



**Mobile Devices in English as a Foreign Language Contexts
in Southern Thai High Schools**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of
Master of Arts in Teaching English as an International Language**

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ABSTRACT

The aim of this quantitative study was to examine several issues concerning the use of mobile devices in the Thai EFL school/classroom context by surveying a large sample of students and teachers. The participants were 277 students and 55 teachers in 8 schools of different sizes in Southern Thailand, who were surveyed using Likert-type scale questionnaires which covered a range of topics related to mobile devices in the EFL setting. The data were analysed, and independent samples t-test was used to look for any significant differences in participants responses related to digital native/immigrant teacher status and urban/rural school location.

The findings indicated that students had access and ability to use mobile devices, and either agreed or strongly agreed that mobile devices increase their learning potential and satisfaction, suggesting they are ready for autonomous learning using mobile devices in partnership with their 21st century learning skills. Urban/rural school location had a significant effect on the amount of time students spent using mobile devices, though this appeared to be a consequence of teacher/school policy and not due to a lack of access. The findings also showed that whilst digital native teachers consistently responded more positively towards the benefits/uses of mobile devices in EFL teaching/learning than the older digital immigrant teachers at a significant level ($p < .01$), all teachers regardless of age agreed on the benefits and promotion of mobile devices as EFL learning aids.

Findings from this study can inform policymakers, schools, and teachers on a variety of issues related to mobile devices in the Thai EFL high-school context, in particular how the cultural contexts of digital native/immigrant orientation or urban/rural location influence these issues. Recommendations are made for schools and policymakers to consider the teachers' and students' voice and construct policies which

both promote the pedagogical use of mobile devices in the EFL environment and allow students to complement their learning aided by mobile devices.

Keywords: *English as a Foreign Language, Mobile Assisted Language Learning (MALL), Digital Native, Digital Immigrant, Learner Autonomy, 21st Century Learning Skills, Mobile Use, Thai High Schools*

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LIST OF PAPERS

This thesis is based on the following papers:

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Howlett, G. & Waemusa, Z. (2019). 21st Century Learning Skills and Autonomy: Students' Perceptions of Mobile Devices in the Thai EFL Context. *Teaching English With Technology*, 19 (1), 72-85.

ACCEPTANCE LETTERS

From: Ali ŞİMŞEK <asimsek@anadolu.edu.tr>

To: Graham Howlett

Date: Tue, 2 Oct, 18:30

Subject: Your Manuscript

Dear Graham Howlett,

We have received evaluations from the reviewers regarding your manuscript. Their comments are positive and the final recommendation to the editor is:

Accept.

We would like to congratulate you for your good work. Your article has been scheduled to appear in *Volume 9-Issue 4 of Contemporary Educational Technology*, which will be published in October 2018.

We look forward to receiving your new submissions in the future.

Best wishes,

Professor Ali Simsek

Editor-in-Chief



TEACHING ENGLISH WITH TECHNOLOGY

Lublin, Poland

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Editor-in-Chief

To Whom It May Concern

This is to certify that the paper by Graham Howlett and Zainee Waemusa entitled “21st CENTURY LEARNING SKILLS AND AUTONOMY: STUDENTS’ PERCEPTIONS OF MOBILE DEVICES IN THE THAI EFL CONTEXT” has been accepted to be published in *Teaching English with Technology – A Journal for Teachers of English* (ISSN 1642-1027) in 2019. The contribution by the respectful authors has been blindly reviewed by two independent experts to maintain high standards of academic publications.

Teaching English with Technology is an international open access journal published quarterly by IATEFL Poland Computer Special Interest Group (Poland) and University of Nicosia (Cyprus), with the Web version visited regularly by a few thousand guests a month at <http://www.tewtjournal.org>. The Journal is B-ranked on the 2011 ARC Australian government list of approved academic journals (http://www.arc.gov.au/era/era_journal_list.htm), is indexed in ERIC, ERIH+, Index Copernicus database, EBSCO Publishing, Scopus, BazHum, CEJSH. The Journal has the 9-point, rank in the Polish Ministry of Science and Higher Education’s journal listing. All submissions are blindly reviewed, returned to authors for corrections, reviewed again and only then published in the Journal.

As the Editor-in-Chief of the Journal, I would like to express my respect for the academic expertise and practical experience of **Graham Howlett** and **Zainee Waemusa** as demonstrated in the submission to *Teaching English with Technology*.

A handwritten signature in black ink, appearing to be 'JK', is centered on the page.

*TEACHING ENGLISH WITH TECHNOLOGY –
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1. INTRODUCTION

Mobile devices - digital, easily portable, and internet accessible devices such as mobile phones and tablet computers which can facilitate many tasks (West & Vosloo, 2013) - are resulting in escalating transformations of the educational world (Alexander, 2014). As the most ubiquitous interactive Information and Communication Technology (ICT) on the planet, they have become an integral part of modern daily life with the potential to be used for varied educational and learning activities (Nankani & Ojalvo, 2010), allowing students to access information, streamline administration and facilitate learning in new and innovative ways (West & Vosloo, 2013). With an increasing proportion of students having access and native ability to use such devices, increasing attention has understandably been put on where these devices belong in educational settings as both a pedagogy for teachers and as a learning aid for students.

Learning English as a Foreign Language (EFL) in countries like Thailand can be challenging due to limited exposure to English in both daily life and in educational institutions (McCarty, Obari, & Sato, 2017). In Thailand, the grammar translation method of instruction - a traditional method where language is taught as an academic subject rather than a means of oral communication with a focus on grammar and rote learning - is claimed to be very popular and successful among Thai EFL teachers (Sittirak, 2016). Thai students are often not willing to ask direct questions in class and tend to remain quiet (Gunawan, 2016), and allowing students to use their devices in class could possibly result in greater learning gains, providing the interactivity and immediate responses to their actions today's digital native students crave (Prensky, 2001), complementing learners 21st century learning skills (Trilling & Fadel, 2009) and leading to greater autonomy (West & Vosloo, 2013).

The powerful learning possible aided by mobile devices is only viable when properly supported and managed by teachers (Aldrich, 2017). As Thailand moves toward a new economic model which promotes educational technology (Koanantakool, 2016), careful attention must be paid to mobile device use in school and the classroom by policymakers, schools, and teachers. In order for this transition to be possible teachers must possess appropriate pedagogical and technological knowledge (Koehler & Mishra, 2008), and in an environment like Thailand where traditional teaching practices are followed by a majority of older 'digital immigrant' teachers who have

immigrated to the digital world (Prensky, 2001) the ability to transition may be easier for some than others.

Selwyn (2010) contended that the ‘real-world’ educational contexts within which technology use and non-use is located requires ‘vigorous’ academic study (p. 3). However, at the time of writing there was little previous investigation in Thai EFL contexts, and particularly in the southern region. Little was known about the extent to which teachers and students in Thailand believed mobile devices can aid learning EFL, and there had been little previous investigation regarding whether the digital immigrant background of many teachers might affect their beliefs and experiences. Thus, this study was designed and conducted with an aim to provide some insight into these areas.

2. LITERATURE REVIEW

As the review of literature that follows hopefully highlights, the impact of mobile device usage in both general school settings and the EFL classroom is an area which has drawn much attention in recent years. A subset of literature is highlighted in relation to the following themes; mobile device use in schools, mobile devices and Mobile Assisted Language Learning in EFL contexts, mobile learning in the Thai context, 21st century learning skills and learner autonomy, and the digital native / digital immigrant dichotomy. Finally, the key concepts and theories which guided this studies’ theoretical framework are detailed.

2.1 Mobile Devices in Schools

There is much literature (Squire & Dikkers, 2012; Thomas & Muñoz, 2016; Thomson, 2009; West & Vosloo, 2013) highlighting the powerful learning that is possible using mobile devices - especially as an aid to language acquisition (EF EPI, 2018, Godwin-Jones, 2018) - bridging between formal and informal learning providing students with the ability to easily access supplementary materials to clarify ideas introduced by a classroom instructor (West & Vosloo, 2013). For the American school students in Squire & Dikkers’ (2012) study, learning with mobile devices took on an organic quality, as participants “followed their interests, learned, and became more powerful participants in the world” (p. 450). In a UK study meanwhile, nine out of ten

college lecturers believed using mobile devices in the classroom improved their teaching by using these devices to support student's learning (Thomson, 2009).

Conversely, other studies have found mobile devices reduce students' ability to pay attention in the classroom, with 89% of the United States college students in McCoy's (2016) study indicating mobile devices caused them to pay less attention and subsequently miss instruction. The ability to use personal and social functions is not necessarily a good indicator of students' knowledge of the educational functions mobile devices afford (Stockwell & Hubbard, 2013).

Teachers, schools, and policymakers are said to be often unclear of the ways these devices can enhance learning (Thomas & Muñoz, 2016). Pahomov (2015) claimed that a typical response from teachers as to why they restrict use is that students have not yet learned how to manage their technology responsibly, causing an uncontrollable learning environment if nobody manages student's development and gives instruction on how to manage technology responsibly.

The UNESCO policy guidelines for mobile learning believe negative social attitudes regarding the educational potentials of mobile devices to be the most immediate barrier to the widespread embrace of mobile learning, with this technology being dismissed as disruptive or distracting in school as people generally view mobile devices as portals to entertainment, not education (West & Vosloo, 2013).

Another prominent argument against allowing in-class usage of mobile devices is the inequality of a traditional digital divide of access between the affluent and not-so-affluent students, but UNESCO's mobile learning policy guidelines claim that mobile devices hold special promise for education due to the access to devices most people already have (West & Vosloo, 2013). Moreover, Thomas & Muñoz (2016) argue that a new digital divide has emerged between the low levels of access to technology schools have in comparison to students'. The Bring Your Own Device (BYOD) model, where learners supply their own device, is inexpensive for schools, easy to implement, and unlike a school owned piece of technology allows students to adopt such devices as a personalized learning tools and use them in informal contexts (West & Vosloo, 2013). Whilst schools may not be able to match the technological access students have outside of the classroom, by utilising a BYOD model in-class they can help create an appropriate learning environment for the digital native generation which utilises mobile

devices as a learning aid at no cost and little effort (West & Vosloo, 2013). The drawback of this model lies in the aforementioned ‘traditional’ digital divide in that not all learners own mobile devices, which may be exaggerated in environments such as rural areas in less-affluent countries.

For these reasons, despite the potential that learning facilitated by mobile devices presents, schools in Thailand and around the world often prohibit their use within the classroom (Beland & Murphy, 2015; “Cell phone-free Classroom”, 2017). Thai Prime Minister Prayut Chan-o-cha expressed growing concern towards in-class mobile device use by students, prompting the Ministry of Education in 2017 to encourage schools to consider restricting mobile phone use (“Cell phone-free Classroom”, 2017). However, this is not deemed a mandatory rule such as in France, where the French Ministry of Education announced that they would ban students from using mobile phones in all primary, junior and middle schools starting September 2018 (Willsher, 2017). At the time of writing, France appeared to be the only country thus far to enforce a clear nation-wide policy.

2.2 Mobile Devices and MALL in EFL Context

MALL (Mobile Assisted Language Learning) is language learning that is assisted or enhanced through the use of mobile devices (Valarmathi, 2011). There are many educational affordances which are unique to mobile devices including portability, the ability to exchange data and collaborate with others, context sensitivity (unique to the current location, environment, and time), connectivity, individuality, enabling multiple modality, supporting student improvisation as needed within the context of learning, and supporting learning on the move (Klopfer, Squire, & Jenkins, 2002, p. 1; Liu, Scordino, Renata, Navarrete, Yujung, & Lim, 2015, p. 356). Moreover, previous studies have shown that students seem pro-MALL, with 67% of Saudi EFL students in Alsulami’s (2016) study believing mobile devices can help improve their English language skills and 86% depending on the use of mobile devices to understand English words and sentences.

