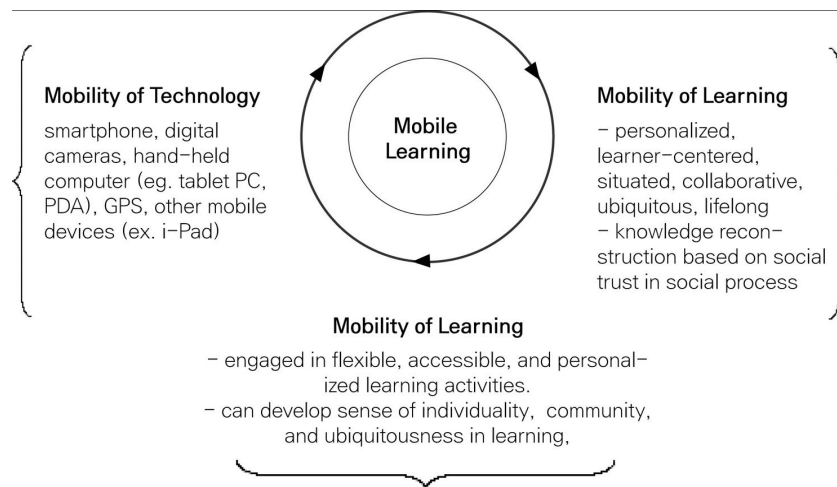


Figure 2: The Concept of Mobile Learning in Higher Education.

Sharples and colleagues (2007) theorize mobile learning, assuming that "learners are continually on the move. We learn across space as we take ideas and learning resources gained in one location and apply or develop them in another. We learn across time and from topic to topic while moving in and out of engagement with technology" (p. 2). They added another layer to the theory by stating that learning mobility is confined to informal places such as at home and on the move, but it can also happen within a formal learning environment in schools. For example, according to Vavoula (2007), a study conducted in 2005 found that almost 50% of the learning occurs outside of the home and office environment. The ubiquitous appearance of digital technologies has enabled the frequency usage of smartphones in the future of education as a key force behind ML (Chung et al., 2015; Cui & Wang, 2008; Muhammed, 2014; Sad & Goktas, 2014; Simonova, 2016). This might explain why the ubiquitous nature of smartphone use and other mobile devices are gradually taking place across the globe. In some instances, Vavoula argued, many people in developing countries bypass fixed-learning spaces thanks to internet connectivity and the affordability of smartphones.

The debate over the definition of mobile learning theory is a continuous and growing state of affairs as it is for the technology itself (Sharples & et al., 2009; Traxler & Crompton, 2015). One of the latest definitions states that mobile learning happens in various ways, such as social, technical, pedagogical, personal and content-based interactions with smartphones (Crompton, 2013b). However, both firmly believe that ML is assumed to be technology-

driven, learner-centred, small but portable wireless-based e-learning, inclusive, informal, life-long and a personalized situated learning process. This assumption is not completely theoretical; however, it might provide the existence of other hidden models of learning (Traxler & Crompton, 2015) that can be linked with mobile learning. Most importantly, the frequent use of smartphones concerning language acquisition should not only be understood in isolation within the mobile learning theoretical assumptions. It should be examined and assumed alongside other learning theories, be it old (i.e. *cognitivism and constructivism*) or new such as the theory of life-long learning (Illeris, 2009). In fact, for this study's main goal, ML theory connects itself well with the behaviourist theory through stimuli which leads to responses and then feedback as reinforcement according to the frequent smartphone use behaviour.

Literature review

This chapter briefly explores current research studies surrounding the use of smartphones in the acquisition of the English language to see whether there is a research gap in the literature that can be identified and addressed by this study.

a. The effectiveness of smartphones

A smartphone is defined as an advanced mobile device to deliver multiple functionality and connectivity on the go (Osman et al., 2011). Smartphones, as powerful digital tools, have been found to impact the English language's receptive and productive skills using various applications (Muhammed, 2014). However, other studies focused on insufficient real-world practical engagement with the language to drive higher fluency and accuracy (Abugohar et al., 2019; Metruk, 2020). There are a growing number of research studies involving the use of smartphones in higher education for acquiring the English language, which is effective (Alsanosi et al., 2019; Alsied, 2019; Basoglu & Akdemir, 2010; Crompton & Burke, 2018; Kim & Kwon, 2012; Metruk, 2021; Nalliveetil & Alenazi, 2016; Nami, 2020; Şad et al., 2020; Šimonová, 2016; Sung et al., 2015; Taleb & Sohrabi, 2012) across non-English speaking countries. A few research studies are conducted to investigate the use of smartphones for a specific English language knowledge and skills acquisition. For instance, Wu (2014) designed an English vocabulary App for an experiment that showed the effectiveness of smartphones in helping Chinese ESL college students. Similarly, Basoglu and Akdemir (2010) found that smartphones are much more effective when used as learning vocabulary tools than the traditional way of using flashcards. They also found that students'

attitudes towards mobile phones also improved. This might indicate that the effectiveness of smartphones in the attainment of vocabulary knowledge is, in fact, essential for English language skills development.

b. Perceptions toward smartphones and learning outcomes

Several emerging smartphone research studies were carried out to investigate the perceptions and attitudes of University-level *English Second Language (ESL)/English As An Additional Language (EAL)* students toward the use of mobile devices, including smartphones (Aamri & Suleiman, 2011; Hsu, 2013; Krasulia & Saks, 2020; Lin & Su, 2020; Nalliveettil & Alenazi, 2016; Nami, 2020; Pollara & Broussard, 2011). For example, in a field study conducted by Nalliveettil and Alenazi (2016), it was shown that almost 67% of undergraduate students believe using smartphones can improve their English spelling skills. However, their students expressed a concern that it might hinder them from achieving higher proficiency in the language. Krasulia and Saks (2020) took one step forward to investigate the perceptions of university ESL students towards the use of MALL as a first-hand English language learning experience using mobile devices. Their study found that all students showed a strong agreement with the usefulness of mobile devices to support language activities within and without classrooms. However, they also identified some technical limitations to using digital devices.

Other experimental studies found a similar strong agreement with the use of smartphones towards English grammar, use of vocabulary flashcards and frequent short messages (SMS) sent to students' smartphones (Browne & Culligan, 2008; Chen et al., 2008). Most of these studies are teacher-led pedagogical approaches to investigate primarily the relationship between the use of smartphones and the learning outcome of lexical (language) knowledge and skills (speaking, listening, writing and reading). For example, Alsanosi et al. (2019) showed that listening and speaking skills were the most frequently used with smartphones while reading, writing, and grammar were the least used. They claimed that one of the reasons behind this result is that ESL/EAL college students prefer to improve their pronunciation skills using smartphones. This logical claim also resonates well with Chinese university students' use of smartphones to improve their English oral skill.

c. *Correlational studies*

A few correlational studies are done involving the use of smartphones to acquire proficiency in the English language. A study conducted by Amer (2014) investigated an association between students' self-reported TOEFL proficiency scores and the average scores on quizzes using an application. This study showed a significant association between the two variables when the average scores of quizzes were taken into consideration separately. However, there was no significant relationship when considering other factors, such as idiomobile (apps for learning collocations and idioms). He argued that the main reason for this outcome is that TOEFL measures a holistic language proficiency level, but idiomatic expressions and collocations are used for daily informal interactions. Şad et al. (2020) conducted a correlational research study between students' view of smartphone use for English language learning and the average daily time spent, which found that students suffer from advert effects of smartphone use. This finding is similar to Beierle et al. (2020) study that the frequency of daily smartphone usage was associated with personality traits indicating multiple advert effects.

Other studies have focused more on smartphone predictability with academic performance rather than advert effects (Baert et al., 2018; Lepp et al., 2014; Lepp et al., 2015; Li et al., 2015; Olufadi, 2015). Ng et al. (2017) and Olufadi (2015) discovered in their study an increase in smartphone use for academic learning tasks leads to a decrease in academic *cumulative grade point average* (CGPA) for university students. Both authors argued that the negative relationship between the two variables might be due to students' multitasking behaviour using smartphones which leads them to distraction and interruption from learning. However, a longitudinal study by Amez et al. (2021) found no significant association between multitasking and academic performance. A possible reason behind this, they argued, is that young people are susceptible to frequent multitasking behaviour that makes them automatic in switching easily between tasks and filtering unwanted information. Another similar study conducted using a self-reported *grade point average* (GPA) and the overall smartphone usage showed that there is no relationship between the two variables (Lepp et al., 2014; Lepp et al., 2015; Li et al., 2015), suggesting that these two contradicting outcomes cancel each other out.

Baert et al. (2018) proceeded beyond correlation to investigate a causal relationship between the overall frequency of usage of smartphones and academic performance. Their study found a negative association that a one standard deviation increase in the overall

smartphone usage, the average exam score of students decreases by one point (out of 20), and caused lower marks when other indicators were added. All of these studies did not consider controlled variables that could affect the relationship between smartphone usage and academic performance. They also admitted this shortcoming by stating that other factors such as motivation and ability could have changed the relationship between the two variables. This is exactly how this study intends to demonstrate that there could be a relationship between the frequent use of smartphones and English proficiency as perceived and self-reported by CUPL students by acknowledging and analyzing controlled variables in the study. In addition, all the above studies focused primarily on controlled academic and task-based learning performances. However, performance as a controlled-fixed learning process does not equate with proficiency which necessitates a holistic and real-world experience just like smartphones do.

This chapter has shown there is no doubt about the effectiveness of smartphone use for language learning and also the positive perceptions reported towards it by university students. However, there are plenty of mixed results obtained across the board in the literature depending on what research methods were employed, when, how, where, and whom. Setting aside the advert effects of smartphone use, to the best of my knowledge thus far, there is little to no research studies done addressing the correlational aspects of frequent use of smartphones and English language proficiency among Chinese university students. Hence, more correlational research studies are needed, particularly from China, to fill the gap by building on the limited smartphone research studies done thus far.

Research Questions and Hypotheses

Following the above theoretical synergy and literature review, this research study answers four research questions.

a. Research Questions:

RQ1: What is the rate of frequency and proficiency in acquiring English using smartphones among Chinese Master of Laws students at CUPL?

RQ2: What type of *English Acquisition Resources* (EAR) do Chinese Master of Laws students use most of their smartphones to acquire a higher level of English language proficiency?

RQ3: What *other* types of *English Acquisition Resources* (EAR) do Chinese Master of Laws students use most *without* smartphones for acquiring a higher level of English language proficiency?