Mobile devices hold special promise in EFL contexts like Thailand as they can provide students with easy access to up-to-date materials and connect them to the real world and an authenticity of native English that is missing in classrooms led by

non-native teachers. Studies have found that technology can aid the learning of Grammar (Kılıçkaya, 2013; Saeedi & Biri, 2016) and highest reading proficiency is acquired by students who use online dictionaries (Dwaik, 2015). Moreover, technology and MALL can help teachers transform the language classroom, making English learning more personalised, more interactive, and more accessible (EF EPI, 2018). Despite this, many dismiss these devices as distracting or disruptive in school (West & Vosloo, 2013), and the convenience they provide can even cause students to feel like they do not need to learn English spelling as they can always use a mobile phone to aid them (Nalliveetil & Alenazi, 2016). However, Phillips, Grosch, and Laosinchai's (2014) study found that Thai students use mobile devices to assist their learning in many positive ways such as checking spelling using online and offline dictionaries, Google searching, translation, and taking photos. Moreover, their findings argued that instead of using new learning platforms, the technology that students already possess should be leveraged to help advance their learning.

2.3 Thai Context and Mobile Devices

Thailand was classed as having 'low' proficiency of English skills in 2018 (EF EPI, 2018), ranked 64th among 88 listed countries and with average English scores of 30.45% for 9th grade and 28.31% for 12th grade students (National Institute of Educational Testing Service, 2018). This far-from-satisfactory English language competence is a consequence of the few opportunities there are to use English in their daily settings (McCarty et al., 2017).

Former Minister of Education Somchai Wongsawat stated in the most recent Thai Basic Education Core Curriculum (2008) that "innovative strategies must be identified to improve the quality of education... ..and learners' capacities for competitiveness and creative cooperation in the world society" (p. 7). Sittirak (2016) claims that the tradition of teacher-directed rote learning in Thai classrooms is still very popular among Thai EFL teachers, which strengthens Thai cultural norms that put value on status and age. As a result, the learner-centred approach which has long been rooted in Thailand's educational reform (which also includes the adoption of ICT) has not been widely accepted by teachers, students, or parents (Kantamara, Hallinger, Jatiket, 2006).

Highlighting some requirements of mobile learning and mobile devices from Thai students, James' (2011) study (conducted during the early stages of widespread mobile device adoption) of undergraduate students found mixed readiness from students to the technological demands of m-Learning (mobile learning). Students asked for a different and more personalised learning model, with the major themes regarding what students desired from m-Learning being collaborative capability, flexibility, learner engagement and media content. Moreover, the analysis suggested there were crucial technological constraints needing to be overcome relating to mobile devices, including speed of connection, costs, use, ownership, and learning experience. James' 2011 article highlights how rapidly technology is developing, with participants' desires having been met and the crucial technological constraints overcome, suggesting mobile devices are ready to facilitate m-Learning for the Thai students in his study.

Ten years on from the publication of Thai Basic Education Core Curriculum the government is pushing Thailand 4.0, an economic model which promotes a 'smart Thailand' of creativity and innovation and educational technology (Koanantakool, 2016). Whilst Thai policymakers have an agenda for incorporating technology and the promotion/utilization of learners' 21st century learning skills, vague policy and seemingly contradictory comments from the Prime Minister Prayut Chan-ocha asking teachers to consider restricting mobile phone use ("Cell phone-free Classroom", 2017) seems to have left many teachers and schools unable or unaware of how to transition to MALL.

Despite this, the BYOD model to facilitate MALL appears feasible in the Thai context with mobile device use and ownership growing year on year (National Statistical Office of Thailand, 2017), 90.4% of Internet users going online using smartphones, and 81% of teenagers spending more than an hour a day using their mobile device (Kantar Millward Brown, 2017).

Tananuraksakul's (2016) small-scale quantitative study which investigated the effect of blended e-learning - the combination of online digital media with traditional classroom methods - had on Thai EFL students' motivation to learn English suggested Thai teachers adopt blended learning (rather than the extremes of blanket bans or pure online) as this would facilitate students' need for their teacher's guidance and encouragement while meeting their 21st century learning needs.

2.4 21st Century Learning Skills and Language Learning

21st century learning skills are the core competencies for learning and innovation that are believed to help students thrive in today's digitally and globally interconnected world (The Partnership for 21st Century Skills, 2016), of which mobile devices are the most popular and prominent technology. These competencies are creativity and innovation, critical thinking and problem solving, communication and collaboration, plus information, media and technology skills. MALL allows increased opportunities to cultivate the complex skills required to work productively with others (West & Vosloo, 2013), and new technology such as mobile devices actively promotes these new 21st century learning skills (Trilling & Fadel, 2009).

The 20th Century approach to education was focussed on 'learning-about' and compiling stocks of knowledge (Brown, 2005), and an EFL context of "information acquisition" of second language where motivation for learning English came from the desire for higher scores in proficiency tests (McCarty et al., 2017, p. 22). While this is still true today for many students (and arguably teachers also), the reality is that English is a communication device and something that learners need to be able to use not simply 'learn-about', which rote methods (such as grammar-translation in Thailand) are more aligned with (Sittirak, 2016). Brown (2005) suggests students today want to create and learn at the same time, pulling content into situated and actionable use immediately. These are aspects of 'learning-to-be', bridging the gap between knowledge and knowing (Brown, 2005). Mobile devices can play a role in supporting students' 21st century preferences, resulting in greater learner autonomy.

The traditional '20th century approach' to teaching previously mentioned by Brown (2005) will not advance learners' critical thinking skills and/or autonomy (Scott, 2015). Mobile devices are contributing to a greater personal efficacy for students, with students able to use devices in innovative and creative ways that could not be expected ahead of time (Squire & Dikkers, 2012). A cultural shift is underway in classrooms, away from the traditional model of teaching where EFL learners tend to expect teachers to provide L2 knowledge such as vocabulary and grammar in order for students to memorise the meanings and pass paper tests (McCarty et al., 2017) to one where students actively participate in their own learning through mobile devices

(Matchan, 2015). Looking forward, students will be making associations from multiple sources of information faster than ever before (Van De Bogart, 2014). Moreover, allowing mobile device usage optimises teachers' time - one of the most valuable and limited resources in the classroom - by supporting student practice and having students work independently on digital devices while they can provide instruction to small groups of students (EF EPI, 2018).

Kaur (2013) postulated that ultimately the goal of education is “to produce lifelong learners who are able to learn autonomously” (p. 10). Mobile devices provide students with the flexibility to follow their own interests and move at their own pace, which potentially increases their motivation to pursue learning opportunities (West & Vosloo, 2013). In the ESL context of Malaysia, researchers found that smartphone use boosted learners' 21st century learning skills to a certain degree, that students gain great satisfaction when learning using smartphones, and that smartphone use leads one towards being a lifelong autonomous learner (Ramamurthy, & Rao, 2015). Thai students are more familiar with social learning (such as in the classroom setting) than individual, needing much guidance from teachers even in higher education (Pagram & Pagram, 2006) as students of all ages of have never been taught to learn by themselves, posing a serious problem that must be faced by Thai education (Malaiwong, 1997 in Pagram & Pagram, 2006). The implication that Thai students are better at group learning, especially when they have extrinsic motivation, suggests they may not be suited to autonomous learning, especially when considering their shy and passive nature (Mann, 2012). However, Tananuraksakul (2015) looked at autonomy in relation to Thai EFL students online dictionary use on mobile devices and concluded that students had positive attitudes towards being self-reliant in the classroom and improving their English aided by technology, suggesting a relationship between learner autonomy and motivation (Little, 2006 cited in Tananuraksakul, 2015).

2.5 Digital Native / Digital Immigrant Dichotomy

One of the barriers to the widespread adoption of mobile devices as a pedagogy (such as MALL) is often attributed to Prensky's (2001) Digital Native and Digital Immigrant divide, a way to differentiate between those born into the digital world and those born before who have had to learn and adapt to new technologies.

Whilst the native/immigrant analogy can help us understand the differences between those comfortable with technology and those not (VanSlyke, 2003), over fifteen years have passed since Prensky's dichotomy during which ICT adoption and assimilation has accelerated rapidly, providing many digital immigrants with increased exposure to digital technologies, increasing their digital literacy. Consequently, today Prensky's dichotomy is not as clear-cut of a divide as it perhaps once was, with some considering the key to the native/immigrant divide being experience and not age (Jones, Ramanau, Cross, & Healing, 2010). However, even for those who later adopted technology, Toldeo (2007) considers all Digital Immigrants to be immersed in an unfamiliar culture of technology use, language, and behaviours.

Prensky did not define a specific year or date in which the digital age began and the divide occurs in his 2001 article. In this present study, Digital Native teachers (DNs) were categorised as those below 35 years of age (born from 1982), and Digital Immigrant teachers (DIs) were those above 35 years of age (born before 1982). The divide aimed to differentiate between those who were children/teens in the 1990's during the rapid development of the ICT (DNs), and those born prior (DIs). The year 1982 was designated as the divide after consulting literature including Palfrey & Gasser (2011) who arbitrarily named it as 1980 as the time when social digital technologies came online, and Jones et al. (2010) who considered 1983 to be a suitable place to differentiate.

2.6 Theoretical Framework

The review of literature highlights some of the key concepts and theories in relation to this study, which helped guide the creation of the research questions and can help understand the findings. These are:

Digital Native / Digital Immigrant: The Digital Native / Digital Immigrant dichotomy could help understand whether any resistance, slow adaptation, or negative attitudes towards mobile devices belong only to pre-digital teachers, who are said to be slower to pick up new technologies than digital natives (Prensky, 2001) and in an unfamiliar culture of technology (Toldeo, 2007). If a difference were to be observed between digital immigrants (who make up the majority of current in-service teachers) and digital native teachers (who share the digital native characteristics of

students) it could suggest a disconnect between two subsets of teachers operating in the same educational system, which looks headed towards increasing technological integration.

TPACK: Koehler & Mishra's (2008) Technological, Pedagogical, and Content Knowledge (TPACK) framework – how teacher's knowledge domains intercept – helped guide the theoretical framework of the teacher aspect of this research and the creation of the teacher questionnaire. Assessing whether Thai EFL teachers possessed the technological knowledge (TK) aspect of TPACK, or if they were more aligned with Shulman's (1986) Pedagogical Content Knowledge (PCK) framework would help understand the problem of mobile devices in the EFL context, especially any differences between digital natives and digital immigrants. Furthermore, if a lack of pedagogical knowledge (PK) (such as instructional strategies and teaching methods using technology) in the EFL classroom was unique to digital immigrants, it would suggest there is a barrier preventing a large majority of older teachers effectively mediating learning using mobile devices.

Bring Your Own Device (BYOD): As already highlighted, there are numerous advantages to utilising the BYOD model. However, the potential limitation is a digital divide of access between the affluent and not-so-affluent students, which may be exaggerated between urban and rural areas in a country like Thailand which already has a below world average GDP (Gross Domestic Product) per capita (International Monetary Fund, 2017). Thus, this present study sought to investigate the practical potential of implementing BYOD in Thai high-schools by the researching levels of access and connectivity students and teachers had in both urban and rural schools.

MALL: This study used MALL to help understand how the use of mobile devices can help students learn in EFL contexts, and whilst the use of mobile devices as a pedagogy and the ability to learn anytime anywhere are some of the key principles of MALL (Valarmathi, 2011), this study focussed more on teachers experiences and general practices and how students use them incidentally as pull-devices in educational situations, taking the initiative to seek out information for themselves (Stockwell, 2015).

21st Century Learning Skills: The core competencies of creativity and innovation, critical thinking and problem solving, communication and collaboration, and ICT skills are not necessarily inherent in Thai students, due to both the social learning and rote-learning context they are typically subjected to, and their stereotypically shy and passive nature (Mann, 2012). Technology is said to actively promote these skills, so using these competencies as a framework was important to investigate the extent to which Thai students believed mobile devices can facilitate these skills. If students exhibited awareness of the affordances of mobile devices in aiding their learning skills in the EFL context it could be argued that teachers move away from rote-learning and meet the students' modern needs.

3. RESEARCH PURPOSE AND RESEARCH QUESTIONS

As the review of literature hopefully highlights, there is already substantial evidence to show the powerful learning that is possible aided by mobile devices, but only when properly supported and managed by teachers. Selwyn reasoned that "...greater attention now needs to be paid to how digital technologies are actually being used – for better and worse – in real-world educational settings" (2010, p. 66) and in particular the social, political, economic and cultural context.

Thus, this study was designed to provide quantitative data on the place of mobile devices in the Thai ELF classroom and broader school setting from the experiences and practices of both teachers and students, providing a snapshot of the current state of affairs. For teachers, this included whether any resistance, slow adaptation, or negative attitudes towards mobile devices were widespread or belonged only to digital immigrant teachers (those born before the widespread use of digital technology). For students, the extent to which they perceive mobile devices to be advantageous in studying English in relation to 21st century learning skills and allowing them to be self-sufficient autonomous learners. Finally, school location was a variable to see whether urban or rural location had any impact on the responses from participants and their level of access.

Findings from this study can inform policymakers, schools, and teachers on a variety of issues related to mobile devices in the Thai EFL context, and in particular

how the cultural contexts of digital native/immigrant background or urban/rural location influences these issues.

There were four key research questions that drove this study:

1. What levels of ability and access to mobile devices do teachers and students in Southern Thai urban/rural high-schools have?
2. What are Thai EFL teachers' practices and experiences of mobile devices in school and the classroom?
3. How do differences in relation to Prensky's Digital Native / Digital Immigrant dichotomy affect EFL teachers' practices and experiences of mobile devices in school and classroom?
4. To what extent do students agree that mobile devices help them to study English in school/class in relation to use, attitudes, 21st century learning skills, and autonomy?

4. RESEARCH METHODOLOGY

This section provides details about the context, population and sample, instruments and piloting, data collection procedures, and data analysis methods chosen for this study, which followed a quantitative design using a cross-sectional survey. The use of quantitative methods for data collection and analysis make possible the generalization of interactions made with one group (Williams, 2007) and the interpretation of research findings need not be viewed as coincidence (May & Williams, 1998).

4.1 Population and Sample

Southern Thailand was chosen as the geographical setting for this study due to seemingly no previous related research having been conducted in the area, and its proximity to the author's University and expected ease of access. The high school setting was chosen due to the author's belief that that whilst teenage students are mostly in possession of mobile devices and have ability to use them, they are still too young to be given 'adult rights' like university students meaning teachers have more power/responsibility in this setting.

Purposive sampling of high schools for this study was based on the following criteria:

1. Schools of different sizes, as defined by the Ministry of Education
2. Schools in both urban and rural areas
3. Schools under administration of The Office of Education Area 16

The Office of Education Area 16 covers two provinces in Southern Thailand, Songkhla and Satun, and consists of 53 government high schools. It was selected as the research setting due to a wealth of data (such as student enrolment and teacher employees) accessible from the Office of the Basic Education Commission, and as a way to work within pre-determined constraints.

All 53 schools in the Office of Education Area 16 were initially invited by mail to participate, with eight of the responsive schools eventually making up the population of this study. Of these 8 schools, four were categorised by the Thai Ministry of Education (Office of the Basic Education Commission, 2016) as being Extra Large (> 1500 students), two as Large (600-1500 students), and two as Small/Medium (< 600 students). The four Extra Large schools were in urban areas, while the Large and Small/Medium schools were in rural areas, with school student enrolment decreasing relative to district population, as Table 1 shows below;

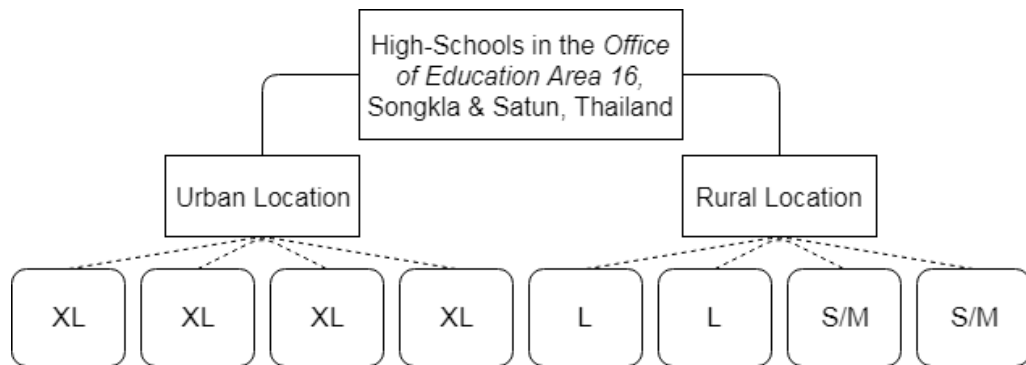
Table 1. Setting and research site information¹

Site No.	District Population	Type	Number of students			School Size
			Grade 8	Grade 11	Grade 7-13	
Site 1	159,233	Urban	683	429	3,510	Extra Large
Site 2	159,233	Urban	563	368	2,841	Extra Large
Site 3	64,817	Urban	339	268	1,964	Extra Large
Site 4	64,817	Urban	333	218	1,675	Extra Large
Site 5	30,450	Rural	246	98	1,048	Large
Site 6	29,334	Rural	116	87	633	Large
Site 7	21,066	Rural	80	89	553	Small/Medium
Site 8	18,214	Rural	69	51	325	Small/Medium
			2429	1608	4037	

¹ Using data from Official Statistics Registration System (2017) and Office of the Basic Education Commission (2017)

Thailand is a country with a relatively low GDP, and both Songkhla and Satun provinces have below-national-average Gross Provincial Product (GPP) per capita (National Economic and Social Development Board, 2017). Both urban and rural schools were purposively selected to investigate any potential lack of access to mobile devices or digital divide that may be a consequence of the setting. When discussing any differences in relation to school location, sub-groups in this study will henceforth be referred to as Rural (those schools located in villages, small towns, or towns) and Urban (those schools located in a city).

Figure 1. Eight participating schools in relation to size / location



From these eight schools, data was collected in late 2017 from two sources; students and teachers.

4.1.1 Students

The student population of this study were 4,037 Thai high-school students; 2,429 studying in Grade 8 and 1,608 studying in Grade 11 (see Table 1). Grade 8 students (junior high school) and Grade 11 students (high school) were selected as sub-groups within the sample to represent both the lower and upper sections of Thai high schools, sitting in the middle of each respective section of school (junior high school Grades 7-9, and high school Grades 10-12). From the population of 4,037 students, using a margin of error of 5% and a confidence level of 91.5%, the sample size was calculated as 277 participants, detailed below in Table 2;

Table 2. Student Participants by Grade / School Location

	Rural		Urban		Overall	
	n	%	n	%	n	%
Grade 8	79	56.03	76	55.88	155	55.96
Grade 11	62	43.97	60	44.12	122	44.04
	141	50.90	136	49.10		

Split into the Rural and Urban subgroups, the percentage of participants was almost equally balanced (Urban 50.9% / Rural 49.1%). Efforts were made to replicate the un-even proportion of the Grade 8 and Grade 11 populations in the sample, with 155 students from Grade 8 and 122 students from Grade 11 (and this ratio of 56/44 consistent within Rural and Urban sub-groups). Within each school, students were selected from Grade 8 and 11 to complete the questionnaire at random by a member of staff onsite such as the Head of English or an Administrator, with the author having no influence over which students were chosen to make up the sample.

4.1.2 Teachers

Discussions between administrative staff within each of the eight participating schools and the author's Thai assistant disclosed a total of 68 in-service Thai teachers of English whom made up the teacher population of this study. All were invited to participate in the study and sent questionnaires. Of these, 55 of the questionnaires were returned completed creating a sample of 55 teachers for the quantitative data collection. Of these 55 participants, 14 were aged under 35 years and when necessary will be referred to as DNs (Digital Native teachers), and 41 were aged over 35 years and will be referred to as DIs (Digital Immigrants teachers)². Teachers were not informed of the two strata of age in this research to avoid it influencing their responses.

4.2 Research Instruments and Piloting

4.2.1 Instruments

This study followed a quantitative approach using two Likert-type scale questionnaires for students and teachers respectively³. The student questionnaire was

² As detailed in Section 2.5 and based on Prensky's (2001) terms

³ See Appendices C, D, E, and F for the English and Thai questionnaires.

adapted from previous studies including Kashefian (2002) and Ramamurthy & Rao (2015). The teacher questionnaire was adapted from previous studies including Baker, Lusk, & Neuhauser (2012), Nalliveetil & Alenazi (2016), O'Bannon & Thomas (2015), and the TPACK framework (Koehler & Mishra, 2008). 5-point or 7-point scales of agreement were avoided as they include a non-committal mid-point and it has been observed that there is a tendency for people to choose the mid-point and avoid extreme responses on Likert-type scales, especially in Asian cultures (Wang, Hempton, Dugan, & Komives, 2007).

The questionnaire established participants demographic details and mobile device access, and then moved on to specific items which addressed the research questions. A bilingual translator translated the questionnaire from English to Thai and worked closely with the author during the various incarnations of the instrument pre and post pilot.

Whilst a large number of topics were covered in both questionnaires, items were presented as lists in no specific order in attempt to stop any strong themes having bearing's on how participants responded. Items testing similar constructs to check the reliability of responses were placed at different points in the questionnaires. Whilst both student and teacher questionnaires consisted of around 50 items, only those relevant to the aforementioned research-questions are referenced in this paper, which were re-grouped thematically post-analysis to present the findings in a coherent way.

4.2.2 Piloting

A Thai government high-school in the same geographical area but outside of the initial 53 high schools which make up The Office of Education Area 16 was randomly chosen to participate in the pilot. Ten Grade 8 and Grade 11 students and five teachers were randomly chosen to complete the questionnaire and participate in an item by item discussion with the author and his Thai assistant on the clarity of each item. Following this, there were three short focus groups with teachers, Grade 8 students, and Grade 11 students to discuss the topic of mobile devices in the EFL context to identify any relevant issues that may not have already been addressed in the questionnaire. Whilst the structure of the questionnaire remained the same, some items

were edited or removed for clarity before it was assessed by three experts in the field for validity, and prepped for data collection.

4.3 Data Collection

The two questionnaires were distributed in December 2017, by mail, to the 8 schools which made up the population. All teachers, regardless of age or school size, received the same teacher questionnaire, and students in both grade sub-groups received the same student questionnaire. Participation was voluntary and anonymous to encourage honest responses, and to allow students to participate without fear of consequences from the teachers who were assisting with data collection.

4.4 Analysis of Data

In order to understand the data collected by the questionnaires, it was analysed by a software package used in statistical analysis of data. In the findings that follow, the mean (\bar{x}) and standard deviation (S.D.) of the Likert-type scale responses from both teacher and student questionnaires is presented. To analyse distributional differences between the different school sizes, or the digital native / digital immigrant split, independent samples t-test was used to find whether the differences were statistically significant. The Likert-type scale intervals are accepted as equal; 0.75 on 4-point scale, 0.8 on 5-point scale, and 0.83 on 6-point scale, adapted from Pongvichai (2008)⁴.

5. RESULTS

The results henceforth are arranged according to the four research questions, which were:

1. What levels of ability and access to mobile devices do teachers and students in Southern Thai urban/rural high-schools have?
2. What are Thai EFL teachers' practices and experiences of mobile devices in school and the classroom?

⁴ See Appendix A.

3. How do differences in relation to Prensky's Digital Native / Digital Immigrant dichotomy affect EFL teachers' practices and experiences of mobile devices in school and classroom?
4. To what extent do students agree that mobile devices help them to study English in school/class in relation to use, attitudes, 21st century learning skills, and autonomy?