RQ4: What is the relationship between the frequent use of smartphones for acquiring the English language and the rate of proficiency level among Chinese Master of Laws students at CUPL?

b. Hypothesis and Null Hypothesis:

H1: *There is a positive relationship* between the frequent use of smartphones for acquiring the English language and proficiency levels ($H_0: r > 0$).

H2: *There is a negative relationship* between the frequent use of smartphones for acquiring the English language and proficiency levels ($H_0: r < 0$).

H0: *There is no relationship* between the frequent use of smartphones for acquiring the English language and proficiency levels ($H_0: r = 0$).

This study tests the correlation between the frequent use of smartphones for acquiring the English language and the rate of proficiency levels perceived by Chinese University students. The study also considers other variables that could dialogue with the relationship (demographic factors, prior educational attainment and years of English language skills acquisition, socializing with English speakers, watching English language movies/TV shows...etc.). These factors are controlled variables and will be acknowledged in the data collection and analysis to make the study and its correlational methodology more reliable and plausible.

Chapter 3

Method

This chapter discusses in greater detail the type of research design, sample, data collection and analysis employed in the study.

Research Design

A descriptive and inferential (correlational) research design is used to carry out the study and analyze the relationship between two main variables: *the overall frequent use of smartphones for acquiring the English language* and *the overall rate of proficiency level* (Figure 3). This design model allows for the description of useful variables, including controlled variables and compares groups in each to relate them to the main correlational outcome following the theoretical foundation (Creswell, 2009).

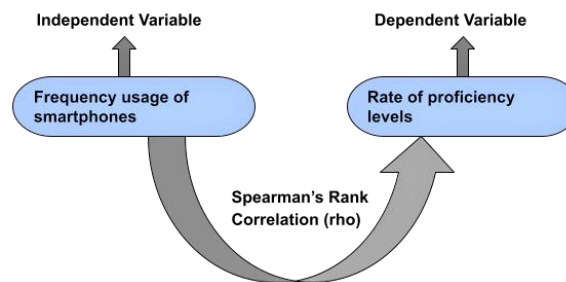


Figure 3: Correlational design analysis using Spearman's rho.

In addition to the correlation, descriptive data were collected to identify and interpret percentages, counts, means and standard deviations between the two variables (x,y) and other useful variables within the collected data. Some of these helpful variables are the types of EAR used with and without a smartphone, the area of language skills developed, and the proficiency rate for each skill using a smartphone. This approach enables the study to go beyond correlation and look for interesting information that might dialogue with the correlational methodology outcome.

The research design was carried out online using a digital survey software (Qualtrics) in Tallinn, Estonia, and then shared in Beijing, China. On February 26th, 2022, the self-reported survey was designed (not adapted or modified) specifically for this study and was shared with the students using an anonymous URL link on the WeChat communication platform. The survey was first piloted for a diverse group of people, including Chinese students, to ensure all questions could be understood easily without ambiguity. The primary reason for this choice of a digital survey is that Qualtrics is the only easily accessible digital

software of this type for China without the need for *Virtual Private Networks* (VPN). It is also smartphone-friendly and compatible with both android and iOS operating systems. The survey took place after the Chinese New Year holiday and was available for two weeks.

In the digital survey, respondents were provided with questions related to four "controlled variables" (years of English studies, years of being taught by English speakers, years of living in English speaking countries and other types of EAR without the use of smartphones) that might interact closely with the two correlational variables. The data collected and analyzed from *controlled variables* are categorized in labels using custom tables in SPSS and then matched to and analyzed against *the high frequent users' group* (denoted HFUG hereafter); *regular frequent users group* (denoted RFUG hereafter); *low frequent users group* (denoted LFUG hereafter); as well as to the *low (LP)*, *intermediate (IP)* and *high proficiency (HP)* (Figure 4).

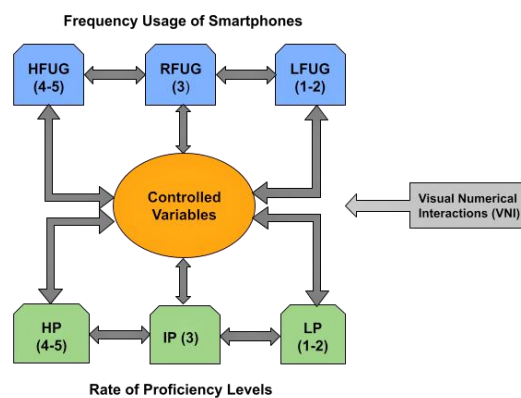


Figure 4: Visual numerical interactions between and among groups with controlled variables.

The reason behind this design is that the study can observe numerical interactions of controlled variables with the independent variable “frequent use of smartphones” and the dependent variable “the rate of proficiency level” backed by correlational analysis. However, this approach does not show how each controlled variable influences the relationship between the two correlational variables.

Frequent use is defined and measured. Frequency is understood in terms of time distribution across the three groups (*HFUG*, *RFUG* & *LFUG*) within a given period in the sample size and measured as higher, regular and lower on a scale of 1-5 (1-2 = low use, 3 = regular use and 4-5 = high use). Then, groups are compared against each other (while controlling the overall correlational outcome) in relation to *high*, *intermediate* and *low*

proficiency according to each individual student’s frequent use of smartphone in the observed data (Figure 5 below).

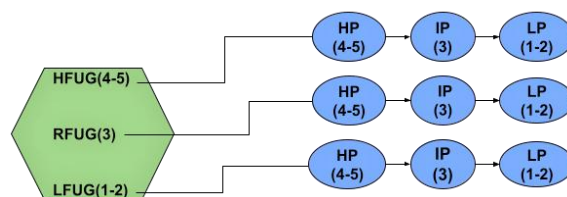


Figure 5: A comparative frequency usage of interactions with rate of proficiency within each group.

The reason behind this approach is that higher use of smartphones in acquiring the English language might not always translate into higher proficiency, and neither might lower use translate into lower proficiency. By adopting this method, the study avoids making generalizations at face value. Hence, this study attempts to carefully examine interesting numerical relationships by being mindful of some caveats that might be worth mentioning in the data analysis.

Proficiency in the English language is also defined and measured. According to the *Common European Framework of Reference for Languages (CEFR)*, it is the ability to understand and use the language on a six-point scale ranging from A1-A2 basic users, B1-B2 independent users, and C1-C2 proficient/advanced users (*International Language Standards, 2022*). However, for the purpose of this study, the rate of proficiency level on a scale of 1-5 is used to measure students’ self-reported earliest proficiency within 2-3 weeks of smartphone use and overall self-rated proficiency. In the data analysis approach of this study, the overall rate of self-reported proficiency obtained *using smartphones* was compared (means and standard deviations) to those *without the use of smartphones* after running a correlation between them. For example, for the purpose of this study, the rates of proficiency on a scale of 1-2 are categorized as *low proficient group (LP)*, 3 as *intermediate proficient group (IP)* and 4-5 as *high proficient group (HP)*.

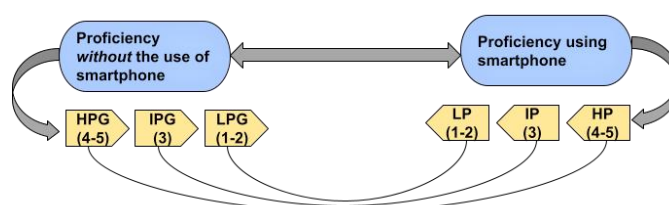


Figure 6: Self-reported rate of proficiency numerical interactions *with* and *without* the use of smartphone.

In addition to the means and standard deviations of comparative analysis, the descriptive results of each labeled rate of proficiency *without* the use of smartphones (*high proficiency group* (HPG), *intermediate proficiency group* (IPG), *lower proficiency group* (LPG)) was compared with each self-reported rate of proficiency using smartphones. This approach allowed the study to see numeric interactions (percentages) for each individually self-reported and categorized group of proficiency whether it increased, decreased or is unchanged across the three categories (Figure 6).

Sample

The researched population is Chinese university students located in Beijing, China. The correlational and descriptive data were collected from a mix of first and second-year students in the Master of Law program at CUPL. The sampling method *non-probability convenience sampling* was employed since the students were conveniently available to me. This method of choice provides useful insights into specific graduate level students' behaviour with smartphones and practicability of conducting the study from a distance (Babbie, 2020). I have taught all 300 students in the past 2 academic years.

All of the respondents are currently enrolled in *Advanced Academic and Legal English* courses and their proficiency level as of today is between B2-C2 according to the CEFR. The ages of students participated in the study are between 21 and 26 plus (185). The 133 respondents were female (71.9%) and 51 were male (27.6%). The majority of students' age (61.1%) is 23-24 ($N = 113$) and the second-age group (29.2%) is 21-22 ($N = 54$) and the third ($N = 15$) age group is 24 and 25 (8.1%). There are only 3 students over the age of 26 at 1.6% of the total sample of 185. Most of the respondents are urban citizens of China (almost 52%, $N = 96$) compared to those who come from rural China (48%, $N = 89$). Almost 84% of respondents speak standard Chinese as their native language ($N = 155$) and 88% identify themselves as Han ethnic group ($N = 162$) and only 7% identify as Asian ($N = 13$).

This type of sampling method might not be effective for generalization to a wider population (Babbie, 2020) of university students enrolled in English courses. However, it does allow immediate assessment of whether there is a statistically significant relationship between variables or not, and also the strength of the relationships.

Data collection

The digital survey did allow the collection of self-reported data from a distance by sharing a URL-link on the WeChat students' groups. Out of 300 respondents, 185 responses were recorded voluntarily and anonymously at above 90% of completion rate. Out of 212 early recorded responses, 27 of them were deleted from the data due to below the 90% completion rate. The response quality rate was at 99% indicating that there was a good completion rate and no speeders detected in the collection of the data. In addition, the collected data were transferred to other statistical software such as SPSS, Excel and Google Sheet. The data collection took place after the Chinese New Year holiday and was available for a maximum of 2 weeks.

The type of data collected in the digital survey are connected to each research question (RQs) of the study. The research questions were divided into two categories: a methodology-correlational question and descriptive questions. Frequency, proficiency, demographic, background and EAR resources data were collected. The types of data collected can be found in the digital survey consisting of 7 blocks with 28 closed-ended questions and only one with an open-ended question (see appendix 1 for details).

The context behind the data collection is geared toward first and second-year Master of Laws students from CUPL currently living and studying in Beijing, China at the time of data collection.