5.1 Research Question 1: Access and ability

The extent to which students and teachers owned mobile devices (and whether they were truly 'mobile' and connected to the internet) was investigated to observe any potential digital-divide of access in schools of different size and location in a country with low GDP and provinces with low GPP. Participants were also asked to rate their ability to use technology from one to five, with one being the lowest, which was interpreted using the Dreyfus model of skill acquisition (Dreyfus & Dreyfus, 1980).⁵

5.1.1 Teachers

Regarding the type of mobile devices they owned/used (with the ability to select multiple options if they owned multiple devices), 56.36% reported using an Android phone, 27.27% iPhone, 3.64% other smart phone, 5.45% tablet/iPad, and 3.45% other devices. Crucially, only 1.82% of participants reported not owning a mobile device and 3.64% owning a mobile phone with no connectivity to the Internet, meaning the overwhelming majority of teachers owned and used mobile devices (92.73%). These mobile devices connected to Wi-Fi (76.36%), 4G (65.45%), and 3G (18.18%).

Teachers rated their ability to use technology on a five-point scale from *Novice* (1) to *Expert* (5), and overall participants regardless of age reported being proficient ($\bar{x} = 3.40$, S.D. = 0.89) with no significant difference between groups.

⁵ See Appendix A for interpretation of scale intervals

5.1.2 Students

Similar to teachers, students reported owning/using; 62.45% Android phone, 22.74% iPhone, 12.27% other smart phone, 10.47% tablet/iPad, 2.17% iPod, and 6.14% other devices. Participants connected these mobile devices to Wi-Fi (64.26%), 4G (57.04%), 3G (28.16%), and other (0.72%). Only 6.14% of participants reported not owning a mobile device and 6.50% owning a mobile phone with no connectivity to the internet, meaning a significant majority of the student sample owned and used mobile devices. While 9.22% of students in rural schools did not own a mobile device, only 2.94% of students in urban schools were in the same situation.

Students also rated their ability to use technology on a scale from *Novice* (1) to *Expert* (5) and overall rated their ability as proficient ($\bar{x} = 3.49$, S.D. = 0.79), with school-size/location causing no significant differences.

5.2 Research Question 2: Thai EFL teachers' practices and experiences

Table 3 shows items investigating where in school teachers use mobile devices (for academic or non-academic reasons), with teachers able to select more than one option.

Table 3. Teachers – Location of use

	DNs (n= 14)	DIs (n= 41)	All (n= 55)
In the office	92.86% (13)	87.80% (36)	89.09% (49)
In the classroom	64.29% (9)	53.66% (22)	56.36% (31)
In other school situations	21.43% (3)	31.71% (13)	29.09% (16)

Teachers reported using mobile devices mostly in the office 89.09%, secondly in the classroom 56.36%, and 29.09% in other school situations, perhaps lending support to Schulze's (2014) claim that teachers only use mobile devices for administrative purposes. DN's reported using their devices in the classroom around 20% more often than DI's, which is likely in relation to the item in Table 9 regarding the use of mobile devices in EFL classes as a teaching tool, which provoked a significant difference between DN's and DI's.

Table 4. Teachers – Experience of students

	\bar{x}	S.D.
Most of my students have access to a mobile device.	2.04	0.95
Most of my students use mobile devices in class.	2.72	1.20
Students use mobile devices for educational means in school.	3.39	1.39
Students do not use mobile devices for educational means in school.	2.94	1.52

Using a 6-point scale from *Strongly Agree* (1) to *Strongly Disagree* (6)⁶, teachers agreed that their students had access to mobile devices ($\bar{x} = 2.04$, S.D. = 0.95), while they partly agreed that most of their students use mobile devices in class ($\bar{x} = 2.72$, S.D. = 1.20). Teachers believed students use mobile devices for non-educational means ($\bar{x} = 2.94$, S.D. = 1.52) in school more than for educational means ($\bar{x} = 3.39$, S.D. = 1.39), although only partly agreeing with both statements.

Table 5. Teachers – When use is allowed

	\bar{x}	S.D.
I use (a) mobile device(s) in my EFL classes as a teaching tool.	2.65	1.07
I allow students to use mobile devices to check vocabulary.	2.28	0.98
I allow students to use mobile devices to translate text.	3.06	1.14
I allow students to use mobile devices to search for information.	2.50	1.04

Using a 5-point scale of frequency from *Always* (1) to *Never* (5), teachers responded on the threshold of sometimes and often ($\bar{x} = 2.65$, S.D. = 1.07) using mobile devices as a pedagogy in their EFL classes. Whilst teachers often allowed students to check vocabulary ($\bar{x} = 2.28$, S.D. = 0.98) and to search for information ($\bar{x} = 2.50$, S.D. = 1.04), they only sometimes ($\bar{x} = 3.06$, S.D. = 1.14) allowed students to translate text.

Table 6. Teachers - Policy, Pedagogy, Promotion

	\bar{x}	S.D.
I know my school's policy on mobile devices.	2.11	1.05
I agree with my school's policy on mobile devices.	2.31	0.95
The teacher should decide in-class mobile device policy.	1.77	0.66
I know how mobile devices can aid EFL learning.	2.02	0.69
Mobile devices should be promoted as learning aids.	1.89	0.79
I know ways to promote positive educational mobile device use.	2.20	0.85
I support the use of mobile devices in the classroom.	2.72	1.13

⁶ See Appendix A for interpretation of the various scale intervals

I trust my students to use mobile devices in appropriate educational ways in the classroom.	2.96	1.10
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Using a 6-point scale from *Strongly Agree* (1) to *Strongly Disagree* (6), teachers agreed that they both knew ($\bar{x} = 2.11$, S.D. = 1.05) and approved ($\bar{x} = 2.33$) of their school's mobile device policy but were in strong agreement that the teacher should be the one to decide in-class device policy ($\bar{x} = 1.77$, S.D. = 0.66). They agreed that they knew how mobile devices can aid EFL learning ($\bar{x} = 2.02$, S.D. = 0.69) and that mobile devices should be promoted as learning aids ($\bar{x} = 1.89$, S.D. = 0.79). However, they agreed slightly less ($\bar{x} = 2.20$, S.D. = 0.85) that they knew the ways to promote positive educational mobile device use. Teachers only partly agreed that they supported the use of mobile devices in the classroom ($\bar{x} = 2.72$, S.D. = 1.13) and that they trusted their students to use mobile devices in appropriate educational ways in the classroom ($\bar{x} = 2.96$, S.D. = 1.10).

Table 7. Teachers - Distraction/Ban

	\bar{x}	S.D.
Mobile devices are a distraction in the classroom.	2.79	1.20
Mobile devices should be banned from the classroom.	3.26	1.29
Mobile devices are a distraction in school.	3.04	1.41
Mobile devices should be banned from use in school.	3.48	1.33

Using a 6-point scale from *Strongly Agree* (1) to *Strongly Disagree* (6), as a whole the sample of teachers partly agreed that mobile devices are a distraction in both the classroom ($\bar{x} = 2.79$, S.D. = 1.20) and in school ($\bar{x} = 3.04$, S.D. = 1.41), with the findings indicating they believe they are slightly more of a distraction in the classroom. They were neutral to the items regarding the banning of mobile devices, responding close to the mid-point of the scale they should be banned from use in school ($\bar{x} = 3.48$, S.D. = 1.33) and partly agreeing they should be banned from the classroom ($\bar{x} = 3.26$, S.D. = 1.29).

5.3 Research Question 3: Differences between Digital Native / Digital Immigrant teachers regarding practices and experiences

As previously mentioned, the teacher sample consisted of fourteen participants aged under 35 years (categorised as DNs in this study), and forty-one participants aged over 35 years (categorised as DIs).

In order to answer the second research question, independent samples t-tests were conducted to find the difference between the means of DNs and DIs. As this section highlights, for every single item regarding teachers' practices and experiences DNs always agreed more, reported higher frequency of use, and higher ability using mobile devices than DIs, often to a statistically significant level.

Whilst the two subgroups of teachers in this study were categorised by age in relation to Prensky's dichotomy (and the period with/without technology they were born in to), several items were included to assess whether the assumed natural ability and characteristics of DNs occurred within the sample.

Table 8. DN/DI Teachers - Digital Native Characteristics

	All		DNs		DIs		p
	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.	
I can use mobile devices with ease.	1.94	0.92	1.38	0.51	2.12	0.95	0.01**
I feel confident at using mobile devices.	1.96	0.62	1.38	0.65	2.15	0.48	0.00**
I use mobile devices in my free time.	1.85	0.78	1.46	0.66	1.97	0.78	0.04*

* significant at $p < .05$

** significant at $p < .01$

Whilst teachers (regardless of age) rated their ability to use technology as proficient ($\bar{x} = 3.40$, S.D. = 0.89) as stated in Section 5.2, more specific questions regarding ease of use and confidence using mobile devices shown in Table 8 (using a 6-point scale from *Strongly Agree* to *Strongly Disagree*) provoked significant differences between DNs and DIs ($p < 0.01$), with DNs also reporting mobile device use in their free time significantly more often than DIs ($p < 0.05$).

Table 9. DN/DI Teachers - Usage, Permission, Policy, Promotion

	All		DNs		DIs		p
	\bar{x}	S.D.	\bar{x}	S.D.	\bar{x}	S.D.	
I use a mobile device in my EFL classes as a teaching tool.	2.65	1.07	2.07	1.07	2.85	1.00	0.02*
I allow students to use mobile devices to check vocabulary	2.28	0.98	1.71	0.99	2.48	0.91	0.01**
I allow students to use mobile devices to translate text	3.06	1.14	2.57	1.34	3.23	1.03	0.06
I allow students to use mobile devices to search for information	2.50	1.04	1.93	1.00	2.70	0.99	0.02*
I allow students to use mobile devices however they like in class.	3.76	1.39	3.36	1.74	3.90	1.24	0.21
I have my own policy on mobile devices in the classroom	2.15	0.74	1.77	0.73	2.27	0.71	0.03*
Mobile devices should be promoted as learning aids.	1.89	0.79	1.38	0.51	2.05	0.80	0.01**

* significant at $p < .05$

** significant at $p < .01$

Using a 6-point scale from *Strongly Agree* (1) to *Strongly Disagree* (6), DN teachers reported ($\bar{x} = 2.07$, S.D. = 1.07) using mobile devices in their EFL classes as a teaching tool significantly ($p < 0.05$) more often than DI teachers ($\bar{x} = 2.85$, S.D. = 1.00). There were also significant differences between DN and DI teachers regarding how often teachers allow students to use mobile devices to check vocabulary ($p < 0.01$) and to search for information ($p < 0.05$), with DN teachers allowing use more often than DI teachers in all instances, including to translate text. Teachers demonstrated they controlled the autonomous use of devices by students in their classes, with DN teachers only sometimes ($\bar{x} = 3.36$, S.D. = 1.74) and DI teachers only rarely ($\bar{x} = 3.90$, S.D. = 1.24) allowing students to use mobile devices in any way they like. DN teachers strongly agreed ($\bar{x} = 1.77$, S.D. = 0.73) that they had their own policy on mobile devices in the classroom significantly more ($p < 0.05$) than DI teachers ($\bar{x} = 2.27$, S.D. = 0.71). Finally, DN teachers strongly agreed ($\bar{x} = 1.38$, S.D. = 0.51) that mobile devices should be promoted as learning aids, which was significantly different ($p < 0.01$) to DI teachers ($\bar{x} = 2.05$, S.D. = 0.80).

Another fifteen items investigated teachers' perspectives towards the affordances of mobile devices in the EFL classroom or school setting (in relation to 21st century learning skills and autonomy).