Data analysis

The statistical analysis software SPSS was used to analyze both the descriptive and correlational data. Because SPSS allows complex bi-variate and multivariate data analysis with discovery of simultaneous interactions between and among them (Babbie, 2020). The descriptive data analysis will assess the characteristics of data collected in terms of age, gender, frequency, proficiency, types of EAR used, and controlled variables. Means, medians, and standard deviations of the level of proficiency with and without the use of smartphones were calculated, compared and analyzed.

A non-parametric test of Spearman's rho was used to run and analyze the correlation in SPSS between the two variables with two-tailed test of significance. The decision taken behind the Spearman correlation over Pearson's is that both variables are ordinal-continuous and the data points are scattered across in a non-linear form (heteroscedasticity) which might also suggest a monotonic relationship (Chen & Popovich, 2002) between frequency and proficiency.

Each variable categorized and labeled in three groups were compared descriptively (counts and percentages) against each other. This approach provides a meaningful-numerical picture of individual cases of relationship between frequency and proficiency that the correlation might not be able to show. The controlled variables also categorized and labeled into 3 groups equally measured and then analyzed in custom tables (cross-tab analysis) using SPSS with counts and percentages against the two main correlational variables. This approach might provide analytical information how each controlled variable interacts separately with the overall frequent use of smartphone and the rate of proficiency level. This method of analysis in respect to the correlational method used will make the study to some extent much more insightful in uncovering hidden interactions and trends, and also to develop future research ideas.

Chapter 4

Results

This chapter presents both descriptive and correlational data analysis results of the study in relation to the four research questions. Means, standard deviations, percentages, counts and correlation coefficients were used for data analysis.

RQ1: What is the rate of frequency and proficiency in acquiring English using smartphones among Chinese Master of Laws students at CUPL?

According to finding (Figure 7 below), 48% ($N = 88$) of students use smartphone weekly, identified as weekly users, whereas 36% ($N = 66$) of them use a smartphone daily, identified as daily users. Combined together nearly 84% ($N = 154$) of students were found to be higher users (4-5). Thus, daily and weekly use form the majority of users reflected, directly and indirectly, in students' English proficiency. Hence, 48% ($N = 89$) of students self-reported intermediate rate of proficiency 3 and 31% ($N = 57$) of them scored a higher rate of proficiency of 4. A rate of proficiency 1 and 5 were the least scored.

The averaged rate of proficiency was $M = 3.8$ and standard deviation $SD = 0.853$ and the rate of smartphone use standard deviation ($SD = 0.981$). There was a moderate variation in the rate of smartphone use for acquiring English away from the mean compared to slightly consistent rate of proficiency clustered around the mean.

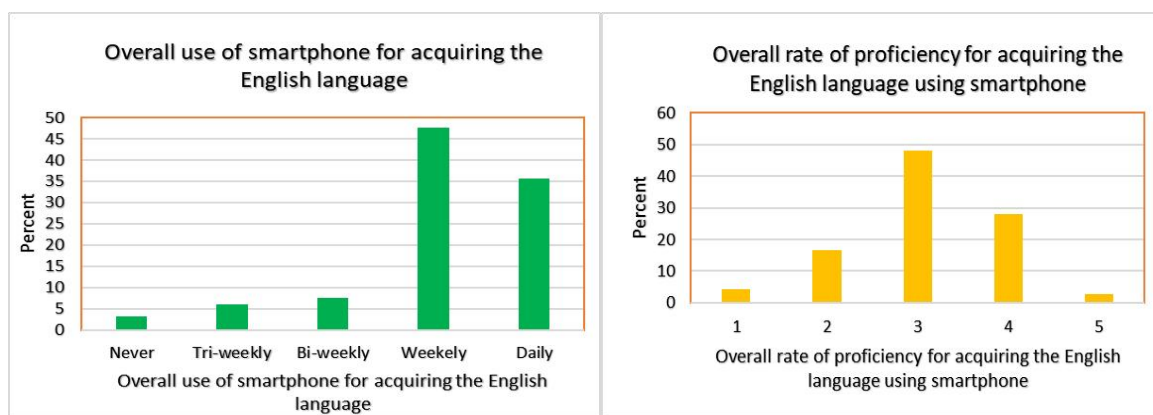


Figure 7: Descriptive comparative analysis between frequency and proficiency from RQ1.

In addition, when the above average rate of proficiency *using smartphone* ($M = 3.08$; $SD = 0.853$) was compared with the overall average rate of proficiency *without* the use of smartphones ($M = 2.66$; $SD = 0.756$), data analysis revealed that there was a much higher overall rate of proficiency level using smartphones. On a scale 1-5 labeled as low (1-2), intermediate (3) and high proficient (4-5) group in Table 1 revealed numerical interactions - counts and percentages - of proficiency *with* and *without* the use of smartphone. The cross-tab method of analysis allows to better understand the overall study of hidden numerical interactions between and among groups found in each variable. Further, to justify the labeling, there are always low, intermediate and high proficient language learners depending on each student’s various contexts.

Table 1: A cross-tab analysis of the rate of proficiency *with* and *without*.

| Rate of proficiency <i>without</i> a smartphone on a scale of 1-5 (1 = lowest, 5 = highest) | | | | | | | |
|---|---------------------|------------|------------------------------|------------|----------------------|------------|-------|
| The rate of proficiency <i>with</i> a smartphone | Low Proficient (LP) | | Intermediate Proficient (IP) | | High Proficient (HP) | | Total |
| | Count | Column N % | Count | Column N % | Count | Column N % | |
| Low Proficient | 27B C | 41.50% | 11 | 10.60% | 1 | 6.30% | 39 |
| Intermediate Proficient | 23 | 35.40% | 65A C | 62.50% | 1 | 6.30% | 89 |
| High Proficient | 15 | 23.10% | 28 | 26.90% | 14A B | 87.50% | 57 |
| Total | 65 | 100.00% | 104 | 100.00% | 16 | 100.00% | 185 |

Note: Results are based on two-sided tests. For each significant pair, the key of the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05. 1 Tests are adjusted for all pairwise comparisons within a row of each innermost sub-table using the Bonferroni correction.

According to Table 1, 87% ($N = 14$) of high proficient group *without* the use of smartphone perceived to have gained higher proficiency *with a smartphone*. Comparatively, 41% ($N = 27$) of low proficient group *without* the use of smartphone perceived lower proficiency *with smartphone*, whereas only 23.1% ($N = 15$) of them claimed to have achieved high proficiency *using smartphone*. In contrast, 62% ($N = 65$) of intermediate proficient group *without* smartphone perceived an intermediate level of proficiency *using smartphone* while almost 27% ($N = 28$) of them high proficiency.

The above cross-tab analysis results (based on two-sided tests) show that there are significant differences between the combined subgroups at the significance level of $p = .05$. The results might have occurred by chance less than 5% and provided a logical support for the thesis study hypothesis that there is meaningful interactions between the two variables. According in Table 2, Spearman's rho revealed an inferential support for the above cross tab analysis with a relatively large and statistically significant positive relationship between the rate of proficiency *with* smartphone and *without* ($r = .411^{**}$) with the $p < .001$.

Correlational outcomes in this study were analyzed using the normative correlation guideline derived empirically as $r = 0.10$ (relatively small), $r = 0.20$ (typical), and $r = 0.30$ (relatively large) rather than Cohen's qualitative based guideline which has been considered exigent (Gignac & Szodorai, 2016).

Table 2: Correlations between the overall rate of proficiency *using smartphone* and *without* and rate of proficiency progress in 2-3 weeks.

| Correlations | | |
|--|------------------------|--------|
| The overall rate of proficiency <i>without</i> a smartphone | | |
| The overall rate of proficiency for acquiring English with a smartphone | Spearman's Correlation | .411** |
| | Sig. (2-tailed) | < .001 |
| | N | 185 |
| Rate of proficiency progress in the English language in the first 2-3 weeks of using smartphone | | |
| The overall rate of proficiency for acquiring English with a smartphone | Spearman's Correlation | .520** |
| | Sig. (2-tailed) | < .001 |
| | N | 185 |

** Correlation is significant at the 0.01 level (2-tailed).

Concerning the rate of smartphone use, data analysis showed that 44% ($N = 81$) of students use their smartphone daily for general purposes for 4 to 6 hours and 21% ($N = 39$) of them for 7 to 9 hours compared to 82% ($N = 155$) who use a smartphone for acquiring the English language 1-2 hours per day. In other wards, on average, students tend to use their

smartphone more frequently for other purposes than for language acquisition. Comparatively, however, the overall rate of proficiency using smartphone for acquiring the English language had a higher $M = 3.08$, as reported above. This indicates the overall use of smartphone for acquiring English increases the overall average rate of proficiency which is also slightly and gradually varying ($SD = 0.853$) than a daily usage of smartphone.

Interestingly, the strength and significance of the relationship between the overall rate of proficiency and 2-3 weeks of proficiency using smartphone included in the statistical analysis, as shown below in Figure 8 and for correlational in Table 2, is quite telling.

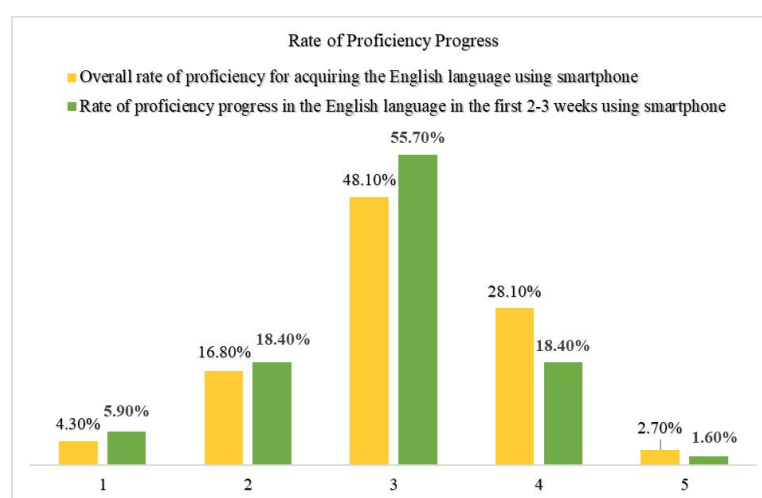


Figure 8: Comparative analysis of perceived rate of proficiency progress.