Table 10. DN/DI Teachers - Advantages of mobile devices, ranked

Mobile devices in the EFL classroom or school setting ...	All		DNs		DIs		p
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	
...are helpful for checking pronunciation	1.78	0.86	1.64	0.84	1.83	0.87	0.50
...provide anywhere/anytime learning opportunities	1.81	0.75	1.57	0.85	1.90	0.71	0.16
...can contribute positively to students' learning processes	1.89	0.69	1.71	0.73	1.95	0.68	0.28
...enable learners to use varied authentic sources	1.89	0.69	1.64	0.84	1.98	0.62	0.19
...provide opportunities for different types of instruction	1.91	0.73	1.64	0.84	2.00	0.68	0.17
...provide opportunity for greater learning gains	2.06	0.76	1.71	0.91	2.18	0.68	0.05*
...help learners to learn independently	2.15	0.84	2.00	1.18	2.21	0.70	0.44
...support student learning	2.17	0.82	1.64	0.74	2.35	0.77	0.00**
...increase student/teacher productivity	2.19	0.87	1.79	0.80	2.33	0.86	0.04*
...increase student engagement	2.22	0.86	1.57	0.76	2.45	0.78	0.00**
...allow students to work at their own pace	2.24	0.91	2.00	1.41	2.33	0.66	0.25
...improve students' general language skills	2.26	0.76	2.07	1.00	2.33	0.66	0.28
...increase student collaboration	2.28	0.92	1.79	0.80	2.45	0.90	0.02*
...increase student motivation to learn English	2.32	1.01	1.85	1.07	2.48	0.96	0.05*
...facilitate student creativity	2.38	1.04	1.93	1.07	2.54	1.00	0.06

* significant at $p < .05$

** significant at $p < .01$

Table 10 displays the results of these items which used a 6-point scale from *Strongly Agree* (1) to *Strongly Disagree* (6), with teachers in either agreement or strong agreement with all items, in correlation with students' responses. Whilst teachers were generally in agreement regardless of DN/DI subgroup, there were some significant

differences between the groups for six of the item above, with DNs in more agreement than DIs consistent with the trend of previous teacher responses. DNs strongly agreed (to a statistically significant level) more than DIs that mobile devices increase student engagement and support student learning in the EFL classroom or school setting ($p < 0.01$), provide opportunity for greater learning gains, increase student/teacher productivity, increase student collaboration, and increase students' motivation to learn English ($p < 0.05$).

5.4 Research Question 4: Student satisfaction, 21st century learning skills, and autonomy

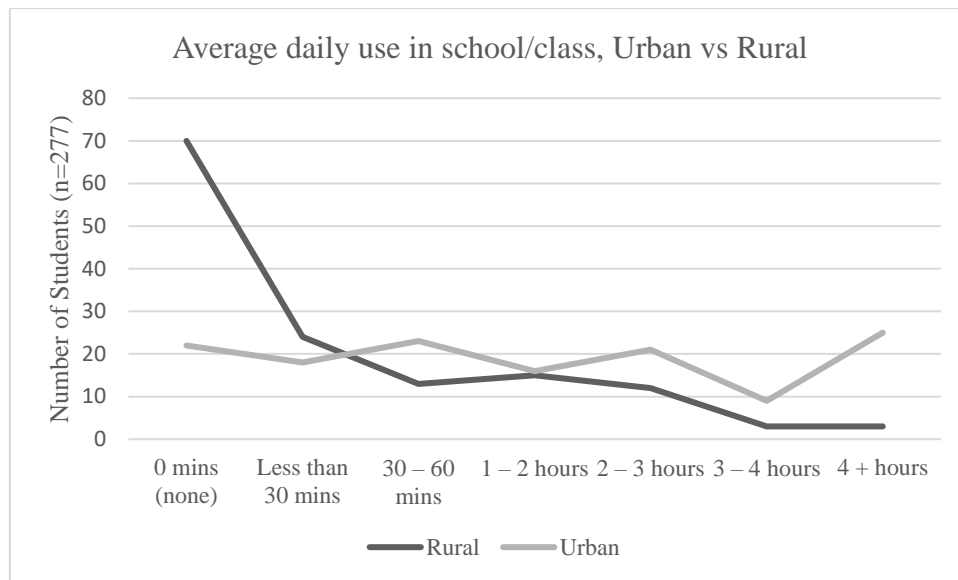
The fourth research question concerned the students' voice. Table 11 shows how much time students reported using mobile devices in school/class per day.

Table 11. Students – Average daily use in school/class

	Rural (n = 140)		Urban (n = 134)		All (n = 274)	
	n	%	n	%	n	%
0 mins (none)	70	49.65	22	16.18	92	33.21
less than 30 mins	24	17.02	18	13.24	42	15.16
30 – 60 mins	13	9.22	23	16.91	36	13.00
1 – 2 hours	15	10.64	16	11.76	31	11.19
2 – 3 hours	12	8.51	21	15.44	33	11.91
3 – 4 hours	3	2.13	9	6.62	12	4.33
4 + hours	3	2.13	25	18.38	28	10.11

This item investigating how much time students spend using mobile devices in school or class exposed some clear differences in regard to urban/rural location. Whilst a third of the overall sample appeared to not use mobile devices at all in school or class, the school location variable revealed that 49.65% of students in rural schools were not using their devices compared to only 16.18% of those in urban schools. In urban schools a larger number of students were spending 4+ hours using their device (18.38%) than not using them at all (16.18%).

Figure 2. Line graph showing Urban vs Rural student's daily use in school/class



The amount of time students spend using mobile devices is typically dictated by school or teacher policy, and items addressing this are shown in Table 12.

Table 12. Students - Bringing and using of mobile devices in school/classroom

	All		Rural		Urban		p
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.	
I bring a mobile device to school.	2.67	1.66	3.55	1.45	1.76	1.36	0.00**
My school allows me to bring my mobile device(s) to school.	2.87	1.80	3.74	1.61	1.96	1.52	0.00**
My teachers allow me to use my mobile device(s) in the classroom.	3.57	1.22	4.07	1.06	3.05	1.15	0.00**

** significant at $p < .01$

Using a 5-point scale from *Always* (1) to *Never* (5), students in the rural schools reported rarely bringing their devices ($\bar{x} = 3.55$, S.D. = 1.45) compared to students in urban schools always bring their devices to school ($\bar{x} = 1.76$, S.D. = 1.36), which correlates with and appears to explain the data in Table 11. Students responded that they bring their devices to school more often than their schools permit. Whilst students in rural schools claimed that they were rarely allowed to bring devices to school ($\bar{x} = 3.74$, S.D. = 1.61), they reported that schools rarely/never allowed use in the classroom ($\bar{x} = 4.07$, S.D. = 1.06), and though students in urban schools claimed

they were almost always allowed to bring their devices to school ($\bar{x} = 1.96$, S.D. = 1.52), they reported that teachers only sometimes allowed in class use ($\bar{x} = 3.05$, S.D. = 1,15).

Table 13. Students - Perspectives

	\bar{X}	S.D.	Agreement Level
I enjoy learning English.	1.84	0.69	Agree
The ability to use English in the future is important to me.	1.59	0.63	Strongly Agree
Mobile devices are useful in English classes.	1.71	1.58	Strongly Agree
I need a mobile device to understand English words and sentences.	1.66	0.89	Strongly Agree
I think that mobile devices support my learning.	1.63	0.61	Strongly Agree
I want to use my mobile device in the classroom.	1.77	0.68	Agree
Mobile devices should be allowed in schools.	1.50	0.63	Strongly Agree
Mobile devices should be allowed in class.	1.58	0.62	Strongly Agree

Table 13 displays the results of a number items in relation to students' general attitudes towards learning English, the extent to which they support their learning, and whether they should be banned or allowed in class. Using a 4-point scale from *Strongly Agree* (1) to *Strongly Disagree* (4), students strongly agreed with all items except that they enjoy learning English and want to use mobile devices in the classroom, which they agreed with.

Table 14. Students - Advantages of mobile devices in EFL setting, ranked

When studying English, mobile devices in the classroom or school setting ...	\bar{X}	S.D.	Agreement Level
...are faster than using a book/dictionary	1.55	0.59	Strongly Agree
...allow me to learn anywhere and at anytime	1.56	0.59	Strongly Agree
...allow me to take charge of my own learning	1.60	0.61	Strongly Agree
...are helpful for checking pronunciation	1.62	0.63	Strongly Agree
...are helpful for learning words	1.63	0.63	Strongly Agree
...improves my general learning	1.65	0.59	Strongly Agree
...increase my technology skills	1.69	0.65	Strongly Agree
...increase the amount of work I can do	1.76	2.00	Agree
...make me feel more confident	1.78	0.64	Agree
...increase my ability to work with other students	1.80	0.64	Agree
...improve my creativity	1.81	0.64	Agree

...increase my comm. with teachers and classmates	1.82	0.71	Agree
...increase my excitement to learn	1.83	0.65	Agree
...increase my attention to the lesson objectives	1.84	0.63	Agree
...increase my excitement to attend classes	1.87	0.64	Agree

Using a 4-point scale from *Strongly Agree* (1) to *Strongly Disagree* (4), students agreed with all the statements on the affordances and learning gains possible using mobile devices, with differing levels of agreement from \bar{x} 1.55 to \bar{x} 1.87 and none of the items provoking significant differences of any level in regard to Urban/Rural school location. Many of the highest responses of strong agreement were in regard to specific language learning uses mediated by mobile devices; that they are faster than using a book/dictionary (\bar{x} = 1.55, S.D. = 0.59), helpful for checking pronunciation (\bar{x} = 1.62, S.D. = 0.63), and helpful for learning words (\bar{x} = 1.63, S.D. = 0.63). Students were also in strong agreement that mobile devices allow them to learn anywhere and at any time, let them take charge of their own learning, improve their general learning, and increases their technology skills. Students agreed the least that mobile devices increase their excitement to learn (\bar{x} = 1.83, S.D. = 0.65) and to attend classes (\bar{x} = 1.87, S.D. = 0.64), though were still in positive agreement nonetheless.

6. DISCUSSION

In this section the results of this study are interpreted and discussed in greater detail, through explanation and comparison to previous studies in relation to ability and access, teachers, and students.

6.1 Access and Ability

Any assumptions that the Southern Thailand context of this study and its low gross provincial product in a country with low GDP may have caused low levels of access or a digital divide (in particular between the rural and urban schools) to mobile devices, or low proficiency ICT users (in particular digital immigrant teachers) were refuted in the data gathered from both teacher and student samples. Regardless of digital native or digital immigrant status, the overwhelming majority of teachers reported access to and use of mobile devices, and whilst there were some differences between

urban and rural schools regarding the level of access students had, over 90% of the student sample reported owning and using mobile devices.

Moreover, both students and teachers rated their ability to use technology as proficient, regardless of teacher age or school location. As this was just as a general rating of ability to use technology - and not a rating of using technology for EFL teaching/learning - the 'proficient' rating may be based on participants ability to use technologies other than mobile devices, making the finding not necessarily a good indicator of their ability to use educational functions afforded by mobile devices (Stockwell & Hubbard, 2013).

6.2 Teachers

Analysis of the data collected from the teacher questionnaire revealed two consistent trends in the results of this study which occurred in every item asked;

1. All teachers were in varying levels of agreement with the positive aspects of mobile devices and displayed possession of technical and pedagogical knowledge to use said devices.
2. There was a consistent difference in response between DNs and DIs (often to a statistically significant level), with DNs always more frequent/able users and agreeing more positively towards mobile devices than DIs.

The significant differences between DNs and DIs in relation to confidence, ease of use, technological proficiency, frequency of use in free time and in the classroom correlate with the general assumptions of both Prensky's 'born in to' definition and recent arguments that the digital divide is about experience and not age (Jones et al., 2010). The results of this study show DNs are indeed using technology more than DIs and are seemingly more proficient and confident for that reason.

Whilst all teachers agreed that they knew of and were in agreement with their school's mobile device policy they strongly agreed that teachers should be the ones to decide in-class mobile device policy, yet there was a significant difference between DNs and DIs actually enforcing their own policy on mobile devices in the classroom. The findings showed DNs used mobile devices as a learning tool in their classes significantly more than DIs, which implies DNs own policy of mobile devices is to utilise them, going against the common school policy of banning mobile devices,

a policy which is unsupportive of teachers' efforts to integrate technology into their teaching practice (Koehler, Mishra, Cain, 2017). This could suggest that DNs are aware of the advantages of mobile devices and are overruling school policy with their own, while DIs may be unsure or unable to construct their own policy favouring instead school policy.