According to Figure 8, nearly 56% ($N = 155$) of students' 2-3 weeks of rate of proficiency was at the intermediate level whereas 18% ($N = 34$) of students who perceived a lower proficiency rate in 2-3 weeks gained a higher rate of proficiency. Comparatively, 48% ($N = 89$) of students had intermediate level of proficiency, whereas 28% ($N = 52$) had a higher proficiency rate. The result indicates higher overtime proficiency progress (scale 4-5) than proficiency gained within a few weeks. Hence, the overall $M = 3.8$ ($SD = 0.853$) of proficiency using smartphone is higher than the $M = 2.91$ ($SD = 0.816$) rate of proficiency obtained within a few weeks.

The above analysis is backed by positive correlation shown in Table 2. It showed a relatively large significant positive relationship between 2-3 weeks of proficiency and the overall rate of proficiency. The correlation coefficient between them is $r = .520$, ($p < .001$). It suggests that the relationship between them is highly significant in the sample size.

RQ2: What types of English Acquisition Resources (EAR) do Chinese Master of Laws students use most on their smartphones to acquire a higher English language proficiency rate?

The Figure 9 below illustrates what types of EAR the 185 students surveyed use most on their smartphones and how often. In the analysis 8 counts were missing in the system.

Almost 43% ($N = 79$) of students used English dictionary apps followed by 37% ($N = 69$) of them who used daily English listening apps. In addition, whereas nearly 36% ($N = 66$) of students did so on the general English language apps and English web-browsing. Moreover, 35% ($N = 65$) of them relied more on vocabulary memory applications weekly or daily. In contrast, 36% ($N = 67$) of students used daily multimedia apps such as YouTube, BiliBili, English TV shows and English news, whereas 31% ($N = 58$) of students used vocabulary memory and English dictionary apps, respectively.

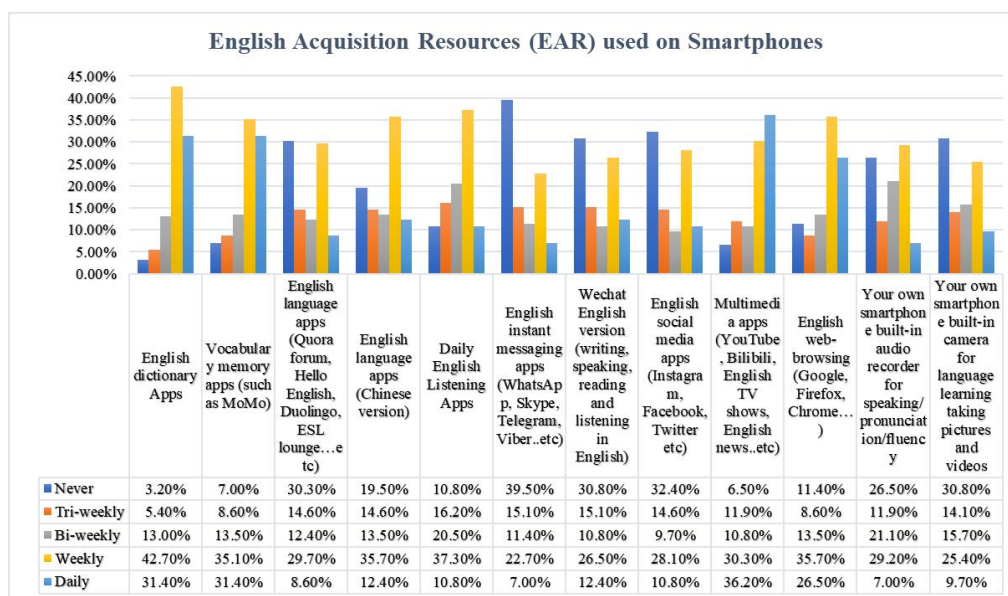


Figure 9: Most English Acquisition Resources (EAR) using smartphones

Furthermore, a descriptive analysis was conducted to determine students' proficiency rate obtained using each EAR mentioned above (see Figure 10 below). In more detail, there was a higher $M = 3.27$ ($SD = 1.204$) of rate of proficiency for English dictionary apps and $M = 3.25$ ($SD = 1.213$) for vocabulary memory apps. This result aligns with the above descriptive results of the top 3 most EAR. It indicated a higher use of vocabulary and English dictionary apps put together, which tend to increase an intermediate rate of proficiency in vocabulary than any other EAR used (as seen in Figure 10).

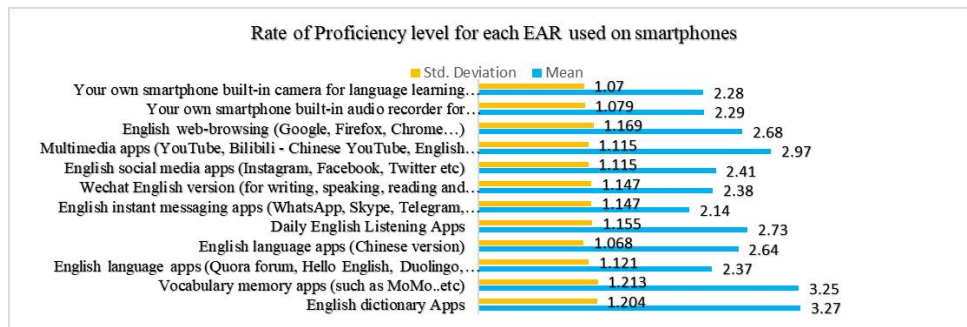


Figure 10: The perceived rate of proficiency for each EAR used on smartphones

This brings up an important point about English language skills gained from smartphones and the proficiency rate for each skill indicated above. Based on students' usage of English language skills seen below in Figure 11, almost 46% ($N = 85$) of students are focused daily on improving their English vocabulary. In contrast, nearly 35% ($N = 64$) of students did so weekly. Moreover, 45% ($N = 84$) of students engaged weekly in listening skills, whereas nearly 29% ($N = 53$) of students were immersed daily. Moreover, 40% ($N = 75$) of them are engaged weekly in developing speaking/pronunciation skills, whereas 27% ($N = 50$) of them did it daily. The striking point here is, 40% of students are engaged with reading skill, whereas almost 30% ($N = 55$) of them read daily, which is closer to the 29% ($N = 53$) of students who perceived acquiring listening skills. Both the reading and listening are receptive skills irrespective of tools, thus in line with the daily multimedia consumption by 36% of students.

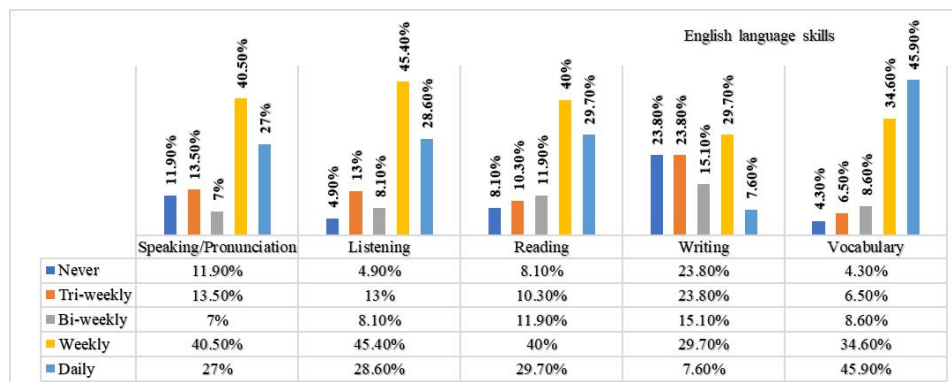


Figure 11: The perceived use of English language skills

According to findings (Figure 12), almost 39% ($N = 72$) of students perceived a higher rate of proficiency (4) in reading compared to 30% ($N = 56$) of them intermediate (3). Almost 30% ($N = 55$) of students claimed of gaining higher proficiency in vocabulary, whereas 43 %

($N = 80$) of them an intermediate level. In contrast, 45% ($N = 84$) of students perceived intermediate level of proficiency in writing, whereas 23% ($N = 43$) of them gained lower. In regards to the listening skills, almost 37% ($N = 68$) of students perceived intermediate level, whereas almost 26% ($N = 48$) of them gained a lower level of proficiency. Lastly, 42%, ($N = 78$) of students perceived intermediate level in speaking/pronunciation, whereas nearly 28% ($N = 51$) them lower. What stands out from this result is that despite the higher immersion in listening and speaking as seen above, only lower percentage of students perceived higher rate of proficiency compared to reading skill and slightly higher for vocabulary. The majority of students perceived achieving an intermediate level of proficiency in the aforementioned skills.

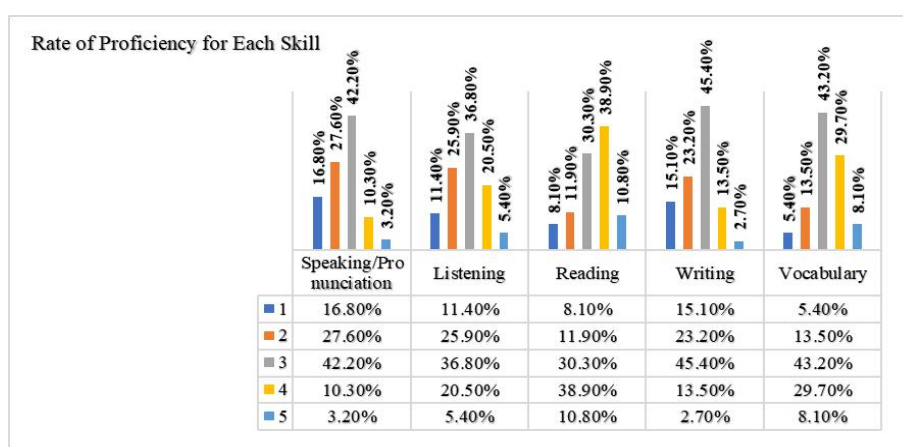


Figure 12: The rate of proficiency (on a scale of 1-5) for each skill.

In sum, most students tend to use vocabulary knowledge in high frequency but with a lower return of proficiency result including in speaking and pronunciation.

RQ3: What other types of English Acquisition Resources (EAR) do Chinese Master of Laws students use most *without* the use of smartphones to acquire a higher proficiency rate?

Descriptive statistics were also obtained and analyzed for *other types of EAR without smartphones* to see whether their importance as controlled variables can be statistically linked with the primary correlational outcome in RQ4. In the analysis, nine counts were missing in the system.

Figure 13 below shows a percentage comparison of other types of EAR most used *without* smartphones. Almost 57% ($N = 105$) of students perceived attending a weekly run English course since they all are currently taking English classes, whereas almost 5% ($N = 9$) of them claimed to attend daily. Moreover, 43% ($N = 80$) of students claimed to watch

English movies weekly, whereas 11% ($N = 21$) of them did so daily. Interestingly, 39% ($N = 73$) of students watch weekly English TV shows and documentaries, whereas 13% ($N = 24$) watch daily. In contrast and expected, 60% ($N = 111$) of students never visited English speaking countries and 55% ($N = 102$) never had close personal relationships with English speakers. This result was in dialogue with the self-reported lower proficiency in speaking and listening skills using smartphones as reported in Figure 12 above.

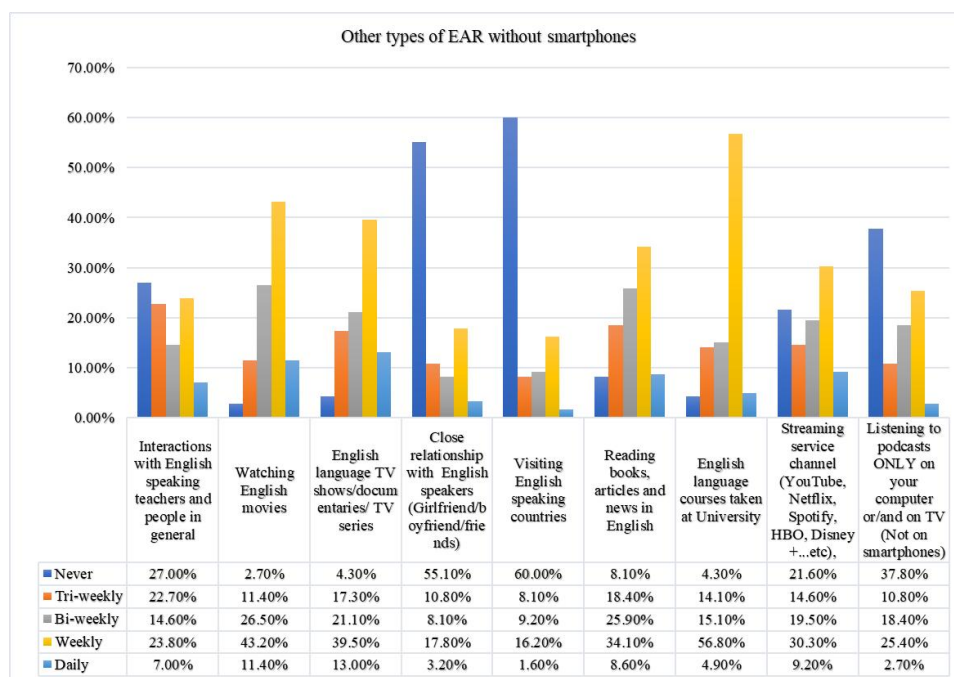


Figure 13: Other types of EAR without the use of smartphones

Cross tab analysis revealed interesting numerical interactions to understand better the relationship between controlled sub-variables found in the leading EAR without smartphone and the overall proficiency rate. Since the result table size was very large to include, only the most important results are reported below.

Analysis indicated that 37% ($N = 34$) of *Low Frequent Users Group (LFUG)* who interacted face to face with English speaking teachers perceived to have gained a higher rate of proficiency using a smartphone, whereas 46% ($N = 42$) of them gained an intermediate level of proficiency. Almost 67% ($N = 18$) of *Regular Frequent Users Group (RFUG)* perceived intermediate level of proficiency using smartphone ,whereas only 22%, ($N = 6$) of them gained higher proficiency. However, 30 % ($N = 17$) of *Higher Frequent Users Group (HFUG)* claimed a lower rate of proficiency level instead.

Moving on to another controlled variable such as *close personal relationships with English speakers*, 48% ($N = 59$) of *LFUG* claimed an intermediate level of proficiency using a smartphone, whereas 34% ($N = 42$) of within the same group claimed higher proficiency. Comparatively, *HFUG* in the same controlled variable, 46% ($N = 18$) of them perceived intermediate level of proficiency. In contrast, nearly 26%, ($N = 10$) of them claimed to have relatively lower proficiency using a smartphone.

Regarding one of the above controlled variable *English language courses taken at university*, cross-tab analysis indicated that there was a higher level of interactions within the *HFUG* that 49% ($N = 56$) of students perceived intermediate proficiency and nearly 32% ($N = 36$) of them a higher level of proficiency using smartphones. However, not many in the *LFUG* and *RFUG* self-reported any meaningful percentages and counts in the rate of proficiency at all levels. The cross-tab analysis results (based on two-sided tests) showed that there were significant differences between the combined subgroups at the significance level of $p = .05$.

The study run a multiple correlation between the above sub-variables found under the controlled variable *other types of EAR without smartphone* (Figure 13) and the two main correlational variables (*The overall frequent use of smartphones and rate of proficiency*) to support the above numerical interactions results. Multiple correlations were conducted between the controlled variable named together with all sub-variables in it as “*dep_predicted*” (seen Figure 13) and each main controlled variable by computing them manually into SPSS - the *constant* plus the unstandardized beta for each sub-variable found in the linear regression table. The multiple correlation showed a typical and statistically significant ($p < .001$) positive relationship ($r = .293^{**}$) with the same correlation value between all the sub-variables found in Figure 13 and frequent use of smartphones and rate of proficiency level.

RQ4: What is the relationship between the frequent use of smartphones for acquiring English and the rate of proficiency among Chinese Master of Laws students at CUPL?

First, Table 7 indicates a cross tab analysis to understand better the hidden interactions found between the two main correlation variables. Almost 49% ($N = 75$) of high users group (*HFUG*) perceived intermediate rate of proficiency (*IP*) using a smartphone, whereas 34% ($N = 53$) of them claimed to have a higher rate of proficiency (*HP*). Almost 17% ($N = 26$) of *HFUG* perceived lower proficiency (*LP*) while using smartphone compared to 35% ($N = 6$) of low frequent users group (*LFUG*) maintained the same *LP*. Moreover, almost 43% ($N = 6$) of regular frequent users group (*RFUG*) perceived acquiring *LP*. In other words, this method of analysis results shows that out of the *HFUG* there was more of perceived *HP* and *IP* than

there was in the *LFUG* and *RFUG* which is more or less anticipated. It does also align itself with an overall predicted outcome at the significance level of $p < .05$ (see the Note in Table 7).

Table 7: Cross tab analysis between the overall use of smartphone and rate of proficiency of different user groups.

| | | Overall use of smartphone for acquiring the English language | | | | | | Total |
|---|-----------------|--|----------|---------------------|----------|------------------|----------|-------|
| | | Low Users Group | | Regular Users Group | | High Users Group | | |
| | | Count | Column % | Count | Column % | Count | Column % | Count |
| Overall rate of proficiency for acquiring the English language using smartphone | Low Proficient | 6 | 35.30% | 7C | 50.00% | 26 | 16.90% | 39 |
| | Intermediate | 8 | 47.10% | 6 | 42.90% | 75 | 48.70% | 89 |
| | High Proficient | 3 | 17.60% | 1 | 7.10% | 53 | 34.40% | 57 |
| | Total | 17 | 100.00% | 14 | 100.00% | 154 | 100.00% | 185 |

Note: Results are based on two-sided tests. For each significant pair, the key of the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05. 1 Tests are adjusted for all pairwise comparisons within a row of each innermost sub-table using the Bonferroni correction.

Interestingly, to note that despite the low use of smartphone within the *LFUG*, almost 18% of students perceived gaining a higher proficiency level. However, in particular, there is almost 65% of combined *LFUG* who perceived intermediate and high proficiency in English that is only allocated to 11 students in total.

The above cross tab analysis dialogue with the correlation analysis between the main correlational variables of this study: *the frequent use of smartphones for acquiring English* and *the rate of proficiency using smartphone*. The result indicates a relatively small ($r = .163$) but statistically significant ($p < .05$) positive relationship (Table 8 below).

Table 8: Correlations between the overall frequent use of smartphone and rate of proficiency and many years of studying English.

| | | Overall use of smartphone for acquiring the English language | |
|---|------------------------|--|--------|
| Overall rate of proficiency for acquiring the English language using smartphone | Spearman's Correlation | | .163* |
| | Sig. (2-tailed) | | < .026 |
| | N | | 185 |
| | | Many Years of studying English including formal/informal | |
| Overall rate of proficiency for acquiring the English language using smartphone | Spearman's Correlation | | .201** |
| | Sig. (2-tailed) | | < .006 |
| | N | | 185 |

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

However, other controlled variables might have contributed to the small yet statistically significant relationship as also reported above in RQ3.

Once again in Table 9, the cross tab analysis revealed that 49 % ($N = 73$) of those who studied English for many years (10-13+ years) perceived an intermediate level of proficiency, whereas 34% ($N = 51$) of them claimed to gain higher proficiency level compared to those who had several (7-9 years) and a few years (1-6 years) of English studies. However, interestingly, almost 17% ($N = 25$) of them perceived lower proficiency in using smartphone despite the many years of English studies. The finding is statistically significant at the $p < .05$ level (see Note in Table 9). The result was backed by the correlation (Table 8) which was found to be statistically significant ($p < .01$) and positively associated ($r = .201^{**}$) between the two variables.

Table 9: Numerical interactions between years of studying English and overall rate of proficiency using smartphones.

| | | Overall years of studying the English language including formal/informal | | | | | | |
|---|-------------------|--|------------|--|------------|--|------------|-------|
| | | Few years of Eng studies (1-6 years) | | Several years of Eng studies (7-9 years) | | Many years of Eng studies (10-13+ years) | | Total |
| | | Count | Column N % | Count | Column N % | Count | Column N % | Count |
| Overall rate of proficiency for acquiring the English language using smartphone | Low Proficient G | 10C | 55.60% | 4 | 22.20% | 25 | 16.80% | 39 |
| | Intermediate | 6 | 33.30% | 10 | 55.60% | 73 | 49.00% | 89 |
| | High Proficient G | 2 | 11.10% | 4 | 22.20% | 51 | 34.20% | 57 |
| | Total | 18 | 100.00% | 18 | 100.00% | 149 | 100.00% | 185 |

Note: Results are based on two-sided tests. For each significant pair, the key of the category with the smaller column proportion appears in the category with the larger column proportion. Significance level for upper case letters (A, B, C): .05. 1 Tests are adjusted for all pairwise comparisons within a row of each innermost sub-table using the Bonferroni correction.