There was a significant difference between DNs and DIs regarding how often they allowed students to use mobile devices in the various educational ways. Despite this difference, the finding indicate that DIs knew how mobile devices can aid EFL learning and that they were trusting of students to use devices appropriately in class, so the fact they allowed student use significantly less than DNs teachers highlights a contradiction between belief and practice. Prensky claimed that "Digital Immigrant teachers assume that learners are the same as they have always been, and that the same methods that worked for the teachers when they were students will work for their students now" (2001, p. 3), and the findings of this present study suggest that this claim may still be true.

6.3 Students

Students agreed with every item regarding the advantageous ways mobile devices can help them study English in the EFL classroom or school setting. In accordance with the affordances of 21st century learning skills (Partnership for 21st Century Skills, 2016) and Brown's (2005) 'learning-to-be', they believed mobile devices make them more creative, increases communication and collaboration with teachers and other students, increases their technology skills, and improves their general learning. This is consistent with teachers who were also in agreement or strong agreement that mobile devices in the EFL classroom or school setting provide greater learning opportunities and can increase learning in relation to the core competencies of 21st century learning skills (which are creativity and innovation, critical thinking and problem solving, communication and collaboration, and ICT skills).

Student's lowest level of agreement (though still positive) that the use of mobile devices in EFL classes would increase their excitement to attend classes and to learn may be indicative of how mobile devices have been accepted as learning aids and have lost any wow factor they may have once had due to their ubiquity. The

similarly low ranking of the question regarding mobile devices increasing students' attention to lesson objectives may be indicative of the non-educational uses possible on mobile devices distracting them (as suggested by McCoy, 2016), though they still responded positively with a strong agreement that mobile devices increase attention.

The data shows that students believed they not only get satisfaction learning with mobile devices but also viewed them as a highly beneficial aid to language learning. With the specific item in relation to autonomy in the student questionnaire being the third highest ranked positive response and students exhibiting awareness of these affordances suggests they are capable of autonomous learning and a more learner-centred environment, contrary to previous studies (Mann, 2012; Pagram & Pagram, 2006). Thai students are often not willing to ask direct questions in class and tend to remain quiet (Gunawan, 2016) and the non-threatening way mobile devices (in partnership with their 21st century learning skills) can be used to solve problems suggests a potential increase in learning through autonomy in collaboration with mobile devices.

7. CONCLUDING REMARKS AND RECOMMENDATIONS

In this section, a summary of the research and its findings is provided, followed by implications and recommendations for policymakers, schools and EFL teachers, and finally the limitations of this study and recommendations for further research are given.

7.1 Summary of Research Findings

There is growing evidence that mobile devices not only aid learning but particularly language learning. This study was conducted in schools of varying sizes and varying locations and found that despite lower than average economic status of the population area (and in particular of the rural schools) there were no significant 'digital-divide' or differences in levels of access to mobile devices, meaning following a BYOD model is possible.

Differences between digital natives and digital immigrants on varying issues from policy to pedagogy suggest that careful attention should be paid to digital immigrants in schools which allow/promote mobile devices as learning aids to ensure

they have the pedagogical and technical knowledge to utilize mobile devices and are onboard with school policy. Whilst there was a clear divide between digital natives and digital immigrants, overall the findings revealed that teachers are positive about mobile device integration in EFL settings, despite students reporting that teachers rarely allow them to use their devices in the classroom.

This study also investigated the extent EFL high-school students believed mobile devices increase learning, learner satisfaction, and subsequent learner autonomy, with students either agreeing or strongly agreeing that mobile devices do increase their learning potential and satisfaction, suggesting they help foster/aid learner autonomy. Teachers were also in agreement that mobile devices can increase these skills.

7.2 Implications for Policymakers, Schools, and Teachers

The results show that teachers partly agreed that mobile devices are a distraction and that students use mobile devices for non-educational means in school more than for educational means, which confirms much previous literature and suggests the negative possible uses of mobile devices are currently too much of a challenge for teachers to embrace in-class use. The fact that the responses regarding whether devices should be banned were so neutral (almost exactly in the middle of the scale) highlights perhaps the biggest issue; teachers are still unsure of their place in school and in the classroom, sitting somewhere between banning them and incorporating them into teaching (as suggested by Pahomov, 2015). Whilst teachers appeared to have technological ability and claimed to support the promotion of devices as learning aids, they do not quite trust students enough to fully embrace an environment that considers these devices as everyday learning tools, sitting on students' desks like traditional paper dictionaries. If there is resistance from in-service teachers, especially a current majority of digital immigrants, the opportunities mobile devices present cannot be effectively utilised. Thus, it is arguably the responsibility of all educators to carefully consider the affordances of mobile devices in the EFL setting.

Whilst students claimed that teachers rarely allowed them to use mobile devices in the classroom, teachers claimed to often or sometimes allow use, which suggests that students and teachers have different perceptions on the appropriate

frequency of use. What teachers considered to be often usage appears to be inadequate for students who strongly agreed that mobile devices should be allowed in both school and the classroom and support their learning. As long as schools and teachers are preventing in-school or in-class use they are obstructing the full potential of students using mobile devices to facilitate learning. Technology such as mobile devices are now highly effective tools which learners are already more than competent in, requiring teachers to move away from the old pedagogies (such as grammar translation) of teachers “telling” to a method where students learn for themselves using these technologies. Prensky claimed in 2008 that technology’s goal should be to support autonomous learning, and ten years later not only has technology developed substantially but so have young EFL learners who seem able to be independent and autonomous, if given the chance. Thus, as the findings of this study demonstrated that both students and teachers agreed that mobile devices increase learning (in relation to aforementioned literature), it is recommended rather than prohibiting mobile devices, schools and policymakers consider the teachers’ and students’ voice and construct policies which promote the pedagogical use of mobile devices in the EFL environment and allow students to complement their learning aided by their devices.

Despite teachers overall agreeing that mobile devices should be promoted as learning aids, and that they know both how mobile devices can aid EFL learning and ways to promote positive educational usage (suggesting they carry the pedagogical knowledge traits of TPACK), they were in less agreement that mobile device use should be allowed in the classroom. If teachers really knew of the advantages of promoting mobile device use, as highlighted in the background of this study, it is reasoned they would be finding ways to make more frequent use of devices in the classroom. Without full pedagogical knowledge of how to utilise devices in the EFL setting, it is impossible to expect teachers to be able to productively take advantage of them, even in schools where the policy allows their use. Thus, if schools or policymakers deem mobile devices appropriate learning aids it is essential teachers are given adequate training on how to manage and utilise them, as the effectiveness of integrating technology and students’ 21st century learning skills will depend on the learning activities that students encounter (Pheeraphan, 2013). Moreover, due to the contradiction highlighted in the results between digital immigrants beliefs and actual

practice, in schools which accept mobile devices to be advantageous and allow and encourage the BYOD model and learning assisted by mobile devices it is recommended that careful attention be paid in particular to digital immigrants (and their inherent traditional teaching methods) to ensure they are onboard with school policy to create a consistent environment for learners.

Teachers in this study claimed to know how mobile devices can aid EFL learning and exhibited some management of technology in their response of only sometimes/rarely allowing students to use mobile devices however they like in class. However, the neutral response towards banning mobile devices and the stronger agreement that students use mobile devices for non-educational uses than educational suggests some doubt or barrier towards embracing a classroom that integrates mobile devices. Thus, it is recommended that teachers control use and provide explicit instruction and expectations to students as to how and when it is appropriate to utilise mobile devices while learning EFL. If clear guidelines are laid out to students, teachers may have a more positive experience and a better attitude towards embracing MALL.

Finally, a logistical/technical recommendation. The majority of students and teachers reported connecting to the internet using Wi-Fi, so it is recommended that for schools which are inclusive of mobile devices in these educational settings that Wi-Fi is readily available to allow both students and teachers to fully utilize the power of their mobile devices when connected to the world wide web. A mobile device without connectivity can scarcely be called a mobile device, so if Wi-Fi is the requirement for connectivity and facilitating the connection to everything the internet offers, it must be provided by schools. Aside from the many other aforementioned benefits of using mobile devices to facilitate learning, English proficiency has been found to correlate positively with a country's number of Internet users (EF EPI, 2018) suggesting connectivity could have beneficial repercussions for language acquisition in Thailand.

7.3 Limitations and Recommendations for Further Studies

Whilst this study was designed to investigate a relatively large spectrum of topics relating to mobile devices in the EFL context considering both the teachers and students voices, it only scratches the surface of an area which is rapidly changing and will require much further research.

The design of this study was quantitative, and the addition of qualitative interviews may have enriched the data. However, the passive and shy nature of Thai people (Mann, 2012) means they may not be as forthcoming in an interview session as in an anonymous questionnaire. Despite this, the benefits of mixed method research are well known (Creswell, Clark, Gutmann, & Hanson, 2003) and it is recommended further research in this field use additional methods to gather data.

A large-scale survey of schools throughout Thailand investigating the official line on schools' mobile device policy and where/when use is permitted or restricted would provide interesting insight into the framework teachers are operating under, as the author was unable to find any clear policy dictated by the Ministry of Education in the Basic Education Core Curriculum or elsewhere.

More tangible experimental studies such as a survey for students to complete after each class to gauge the utilisation of their skills and satisfaction either aided with/without mobile technology, or an experimental study with a traditional classroom control group and mobile device aided experimental group (where student participants are given explicit training on how to be autonomous learners for example) could also provide insight into the actual learning gains possible by allowing students' incidental and improvisational use of mobile devices in the classroom setting.

Despite consistent differences between DNs and DIs in this study, the findings suggest both subgroups of teachers have a commonality of experience and ability to use technology, aligning them with the traits of TPACK. It is recommended more precise and practical measurement of their technical knowledge (TK) and ability is utilized in future studies. Furthermore, it is advised that more detailed investigation into teachers' pedagogical knowledge (PK) and the ways they are using technology as a pedagogy (through instructional strategies and teaching methods) in EFL classes is conducted. This could allow for more refined recommendations on the specific educating and training needed for EFL teachers to succeed in a classroom full of digital native students who are increasingly engaging with mobile devices.

Finally, whilst efforts were made to make this study as relatable as possible to the rest of Thailand (by choosing public schools of different sizes in different urban/rural areas across two provinces), this study was carried out in two of Thailand's 77 provinces and thus it cannot be assumed that the results would be the

same in other parts of the country. It is recommended similar studies are conducted in other areas (especially the more extreme urban and rural areas where access to mobile devices may be substantially different to this studies' research setting).

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APPENDICES

Appendix A (Likert-type scale intervals)

The interpretation of the Likert-type scale intervals based on the Dreyfus model of skill acquisition (Dreyfus & Dreyfus, 1980);

Interpretation of the 5-point rating of ability to use technology

1.00 - 1.79	Novice
1.80 - 2.59	Advanced beginner
2.60 - 3.39	Competent
3.40 - 4.19	Proficient
4.20 - 5.00	Expert

The interpretation of the Likert-type scale intervals, adapted from Pongvichai (2008):

Interpretation of the 4-point Likert-type scale intervals (showing agreement)

1.00 - 1.74	Strongly Agree
1.75 - 2.49	Agree
2.50 - 3.24	Partly Agree
3.25 - 4.00	Slightly Disagree

Interpretation of the 5-point Likert-type scale intervals (showing frequency)

1.00 - 1.79	Always
1.80 - 2.59	Often
2.60 - 3.39	Sometimes
3.40 - 4.19	Rarely
4.20 - 5.00	Never

Interpretation of 6-point Likert-type scale intervals (showing agreement)

1.00 - 1.83	Strongly Agree
1.84 - 2.66	Agree
2.67 - 3.50	Partly Agree
3.51 - 4.33	Slightly Disagree
4.34 - 5.16	Disagree
5.17 - 6.00	Strongly Disagree

Appendix B (Definition of Key Terms)

Mobile Devices: An ever-growing list of devices such as mobile phones and tablet computers which are digital, easily portable, and usually owned and controlled by an individual rather than an institution. They can access the internet, have multimedia capabilities, and can facilitate a large number of tasks (West & Vosloo, 2013, p. 6).