These results raise an important point about the longer students study English, the more they tend to gain overall proficiency rate using smartphones. Interestingly, however, studying English for many years did not lead them to *the use of a smartphone for acquiring English* because it was found to be statistically insignificant. In addition, other controlled variables were surveyed and included in this study such as “*years of being taught by English speakers*” and “*years of living in English speaking country*” which found to be statistically insignificant and thus not reported.

This study section thoroughly reported the outcomes of the data analysis concerning each RQs. In addition, the magnitude of the interactions of the interlinked sub-variables

within each RQ, including non-favourable results, were also reported. Below, the study discusses the results, generally and specifically, in connection with the introduction and theory, each RQ and hypothesis. Further, the limitations encountered in the study, a possible implication of the study results, and further research possibilities will be discussed.

Chapter 5

Discussion

The study looked at the perceived relationship between the frequent use of smartphones for acquiring English and the proficiency rate among 185 CUPL upper-level English language learners. Additional data were collected and analyzed to support and dialogue with the primary correlational outcome of the study. The results provide a self-reported empirical base for the theoretical synergy introduced in the study between students' behaviour of smartphone use for acquiring English and their general engagement with mobile learning.

The descriptive data analysis results from the first and second RQs will be discussed with the support of significant correlational backing as they dialogue with the hypothesis. The third and fourth RQs will be integrated into the discussion as they address the outcome of the study's primary goal together with relevant and statistically significant controlled variables.

The results revealed that the average rate of frequent use of smartphones for acquiring English is higher than the average rate of proficiency. Results indicate that most students perceived using smartphones with a higher frequency for acquiring English than their level of proficiency. It means that there are more variations between higher and lower rates of smartphone use than in the rate of proficiency which was found to be slightly consistent. The consistency could imply that most students perceived achieving a differentiated level of proficiency between intermediate (3) and higher (4-5) rates of proficiency closer to the reality than extremity. In other words, the result indicates that higher use of a smartphone does not automatically necessitate a higher rate of proficiency from the get-go. It is not only the frequent high use that counts when a language is learned; there is always a gradual language acquisition that needs to be dealt with or without a smartphone, depending on each student's prior proficiency in the language, learning preferences and other factors such as motivation. The finding is consistent with the theoretical account of “*operant conditioning*” that higher level of outcomes depend on stimuli with or without smartphones which might decrease or increase gradually overtime because of motivation, tools used and relevancy (Skinner, 1965).

Moreover, it could also be the nature of using a multi-purposeful digital tool that the students need to go through in different stages of language acquisition. One of them is

multitasking which might affect proficiency, be it negatively or positively, depending on each student's condition of engagement at that particular moment. This interpretation is linked to university students' increased smartphone use for academic purposes, resulting in lower performance, possibly due to multitasking (Amez et al., 2021; Ng et al., 2017; Olufadi, 2015).

To make a broader conversation with the above finding, data analysis revealed that many students perceived using smartphones between 7 to 9 hours per day for general purposes compared to 1 to 2 hours reserved for acquiring English. The finding is aligned with the widespread use of smartphones among younger and educated Chinese university students (Poushter, 2017) and the normalization of learning while on the move (Barris, 2011; Pegrum, 2014). Thus, there are always a variety of intentions (general use) that a smartphone can be used interchangeably within a single day compared to something objectively planned to carry out. For instance, there is always an implicit way of learning English (through social media) if there is higher frequent use of smartphones for general purposes than a specific well thought learning objective. This result is also in line with Skinner's operant conditioning theory of active behavioural response, which can happen at any time and anywhere according to multiple stimuli to generate communicative languages (Skinner, 1965). It is crucial to remember that any language can also be acquired organically (without being forced) and artificially - particularly with the English language - as an internationally recognized *lingua franca*. Ultimately, what matters the most is that using a smartphone is the individual student's behaviour, whether for learning or pure entertainment. This exciting discussion needs to take roots further as the focus of future research studies and compare the findings with this thesis study's outcome.

When the above-averaged rate of proficiency using a smartphone compared to *without the use of a smartphone*, the averaged rate of proficiency was higher *with the use of a smartphone*. This might speak possibly even suggest that the use of smartphones can play the role of enhancing the level of English language proficiency from lower to higher. This was also found to be true when the visual numerical interactions revealed a deeper understanding of proficiency gained *with* and *without* smartphones, suggesting that most students claimed to achieve both intermediate and higher levels of proficiency. Furthermore, only a few of them perceived a lower proficiency rate regardless of using a smartphone or not. These interrelated results align with the effectiveness of smartphone utilization in higher education for acquiring English using a variety of applications (Alsied, 2019; Muhammed, 2004; Nami, 2020; Sad et al., 2020). Hence, students might perceive significant proficiency improvement in the English

language while engaging themselves with a smartphone rather than without, which is more or less expected.

The finding is meaningful from the scientific point of view that smartphones are necessary but not sufficient digital tools for improving proficiency in English. In a practical sense, teachers of ESL/EAL should take notice of this and use smartphones as an alternative and complementary (motivation) to engage students with the English language. However, the ubiquitous nature of smartphones in the classroom should not demand for a stand-alone motivational approach to engage students, instead should be integrated into a well-thought language objective on top of formal learning (Sharpley et al., 2009). Albeit, how best to employ digital tools in classrooms has been identified as difficult for teachers and school leaders (Farr & Murray, 2016).

The significance of the above result became notably stronger due to the relatively large and statistically significant positive relationship found between the perceived rate of proficiency *with* and *without* the use of smartphones. The result alludes to most students who perceived a higher proficiency rate *without* a smartphone; they also perceived the likelihood of gaining a higher proficiency level while using a smartphone. The finding is very well positioned in previous studies acknowledging the usefulness of smartphones for English language acquisition under MALL (Krasulia & Saks, 2020; Kukulska-Hulme, 2018; Mittal et al., 2020; Sad et al., 2020). However, it does not tell us much about the extent to which how these two variables influence each other. Nevertheless, this is a breakthrough to this thesis study's primary objective of finding the relationship between the frequency of smartphone use and a rate of proficiency. It is essential to note that not all students perceived higher proficiency level using smartphones, which is quite realistic for the teaching and learning of any language.

Even more striking is that when students perceived their rate of proficiency progress in English using a smartphone for the first 2-3 weeks, data analysis revealed an essential aspect of the language acquiring process. The overall average rate of proficiency level discussed above is also higher than the proficiency gained within a few weeks. The finding is logical and universal since acquiring any language, be it English or not, has to go through an incremental proficiency increase starting from the lower, intermediate and then higher levels depending on the timing, consistency, practicability and variety of use. Thus, the finding indicates the full range of multiple functionality of smartphones use across time and space for an overall impact on language acquisition (Farr & Murray, 2016) rather within a short period of time. The finding is also approved by a strong statistically significant positive relationship

between the two variables. The relationship outcome indicates that students who gained a higher proficiency level in the first few weeks are more likely to increase their proficiency level in the language over time, considering *ceteris paribus*. This is quite a significant finding that complements with this study's hypothesis - specifically, equally substantial for pedagogy and educational technology in terms of adaptability and consistency of use.

The second RQ intertwined with the above discussion, which cannot be understood in isolation without considering the most types of EAR tools used on smartphones. The use of smartphones is highly dependent on various language software applications. The question then becomes, which EAR made the difference for the students to perceive higher proficiency with a smartphone rather than without? First, most students self-reported higher percentages of daily and weekly usage of the English vocabulary and dictionary apps alongside the listening and multimedia apps. However, English language apps (Hello English, Duolingo, ESL lounge...etc.), English listening, such as podcasts, English instant messaging (such as WhatsApp), and English social media apps were the least used on smartphones. One of the main reasons behind this result is that Google-based applications are not easily accessible in China without the support of VPNs or through a different set of rules. Interestingly, however, most of them use English web browsing, such as Google, despite the real-time access issues. This finding is well-aligned with research studies confirming the use of vocabulary-related apps and their effectiveness among college students (Browne & Culligan, 2008; Chen et al., 2008; Wu, 2014). Furthermore, it is also in line with the use of content-based multimedia (YouTube) on smartphones, reported as the most crucial agency in acquiring the English language (Crompton, 2013b), which is also connected to the idea of multiple affordances made possible by smartphones (Pegrum, 2014).

Second, concerning the above discussion, the students perceived focusing more on a daily and weekly basis of vocabulary knowledge than on skills. The higher immersion in vocabulary produced a higher proficiency rate in knowledge than reading, listening, and speaking skills. In a broader orientation of language acquisition, the result is absolutely in line with the critical value vocabulary knowledge can bring to a communicative language skill development such as reading, speaking and writing, which become a primary ingredient for comprehension, expression and spelling. This result was also confirmed in various research studies on smartphones' effectiveness for vocabulary expansion (Basoglu & Akdemie, 2010; Browne & Culligan, 2008; Chen et al., 2008; Wu, 2014). However, a higher level of immersion in speaking and listening on smartphones did not materialize well enough to gain a higher average of proficiency as it did for vocabulary.

Several interconnected assumptions could be made out of the above results. First, speaking, pronouncing and listening to the English language is more challenging for Chinese native speakers than acquiring vocabulary knowledge. Second, once they acquire vocabulary, which is a language in itself, it must be used practically to increase the level of proficiency in speaking and listening skills. Third, most of the students self-reported not using their smartphone built-in audio recorder for a speaking practice, which was found to be the lowest average of use and the level of proficiency. The second and third assumptions can be proved with empirical studies conducted, which found that the central focus of all ESL mobile applications is mainly made for vocabulary-related activities. However, speaking was the lowest use rate, followed by listening and writing (Heyoung & Yeonhee, 2012). The main reason behind this, they argued, is that speaking practices are mostly drill-based with little to none of contextualized and integrated speaking activities. Hence, this indicates a passive way of acquiring the English language as a leisure activity with little practical use in everyday life for many Chinese students.

Further, some studies argued that speaking and listening are more widely used on smartphones than grammar/vocabulary (Alsanosi et al., 2019; Şad et al., 2020). Others found that higher vocabulary use would improve speaking and spelling through applications (Muhammed, 2014; Nalliveetil & Alenazi, 2016). However, believing that smartphones would greatly enhance speaking skills is far from the actual impact perceived and confirmed by the students in this study. The finding is in line with previous studies on the lack of practical experience in fluency (Abugohar et al., 2019; Metruk, 2020). Undoubtedly, this will be one of the shortcomings of smartphone applications that might not solve the lack of face-to-face interactions for native speakers of Chinese. Despite shortcomings, many studies have praised the ubiquitous nature of acquiring the English language with smartphones, which was made possible thanks to applications (Buriston, 2014; Mittal et al., 2020; Berge, 2013; Kim & Kwon, 2012; Sad et al., 2020). Hence, English language teachers should pay extra attention to these mixed results and plan contextualized pedagogical strategies to ensure the maximum utilization of smartphones in and out of classrooms, particularly for a practical speaking and writing engagement. The suggestion is significant to the findings because both skills are productive that many of the students perceived as lacking.