Mobile Learning: Any activity “that allows individuals to be more productive when consuming, interacting with, or creating information” using a portable digital device that the individual carries on a regular basis, has reliable connectivity, and fits in a pocket. (Wexler, 2007, p. 7)

Device Access: Owning of, or access to, a mobile device that has connectivity to the internet via 3G/4G/Wifi.

Autonomous Learning: The “ability to take charge of one’s own learning” and a potential capacity to act in a learning situation (Holec, 1981, p. 3).

Digital Native: Native speakers of the digital language of computers, social media, and the Internet. Students today (and anyone born after the early 1980’s) can generally be considered digital natives (Prensky, 2001), technically literate like no one else with technology having always been a part of their lives (Theilfoldt & Scheef, 2004).

Digital Immigrant: Those who were born before the widespread use of digital technology. Consequently, digital immigrants are believed to be slower to pick up new technologies than digital natives (Prensky, 2001).

Appendix C (Teacher Questionnaire in English)



TEACHER QUESTIONNAIRE

Dear Participant,

My name is Graham and I am a post-graduate student at Prince of Songkla University. For my main research, I am examining how Thai EFL high school students use mobile devices in both the classroom and general school environment, and what the attitudes and perspectives of Thai high-school teachers of English are. Because you are a Thai EFL teacher, I am inviting you to participate in this research study by completing the attached survey.

The following questionnaire contains 49 items and will require approximately 15 minutes to complete. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, please *do not* include your name. If you choose to participate in this project, please answer all questions as honestly as possible and return the completed questionnaires promptly to the nominated contact within your school, who will then return all copies to me by mail in the provided stamped envelope. Participation is strictly voluntary, and you may refuse to participate at any time.

Thank you for taking the time to assist me in my educational endeavours. The data collected will provide useful information regarding how students in Southern Thai high-schools use mobile devices in their daily school lives, and how teachers feel about the place of mobile devices within school.

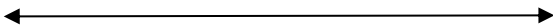
Completion and return of the questionnaire will indicate your willingness to participate in this study. If you require additional information or have questions, please contact me at the email listed below.

Sincerely,

Graham Howlett
grahamhowlettresearch@gmail.com

PART A – Please answer the following general/demographic questions

1. Age
 - a. Under 25
 - b. 25-35
 - c. 35-45
 - d. 45-55
 - e. Over 55
2. Gender
 - a. Male
 - b. Female
3. Years spent teaching English
 - a. 0-4 years
 - b. 5-9 years
 - c. 10-14 years
 - d. 15-19 years
 - e. 20 + years
4. I teach English to students in...
 - a. Grade 7 - 9
 - b. Grade 10 - 12
 - c. Grade 7- 12
5. I own/use the following mobile devices: (*you may select multiple*)
 - a. Smart Phone
 - i. Apple (iPhone)
 - ii. Android based smartphone (Samsung, Sony, Xiaomi, Asus, Huawei)
 - iii. Other (Please specify.....)
 - b. Mobile phone (with no connectivity to the internet)
 - c. Tablet (e.g iPad)
 - d. iPod
 - e. Other (Please specify.....)
 - f. I don't own a mobile device (go to Q.7)
6. In my everyday life, my device(s) are connected to _____. (*you may select multiple*)

<input type="checkbox"/> 3G	<input type="checkbox"/> Other
<input type="checkbox"/> 4G	<input type="checkbox"/> Doesn't connect (Offline)
<input type="checkbox"/> Wifi	
7. At school I use this/these device(s): (*you may select multiple*)
 - a. In the office
 - b. In the classroom
 - c. In other school situations
8. How do you rate your ability to use technology?
 Novice 1 2 3 4 5 Expert


Appendix D (Teacher Questionnaire in Thai)



แบบสอบถามสำหรับครูผู้สอน

29 พฤศจิกายน 2560

เรียน ผู้เข้าร่วมวิจัย

ข้าพเจ้านาย Graham Howlett นักศึกษาปริญญาโท หลักสูตรศิลปศาสตรมหาบัณฑิต สาขาการสอนภาษาอังกฤษเป็นภาษานานาชาติ (ภาคพิเศษ) มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่ ได้ส่งแบบสอบถามเกี่ยวกับการใช้อุปกรณ์สื่อสารพกพาของนักเรียนมัธยมศึกษาตอนต้นและตอนปลาย ในชั้นเรียนและในสภาพแวดล้อมทั่วไปของโรงเรียน รวมถึงสอบถามถึงทัศนคติของครูผู้สอน ต่อการใช้อุปกรณ์สื่อสารพกพาของนักเรียนในขณะที่เรียนภาษาอังกฤษ มายังท่าน เพื่อรวบรวมข้อมูล ไปใช้ในการทำวิทยานิพนธ์ เรื่อง “Mobile Devices in English as a Foreign Language Contexts in Southern Thai High Schools” โดยมีจุดประสงค์เพื่อศึกษาวิธีการที่นักเรียน เรียนภาษาอังกฤษโดยใช้อุปกรณ์สื่อสารพกพา และทัศนคติของครูผู้สอนต่อการใช้อุปกรณ์สื่อสารพกพาของนักเรียนในขณะที่เรียนภาษาอังกฤษ การวิจัยครั้งนี้อาจได้ผลไม่สมบูรณ์ หากไม่ได้ความร่วมมือจากท่าน ดังนั้น ข้าพเจ้าจึงใคร่ขอให้ท่านตอบแบบสอบถามที่แนบมาด้วยความจริงทุกข้อ โดยไม่ต้องลงชื่อ ซึ่งแบบสอบถามต่อไปนี้มี 50 ข้อ และใช้เวลาประมาณ 15 นาทีเท่านั้น คำตอบของท่านจะถูกเก็บเป็นความลับและนำมาใช้ประโยชน์ในการวิจัยครั้งนี้เท่านั้น โปรดส่งแบบสอบถามที่กรอกแล้วกลับคืนไปยังคุณครูผู้ประสานงานในโรงเรียนของท่าน ในหมวดวิชาภาษาอังกฤษ เพื่อส่งไปยังผู้ทำวิจัยต่อไป

ขอขอบพระคุณในความร่วมมือของท่านมา ณ โอกาสนี้

ขอแสดงความนับถือ

นาย Graham Howlett

นักศึกษาระดับปริญญาโท สาขาการสอนภาษาอังกฤษเป็นภาษานานาชาติ
มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่

grahamhowlettresearch@gmail.com

แบบสอบถามมีทั้งหมด 3 ตอน โปรดตอบคำถามต่อไปนี้ตามความเป็นจริง

ตอนที่ 1 ข้อมูลทั่วไป

1. อายุ
 - a. ต่ำกว่า 25
 - b. 25-35
 - c. 35-45
 - d. 45-55
 - e. มากกว่า 55
2. เพศ
 - a. ชาย
 - b. หญิง
3. ระยะเวลาที่สอนวิชาภาษาอังกฤษ
 - a. 0 - 4 ปี
 - b. 5 - 9 ปี
 - c. 10 - 14 ปี
 - d. 15 - 19 ปี
 - e. มากกว่า 20 ปี
4. ชั้นสอนวิชาภาษาอังกฤษในระดับชั้น...
 - d. มัธยมศึกษาตอนต้น
 - e. มัธยมศึกษาตอนปลาย
 - f. ทั้งมัธยมศึกษาตอนต้นและปลาย
5. ฉันมี/ใช้อุปกรณ์สื่อสารพกพาต่อไปนี้: (เลือกได้มากกว่าหนึ่งข้อ)
 - a. Smartphone
 - i. Apple (iPhone)
 - ii. สมาร์ทโฟนระบบแอนดรอยด์ (Samsung, Sony, Xiami, Asus, ...)
 - iii. อื่นๆ (โปรดระบุ.....)
 - b. โทรศัพท์มือถือ (ที่ไม่สามารถเชื่อมต่ออินเทอร์เน็ตได้)
 - c. Tablet/iPad
 - d. iPod
 - e. อื่นๆ (โปรดระบุ.....)
 - f. ฉันไม่มีอุปกรณ์สื่อสารพกพาใดๆ (ถ้าตอบข้อนี้ ให้ไปที่คำถามที่ 7)
6. ในทุกวัน อุปกรณ์สื่อสารพกพาของฉันจะเชื่อมต่อกับ ____. (เลือกได้มากกว่าหนึ่งข้อ)
 - a. 3G
 - b. 4G
 - c. Wi-Fi
 - d. อื่นๆ(โปรดระบุ.....)
 - e. ไม่เชื่อมต่อกับอะไรเลย (ออฟไลน์)

- | | | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 37. ...นักเรียนมีส่วนร่วมในกิจกรรมการเรียนการสอนมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. ...นักเรียนเกิดแรงจูงใจในการเรียนรู้ภาษาอังกฤษมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. ...นักเรียนมีความคิดสร้างสรรค์ผลงาน | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. ...การเรียนรู้ของนักเรียนเพิ่มขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 41. ...ประสิทธิภาพของทั้งนักเรียนและครูผู้สอนเพิ่มมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 42. ...นักเรียนให้ความร่วมมือเพิ่มมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 43. ...นักเรียนเกิดการเรียนรู้อย่างอิสระ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 44. ...นักเรียนสามารถทำงานตามความต้องการของตัวเอง | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 45. ...นักเรียนสามารถเรียนรู้ได้ในทุกที่ ทุกเวลา | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 46. ...นักเรียนสามารถเข้าถึงแหล่งการเรียนรู้ที่หลากหลายมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 47. ...เป็นประโยชน์ต่อการตรวจสอบการออกเสียงภาษาอังกฤษ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 48. ...เกิดความหลากหลายของรูปแบบการสอน | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 49. ...นักเรียนสามารถมีส่วนร่วมในเชิงบวก | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
- ในกระบวนการเรียนรู้ของตัวเอง

สิ้นสุดการทำแบบสอบถาม ขอขอบคุณครับ

Appendix E (Student Questionnaire in English)



STUDENT QUESTIONNAIRE

Dear Participant,

My name is Graham and I am a post-graduate student at Prince of Songkla University. For my main research, I am examining how Thai EFL high school students use mobile devices in school. Because you are an M2 or M5 student, I am inviting you to participate in this research study by completing the attached survey.

The following questionnaire contains 40 items (and sub-items) and will take approximately 15 minutes to complete. There is no compensation for responding nor is there any known risk. In order to ensure that all information will remain confidential, please *do not* include your name. If you choose to participate in this project, please answer all questions as honestly as possible and return the completed questionnaires promptly to your teacher, who will then return all copies to me by mail in the provided stamped envelope. Participation is strictly voluntary, and you may refuse to participate at any time. Your responses will be used only for research purposes and will not affect your school grades.

Thank you for taking the time to assist me in my educational endeavours. The data collected will provide useful information regarding how students in Southern Thai high-schools use mobile devices in their daily school lives.

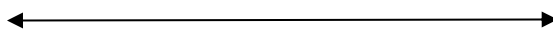
Completion and return of the questionnaire will indicate your willingness to participate in this study. If you require additional information or have questions, please contact me at the email listed below.