The above-nuanced analysis and discussions will be wrapped up in the results of the remaining two RQs, which are linked with the hypothesis and controlled variables. Most students perceive they take weekly English classes and engage with English movies, TV shows and documentaries. These controlled variables might have played a critical role in

influencing the students' overall proficiency rate perceived with the use of a smartphone. Unsurprisingly, *interactions with native English speakers, in general*, were found to be the least utilized together with *visiting English-speaking countries and having a closer personal relationship with English speakers*. This result speaks volumes in line with the above discussion on the lower use of and proficiency in speaking and listening skills. This happens because the absence of traditional way of communicative language engagement that can be reinforced within the context of mobile learning (Traxler & Crompton, 2015). Hence, real-world interactions in English are not immediately available for Chinese students, and they might decide to rely more often on smartphones to compensate for the loss.

Notwithstanding, cross-tab analysis uncovered relatively interesting results a correlation analysis would not be able to show. For instance, students who had a lower level of interactions with English-speaking people, including teachers, perceived a higher proficiency rate in using a smartphone. In contrast, most students in this group claimed an intermediate level. Contrary to the general assumption, a few students perceived a lower proficiency while keeping a higher level of interactions with English speakers. Further, the controlled variable *close personal relationships with English speakers* showed similar negative results. These descriptive analysis results also indicated that other types of EAR without smartphones are positively related to both the overall use of smartphones and the rate of proficiency level. This indicates that with the reliance on other EAR without smartphones, there is a slight possibility that students are more likely to increase both the frequency of usage and rate of proficiency simultaneously.

Interesting numerical interaction results were also revealed between and among different labelled sub-groups in each primary correlational variable - the majority of frequent high users of smartphones for acquiring English perceived intermediate and higher levels of proficiency. However, a few higher user students claimed a lower level of proficiency using smartphones. In contrast, interesting to note that despite the lower use of smartphones within the LFUG, a few students perceived gaining a higher proficiency rate. This might suggest further that a few students might not necessarily have to use smartphones frequently to be highly proficient in the English language (like anything else in life, there is always a rarity or exception to the rule). One of these exceptions to the rule could be related to the human complexity of language acquisition tied to the individual student's internal ability within the environmental-linguistic contexts (Chomsky, 2013). Hence, many other contexts come to play in acquiring languages depending on each student's behaviour toward mobile learning.

One of the essential controlled variables, *the many years of studying English*, confirms its expected interactions with the proficiency rate. Most students perceived intermediate and a higher proficiency rate gained using smartphones due to the many years of studying English. However, for some students, studying the English language for many years did not make any difference as they claimed lower proficiency in the language. There are differences in the interactions between the two variables, which were positively related to each other. Specifically, the longer the students continue to immerse themselves in the English language over many years, the more likely they will use a smartphone to improve their level of proficiency. It would be interesting to know the magnitude of this particular controlled variable has on the hypothesis of this study which could be the focus of future research.

Considering all the above positive and negative results, the study concludes that *the overall frequent use of smartphones for acquiring English* is positively related to *the overall rate of proficiency*. Since the relationship between the two is statistically significant, the null hypothesis is rejected. The sample size obtained contains the true value of the mean in the data indicating that the higher students use their smartphone to acquire the English language, the more likely they tend to gain higher proficiency. Moreover, the result broadly aligns with the higher average proficiency rate the students perceived in gaining using a smartphone than without. Hence, the study demonstrated, to some extent, smartphones play the complementary role of supporting and enhancing language acquisition informally without replacing the importance of formal face-to-face language learning foundations. It is a small but fascinating and insightful result, thanks to the peculiarity brought up in this study by acknowledging the role of controlled variables with that of descriptive numerical interactions.

a. Limitations

One of the significant limitations of this study is the sampling and data collection method used. First, only the CUPL Master of Laws English language students were considered in the study using the non-probability sampling method. Thus, the outcome of this study should not be generalized to the broader smartphone users of other university English language learners. Second, the data were collected using a *self-reported* digital questionnaire as there were no practical ways of objectively measuring and collecting data. Although the self-reported questionnaire was carefully designed with multiple revisions and piloting to minimize ambiguity and subjectivity of students' responses, there could have been incorrect answers depending on the students' short and long-term memory. Moreover, the digital survey's closed-ended questions might have affected students' ability to freely express their answers.

The scale used in the study also has its limitation. The study could not use an internationally recognized scale of language proficiency assessment because the students might feel intimidated to rate themselves accurately against an internationally recognized framework. This is due to the "losing-face" culture embedded in academic performance. Higher academic performance is desired and demanded, while failure is considered unacceptable in Chinese educational culture. To ease the social and cultural expectations, the study considered a neutral scale to accurately collect responses from the students without being culturally and socially forced to do so.

This thesis study's correlational data analysis and results were limited to Spearman's rho coefficient because the data collected were primarily ordinal-continuous rather than interval/ratio. The correlational outcome could have been different if it was entirely based on data values with measurable intervals with ratios. The cross tab method of analysis also has limitations to be mindful of a caveat. The cross tab analysis method is run numerically by combining and labelling the scale into different subgroups, while the correlation is run holistically on a scale of 1-5. Hence, both analysis methods might not always show similar significance levels depending on combined variables and observed responses within the data set. Moreover, numbers were artificially skewed despite the interactions between the controlled and two main correlational variables. Each count was valued higher in percentages that might not reflect the actual value in each labelled sub-groups. Further, the cross tab analysis did not consider *the frequent use of smartphones for acquiring English* correlational variable because proportionally was equal to zero or one, and thus SPSS did not present the percentages in the analysis table.

b. Implications of the results

Although this study has opened up a tiny window into the universe of educational technology (general) and language acquisition (specific) from the Chinese university students' point of view, it provided essential findings on English language skills and knowledge (vocabulary) related issues with the use of smartphones. Hence, schools and teachers should pay a particular attention to the teaching of foreign languages with smartphones by designing and incorporating specific language objectives such as MALL for speaking and listening skills development. For the time being, the MALL approach has been found to be key motivational for students to practice their speaking and listening comfortably than any other method (Sad et al., 2020). In addition, the study is a stepping stone to much bigger research ideas related to digital technologies and the influence they bring with them in teaching and

learning (general) and in particular in the teaching of English as an Additional Language (EAL) in higher education.

The relatively small positive relationship between frequency and proficiency is also a much-needed boost to the limited correlational smartphone research studies done thus far. Moreover, it provides a linkage for a deeper understanding of the ongoing debate over mobile learning and how the theory of behaviourism can make a difference in the conversation and possibly even solve the problem of side effects of using smartphones.

The study presents two interconnected implications for educational technology in line with the findings of this study. First, special attention should be given to content-based interactive applications specifically designed for speaking engagements by applying the concept of virtual reality (VR). Second, school leaders should collaborate with teachers and educational technologists to run digital literacy/pedagogy workshops because of the higher use of smartphones for general purposes among the students and perceived lower proficiency in skills. These workshops should incorporate the concept of self-regulation and self-regulated learning as they are logically linked to learning behaviours in using digital tools in and out of classrooms.

c. Implications for research

The study findings are a stepping stone for more extensive research ideas. The study exposed timely, specific and necessary results in finding a relation between frequency of smartphone usage and rate of proficiency and uncovering deeper meanings to the relationship through descriptive statistics and numerical interactions. However, this is not enough; the study expects to run regression analysis to determine the influence or impacts controlled variables might have on the relationship. It would also be helpful to perform mixed-based research - quantitative and qualitative - by employing an experiment using applications with a similar or different probability sampling method. In addition, the ubiquitous nature of smartphone use across time and space requires a comparative investigation of the extent to which the organic (unconscious, not forced) dimensions of language learning come to play.

Conclusion

Recent data show smartphones are increasingly omnipresent, outpacing any other digital tools in terms of quantity, quality, accessibility, and adaptability (Slotta, 2022). Despite the high level of ubiquitousness seen across the globe and in China, many empirical research studies have mainly concerned with the side effects of usage, perceptions and attitudes of university students. A few research studies have been conducted related to the use of smartphones for acquiring English and the proficiency rate. Thus, this study took a specific route of engagement rather than general to showcase a perceived relationship between the use of smartphones for acquiring English and the rate of proficiency, considering the interrelated variables and controlled variables to understand the connection better.

Both the theory of behaviourism and mobile learning was found to be in synergy to support the perceived practical experiences of first and second-year Master of Laws students at the China University of Political Science and Law. The digital survey data collection using the non-probability convenience sampling method revealed a relatively small but positive relationship between frequency and proficiency. The association is statistically significant; thus, the null hypothesis is rejected. Moreover, descriptive data analysis showed proficiency rate without using smartphones, and 2-3 weeks of use provided a strong support for the relationship indicating smartphones can indeed enhance English language acquisition overall. The findings are significant for educational technologists, English language teachers and school leaders. They should pay a particular attention to the outcome of this study and design timely, appropriate innovative pedagogical approaches to the use of smartphones in and out of the classroom while being mindful of self-regulation and self-regulated learning approaches.

Acknowledgments

First, I would like to say thank you to my thesis supervisor, Prof. Katrin Saks (PhD), Head of Language Centre, at the Parnu College, University of Tartu, for strengthening my core belief in self-directed and regulated learning with guidance and independence throughout this incredibly challenging thesis study project. Thank you for listening to my vulnerability and uncertainty, and for the support offered. It is a complete Estonian learning experience!


Secondly, to the entire teaching faculty of the MA program in Educational Technology, which they provided me with the much-needed teaching and learning practices that I have applied in my own teaching with the use of meaningful Edtech tools, thank you! I would also like to thank the Program Director of Educational Technology, Emanuele Bardone, for the incredible amount of thought-provoking discussions we had during webinars and on Teams. Thank you to the entire 2021/22 cohort for the challenges we accepted, shared, collaborated and offered. Thank you all!

Thirdly, I would like to send my gratitude to Prof. Xu, Prof. Wang and Tina, of the China University of Political Science and Law, for giving me the opportunity and flexibility to design and teach my own courses as well as for the kind support and understanding offered in the past two years. Thank you also goes to my incredibly supportive students who participated in this thesis project, 非常感谢你!

Lastly, I cannot thank enough my sister Chiara (this is for you - the power within!) and friends Teshome, Elmars, Tony, Mike, and particularly Darya, for the support and understanding as well as for the intellectual debate. We should write a book!

Author's declaration

I hereby declare that I have written this thesis independently and that all contributions of other authors and supporters have been referenced. The thesis has been written in accordance with the requirements for graduation thesis of the Institute of Education of the University of Tartu and is in compliance with good academic practice.

Signature: 

Date: Friday June 3, 2022

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Appendices

Appendix 1. Digital survey questionnaire designed and utilized for the thesis study

Q1

Skip to

End of Block if Yes, I consent Is Selected

Skip to

End of Survey if No, I do not consent Is Selected

Welcome to my Thesis Research Study, from the University of Tartu, Estonia, for the completion of the Master's program in Educational Technology. I am interested in understanding the frequent use of smartphones for acquiring the English language and the rate of proficiency level. **The research study is designed only for CUPL Master of Laws students** who have taken Advanced Legal English Language courses with me. For this study, you will be asked to answer questions relevant to you, your frequent use of smartphones and the level of proficiency gained. **Your responses will be kept completely confidential.** The study should take you around 10 minutes to complete. **Your participation in this research is voluntary.** You have the right to withdraw at any point during the study. The principal researcher of this study can be contacted (Dawit/David) at mektor19@gmail.com. By clicking the "YES" button below, you acknowledge: your participation in the study is voluntary. **You are at least 18 years of age.** You are aware that you may choose to terminate your participation at any time for any reason you deem necessary. Thank you!

Yes, I consent

No, I do not consent

Demographic Block

Q2

What is your gender?

Male

Female

Non-binary / third gender

Prefer not to say

Q3

What is your age?

21-22

23-24

24-25

26+

Q4

*

What is your ethnicity? Please choose the one that applies to you:

- Han
- Zhuang
- Hui
- Manchu
- Mixed
- Asian
- Other (please specify)

Q5

*

What is your place of origin within China?

- Rural (smaller towns/villages)
- Urban (bigger and medium size cities)

Q6

*

Which part of China are you from (your hometown province)? Please write below using Pinyin format 汉语拼音 (English alphabet):

Q7

*

What is your **native** (L1) language since birth? Please choose only one.

- Mandarin Chinese (standard 普通话)
- Cantonese Chinese (Yue)
- Shanghainese (Wu)
- Bi-lingual (Chinese + other)
- Polyglot (speak more than 3 native languages)
- Other (Please specify)

Background Information Block

Q8

*

What is your study **specialization** in the Master of Laws graduate program at CUPL?

- International economic/trade law
- International law and politics.
- Civil and criminal procedural law
- Civil and criminal law
- Intellectual property law
- Commercial, corporate and financial law
- Constitutional and administrative law
- Other (please specify)

Q9

★ x→

For how many years have you been using smartphones? Please choose ONLY one:

- Never
- 1-3 years
- 4-6 years
- 7-9 years
- 10+ years

Q10

★ x→

Overall, how often do you use your smartphone *in a day for general purposes* other than for acquiring the English language?

- Never
- 1-3 hours a day
- 4-6 hours a day
- 7-9 hours a day
- 10+ hours a day

Q11

★

Choose the type of *mobile phone device* you currently use:

- Smartphone
- "Non-smart" standard mobile phone

Q12

★

Please choose ONE smartphone *brand* you currently use:

- OnePlus
- Xiaomi
- Apple (iPhone)
- Samsung
- Huawei
- Oppo
- Other (Please specify)

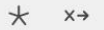
Q13



Please choose the **operating system** of your current smartphone:

- iOS (Apple)
- Android (Google)
- Symbian (Nokia)

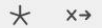
Q14



Overall, how many years have you studied the English language including formal/informal instructions at school/colleges/universities?

- 1-3 years
- 4-6 years
- 7-9 years
- 10-12 years
- 13+ years

Q15



How long have you lived in a country where English is the official language and/or in a country where English is spoken widely?

- I have NEVER lived in a country where English is spoken widely.
- Less than a year.
- 1-2 years.
- 3-4 years.
- 5+ years

Q16



Overall, how long have you been taught by Native English Speakers?

- Less than a year
- 1-2 years
- 3-4 years
- 5-6 years
- 7+ years

Q17



Please choose your **TOP 3 places** where you use your smartphone the MOST:

- Walking and travelling
- On university campus
- In classrooms
- In cafes, restaurants
- At home
- At work
- Other (Please specify)

Q18



What other foreign language (L2) besides English are you currently acquiring using your smartphone?

- None
- German
- Italian
- Spanish
- French
- Other (please specify)

Behavioral Frequency Block

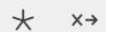
Q19



Overall, how often do you use your smartphone for acquiring the English language?

- Daily
- Weekly
- Bi-weekly
- Tri-weekly
- Never

Q20



Overall, how often *in a day* do you use your smartphone for acquiring the English language?

- Never
- 1-2 hours a day
- 3-4 hours a day
- 5-6 hours a day
- 7+ hours a day

Q21



Overall, how often *in a week* do you use your smartphone for acquiring the English language?

- Never
- 1-2 days per week
- 3-4 days a week
- 5-6 days a week
- 7 days a week

Q22



Which area of the English language do you focus on more often using your smartphone? Please choose all that applies to you:

| | Daily | Weekly | Bi-weekly | Tri-weekly | Never |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Speaking/Pronunciation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Listening | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reading | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Writing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Vocabulary | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q23



On a scale 1-5 (1 = lowest, 5 = highest), choose your rate of proficiency for each area you have selected above:

| | 1 | 2 | 3 | 4 | 5 |
|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Speaking/Pronunciation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Listening | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Reading | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Writing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Vocabulary | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Proficiency Block

Q24



Overall, how would you rate your level of proficiency in the English language **without using your smartphone** for acquiring the English language? Please choose a rate that truly represents your level **in all area of the language knowledge** on a scale 1-5 (1 = lowest, 5 = highest):

- 1
- 2
- 3
- 4
- 5

Q25



How would you rate your level of proficiency progress in the English language **in the first 2-3 weeks of using your smartphone** for acquiring the English language? Please choose **your early rate** on a scale 1-5 (1 = lowest, 5 = highest):

- 1
- 2
- 3
- 4
- 5

Q26 ★

How would you **rate (as of today) your overall level of proficiency** for acquiring the English language using your smartphone? Please choose on a scale 1-5 (1 = lowest, 5 = highest):

1
 2
 3
 4
 5

Q27 🔍 ★ x→

Which of the following **English Acquisition Resources (EAR)** tools do you use on your smartphone to acquire the English language and how often?

| | Daily | Weekly | Bi-weekly | Tri-weekly | Never |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. English dictionary Apps | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Vocabulary memory apps (such as MoMo..etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. English language apps (Quora forum, Hello English, Duolingo, ESL lounge...etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. English language apps (Chinese version) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Daily English Listening Apps | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. English instant messaging apps (WhatsApp, Skype, Telegram, Viber..etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. Wechat English version (for writing, speaking, reading and listening in English) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. English social media apps (Instagram, Facebook, Twitter etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. Multimedia apps (YouTube, Bilibili - Chinese YouTube, English TV shows, English news...etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. English web-browsing (Google, Firefox, Chrome...) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. Your own smartphone built-in audio recorder for | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. Your own smartphone built-in camera for language learning taking pictures and videos | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. Other (please specify): <input type="text"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Q28 🔍 ★

Rate from 1-5 (1 = lowest, 5 = highest) how each EAR tool has contributed **as of today** to your **overall English improvement as a result of how often you have used it on your smartphone**. Please **ONLY** answer for apps which apply to you or which you have used:

| | 1 | 2 | 3 | 4 | 5 |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. English dictionary Apps | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Vocabulary memory apps (such as MoMo..etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. English language apps (Quora forum, Hello English, Duolingo, ESL lounge...etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. English language apps (Chinese version) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Daily English Listening Apps | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. English instant messaging apps (WhatsApp, Skype, Telegram, Viber..etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. Wechat English version (for writing, speaking, reading and listening in English) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. English social media apps (Instagram, Facebook, Twitter etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. Multimedia apps (YouTube, Bilibili - Chinese YouTube, English TV shows, English news...etc) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 10. English web-browsing (Google, Firefox, Chrome...) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 11. Your own smartphone built-in audio recorder for speaking/pronunciation/fluency. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 12. Your own smartphone built-in camera for language learning (pictures and videos). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 13. Other (please specify): <input type="text"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Other Types of EAR W/O Smartphone

Q29 🔍 ☆ x→





Other than on your smartphone, what other types of English Acquisition Resources (EAR) have you used or do you use to improve your English and how often?

| | Daily | Weekly | Bi-weekly | Tri-weekly | Never |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1. Interactions (face-to-face with English speaking teachers and people in general) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 2. Watching English movies | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 3. English language TV shows/documentaries/ TV series | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 4. Close personal relationship with English speakers (Girlfriend/boyfriend /friends) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 5. Visiting English speaking countries | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 6. Reading books, articles and news in English | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 7. English language courses taken at University | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 8. Streaming service channel (YouTube, Netflix, Spotify, HBO, Disney +...etc), | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 9. Listening to podcasts ONLY on your computer or/and on TV (Not on smartphones) | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| 10. Other (please specify): <input type="text"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Survey flow Published

- ▶ **Show Block: Consent Block** (1 Question)
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- ▶ **Show Block: Types of EAR on Smartphone Block** (2 Questions)
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- ▶ **Show Block: Other Types of EAR W/O Smartphone** (1 Question)
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| All Responses | | | | | | | |
|--|---------------|-----------------|------------|-----------------|---------------|---------------|----|
| Distribution Channel | Audience Size | Surveys started | Responses | Completion Rate | | | |
| Anonymous link | N/A | N/A | 185 | N/A | | | |
| Project name ↓ | Status | Responses | Type | Owner | Last modified | Creation date | ⚙️ |
| ☆  Smart-Acquisition | Active | 185 | Survey | Me | Mar 2, 2022 | Feb 21, 2022 | ⋮ |
| ☆  Piloting My Survey | New | — | Survey | Me | Feb 14, 2022 | Feb 7, 2022 | ⋮ |
| ☆  Explore a Sample Relationship Health Project by Qual... | New | — | Survey | Me | Feb 21, 2022 | Feb 21, 2022 | ⋮ |
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