Sincerely,

Graham Howlett
grahamhowlettresearch@gmail.com

PART A – Please answer the following general/demographic questions

1. School year: Matthayom 2 Matthayom 5
2. Gender
 - a. Male
 - b. Female
3. I own/use the following mobile devices: (*you may select multiple*)
 - a. Smart Phone
 - i. Apple (iPhone)
 - ii. Android based smartphone (Samsung, Sony, Xiaomi, etc.)
 - iii. Other (Please specify.....)
 - b. Mobile phone (with no connectivity to the internet)
 - c. Tablet (e.g iPad)
 - d. iPod
 - e. Other (Please specify.....)
 - f. I don't own a mobile device (go to Q.6)
4. In my everyday life, the mobile device(s) are connected to _____. (*you may select multiple*)
 - a. 3G
 - b. 4G
 - c. Wifi
 - d. Other
 - e. Doesn't connect (Offline)
5. On average, I use my mobile device in school and class ____ per day.
 - a. 0 mins (none)
 - b. less than 30 mins
 - c. 30 – 60 mins
 - d. 1 – 2 hours
 - e. 2 – 3 hours
 - f. 3 – 4 hours
 - g. 4 + hours
6. How do you rate your ability to use technology?
 Novice 1 2 3 4 5 Expert



PART B - The following questions are about how you use your mobile device(s) in the classroom and around school. Tick the box that shows how often you do the following;

	always	often	sometimes	rarely	never
7. I bring my mobile device(s) to school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My school allows me to bring my mobile device(s) to school.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. My teachers allow me to use my mobile device(s) in the classroom.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. In school/class I use/have used my mobile device for English related school work...:					
a. ...to use online translation/dictionary apps...					
i. ...to check spelling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. ...to check the meaning of words	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. ...to look at synonyms /antonyms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. ...to check pronunciation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. ...to look at a word used in context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi. ...to take photos of English text and translate it to Thai	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. ...to check grammar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. ...to find pictures of vocabulary	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. ...to record audio / video of the teacher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. ...to find further information online (<i>e.g. using Google/Wikipedia etc.</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. ...to listen to native-English audio materials (<i>e.g. English radio/songs</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. ...to watch native-English video materials (<i>e.g. videos on YouTube</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. ...to upload/download homework/school work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. ...to share information with my classmates (<i>e.g using Facebook / messaging apps</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. ...to take photos of the board / class materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Other (Please specify.....)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I use my mobile device in school for learning/class related reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I use my mobile device during class for learning/class related reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I use my mobile device in school for other reasons (such as messaging, social media)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 14. I use my mobile device during class for other reasons (such as messaging, social media) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. I use my mobile device at school/in class for English language learning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

PART C - The following questions are about your learning and how mobile device(s) affect you. Tick the box that shows how much you agree or disagree with the following statements;

- | | strongly agree | agree | disagree | strongly disagree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 16. I enjoy learning English | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17. The ability to use English in the future is important to me | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 18. Mobile devices should be allowed in schools | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19. Mobile devices should be allowed in class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20. Mobile devices are useful in English classes. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21. I want to use my mobile device in the classroom. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 22. I think that mobile devices support my learning. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23. I need a mobile device to understand English words and sentences. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24. Mobile devices distract me from completing classwork | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25. It is appropriate for teachers to collect students' mobile devices during class. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

When studying English, mobile device(s) in the classroom or school setting...

- | | strongly agree | agree | disagree | strongly disagree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 26. ...increase my attention to the lesson objectives | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 27. ...increase my excitement to attend classes | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 28. ...increase my excitement to learn | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 29. ...improve my creativity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 30. ...make me feel more confident | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 31. ...increase the amount of work I can do | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 32. ...increase my ability to work with other students | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. ...increase my comm. with teachers and other students | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. ...increase my technology skills | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| 35. ...improves my general learning | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. ...are helpful for checking pronunciation | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. ...are helpful for learning words | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. ...are faster than using a book/dictionary | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. ...allow me to learn anywhere and at anytime | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. ...allow me to take charge of my own learning | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

The questionnaire is complete. Thank you for your participation.

Appendix F (Student Questionnaire in Thai)



แบบสอบถามสำหรับนักเรียน

29 พฤศจิกายน 2560

เรียน ผู้เข้าร่วมวิจัย

ข้าพเจ้านาย Graham Howlett นักศึกษาปริญญาโท หลักสูตรศิลปศาสตรมหาบัณฑิต สาขาการสอนภาษาอังกฤษเป็นภาษานานาชาติ (ภาคพิเศษ) มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่ ได้ส่งแบบสอบถามเกี่ยวกับการใช้อุปกรณ์สื่อสารพกพาในโรงเรียนของนักเรียนในชั้นมัธยมศึกษาตอนต้นและตอนปลายของจังหวัดภาคใต้ เพื่อศึกษาและทำวิทยานิพนธ์ เรื่อง “Mobile Devices in English as a Foreign Language Contexts in Southern Thai High Schools” โดยมีจุดประสงค์เพื่อศึกษาวิธีการที่นักเรียนเรียนภาษาอังกฤษโดยใช้อุปกรณ์สื่อสารพกพา และศึกษาทัศนคติของครูผู้สอนต่อการใช้อุปกรณ์สื่อสารพกพาของนักเรียนในขณะที่เรียนภาษาอังกฤษ

การวิจัยครั้งนี้อาจได้ผลไม่สมบูรณ์ หากไม่ได้ความร่วมมือจากท่าน ดังนั้นข้าพเจ้าจึงใคร่ขอให้ท่านตอบแบบสอบถามที่แนบมานี้ตามความเป็นจริงทุกข้อ โดยไม่ต้องลงชื่อ ซึ่งแบบสอบถามมีทั้งหมด 40 ข้อ และใช้เวลาประมาณ 15 นาทีเท่านั้น ข้อมูลและคำตอบของท่านจะเป็นความลับและจะถูกนำมาใช้ประโยชน์ในการวิจัยในครั้งนี้เท่านั้น หลังจากตอบแบบสอบถามแล้ว โปรดส่งคืนไปยังคุณครูผู้สอนของท่าน เพื่อส่งไปยังผู้ทำวิจัยต่อไป

ขอขอบพระคุณในความร่วมมือของท่านมา ณ โอกาสนี้

ขอแสดงความนับถือ

นาย Graham Howlett

นักศึกษาระดับปริญญาโท สาขาการสอนภาษาอังกฤษเป็นภาษานานาชาติ
มหาวิทยาลัยสงขลานครินทร์ วิทยาเขตหาดใหญ่

คำชี้แจง

- แบบสอบถามนี้แบ่งออกเป็น 3 ตอน
- โปรดตอบคำถามต่อไปนี้อย่างตรงไปตรงมา ที่ตรงกับสภาพเป็นจริงของท่าน
- กรุณาตอบแบบสอบถามทุกข้อตามความเป็นจริงด้วยตัวของท่านเอง
การตอบแบบสอบถามนี้ใช้เพื่อการศึกษา
ผู้ตอบแบบสอบถามจะไม่มีผลกระทบจากการตอบแบบสอบถามแต่ประการใด
และข้อมูลของท่านจะถูกเก็บเป็นความลับ

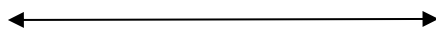
ตอนที่ 1 ข้อมูลทั่วไปของนักเรียน

1. ระดับชั้นที่เรียน: มัธยมศึกษาปีที่ 2 มัธยมศึกษาปีที่ 5
2. เพศ
 - a. ชาย
 - b. หญิง
3. ฉันมี/ใช้อุปกรณ์พกพาต่อไปนี้: (เลือกได้มากกว่าหนึ่งข้อ)
 - a. สมาร์ทโฟน (Smartphone)
 - i. Apple (iPhone)
 - ii. สมาร์ทโฟนระบบแอนดรอยด์ (ซัมซุง, โซนี่, เสียวี่, เอซุส, หัวเหว่ย)
 - iii. อื่นๆ (โปรดระบุ.....)
 - b. โทรศัพท์มือถือ (ที่ไม่สามารถเชื่อมต่ออินเทอร์เน็ตได้)
 - c. Tablet/iPad
 - d. iPod
 - e. อื่นๆ (โปรดระบุ.....)
 - f. ฉันไม่มีอุปกรณ์สื่อสารพกพาใดๆ (ไปที่คำถามที่ 6)
4. ในทุกๆวัน อุปกรณ์สื่อสารพกพาของฉันจะเชื่อมต่อกับ _____. (เลือกได้มากกว่าหนึ่งข้อ)
 - a. 3G
 - b. 4G
 - c. Wi-Fi
 - d. อื่นๆ (โปรดระบุ.....)
 - e. ไม่เชื่อมต่อกับอะไรเลย (ออฟไลน์)
5. โดยปกติ ฉันใช้อุปกรณ์สื่อสารพกพาในโรงเรียนหรือห้องเรียนเป็นเวลา ____ ต่อวัน

a. <input type="checkbox"/> 0 นาที (ไม่เลย)	e. <input type="checkbox"/> 2 – 3 ชั่วโมง
b. <input type="checkbox"/> น้อยกว่า 30 นาที	f. <input type="checkbox"/> 3 – 4 ชั่วโมง
c. <input type="checkbox"/> 30 – 60 นาที	g. <input type="checkbox"/> มากกว่า 4 ชั่วโมง
d. <input type="checkbox"/> 1 – 2 ชั่วโมง	

6. ให้คะแนนความสามารถในการใช้เทคโนโลยีของตัวเอง

พอรู้บ้าง 1 2 3 4 5 **เชี่ยวชาญ**



ตอนที่ 2 - คำถามต่อไปนี้จะเกี่ยวกับการใช้เครื่องมือสื่อสารของนักเรียนในห้องเรียนและในโรงเรียน
โปรดทำเครื่องหมาย ✓ ในช่องที่ท่านต้องการ

	เสมอ	บ่อยครั้ง	บางครั้ง	น้อยครั้ง	ไม่เคย
7. ฉันนำอุปกรณ์สื่อสารพกพาที่โรงเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. โรงเรียนของฉันอนุญาตให้นำอุปกรณ์สื่อสารพกพาโรงเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. คุณครูของฉันอนุญาตให้ฉันใช้อุปกรณ์สื่อสารพกพาในห้องเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. <u>ในโรงเรียน/ห้องเรียน</u> ฉันมักจะใช้อุปกรณ์สื่อสารพกพาเพื่อทำงานเกี่ยวกับวิชาภาษาอังกฤษ...					
I. ...ใช้แปลภาษาออนไลน์ หรือแอปพลิเคชัน พจนานุกรม...					
i. ...ใช้ตรวจสอบการสะกดคำ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii. ...ใช้หาความหมายของคำศัพท์	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii. ...ใช้หาคำพ้องความหมาย หรือความหมายตรงกันข้าม	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv. ...ใช้หาการออกเสียงของคำศัพท์	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. ...ใช้หาคำที่ใช้ในบริบทต่างๆ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vi. ...ใช้ถ่ายรูปข้อความภาษาอังกฤษเพื่อแปลเป็นภาษาไทย	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. ...เพื่อตรวจสอบไวยากรณ์	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n. ...หารูปภาพของคำศัพท์	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o. ...อัดเสียง หรือ วิดีโอของคุณครูผู้สอน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p. ...หาข้อมูลต่างๆออนไลน์ (เช่น Google, Wikipedia, อื่นๆ)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q. ...ฟังเสียงภาษาอังกฤษของเจ้าของภาษา (เช่น วิทยุช่องภาษาอังกฤษหรือฟังเพลงภาษาอังกฤษ)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r. ...ดูวิดีโอภาษาอังกฤษของเจ้าของภาษา (เช่น ดูวิดีโอใน YouTube)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s. ...อัปโหลดหรือดาวน์โหลดการบ้านหรืองานของโรงเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
t. ...แชร์ข้อมูลกับเพื่อนร่วมชั้น (เช่น ใช้ Facebook, messenger แอปพลิเคชัน)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
u. ...ถ่ายรูปที่ติดบนกระดานหรือชิ้นงานในชั้นเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v. อื่นๆ (โปรดระบุ.....)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. ฉันใช้อุปกรณ์สื่อสารพกพาของฉัน <u>ในโรงเรียน</u> เพื่อการเรียนรู้ในชั้นเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. ฉันใช้อุปกรณ์สื่อสารพกพาของฉัน <u>ในระหว่างการเรียนรู้</u> ในชั้นเรียน เพื่อทำกิจกรรมเรียนรู้หรือทำแบบฝึกหัด	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | | | | |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 13. ฉันใช้อุปกรณ์สื่อสารพกพาของฉัน <u>ในโรงเรียน</u> เพื่อวัตถุประสงค์อื่น (เช่น เพื่อรับส่งข้อความ, ใช้ social media) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. ฉันใช้อุปกรณ์สื่อสารพกพาของฉัน <u>ในระหว่างการเรียนการสอน</u> เพื่อวัตถุประสงค์อื่น (เช่น เพื่อรับส่งข้อความ, ใช้ social media) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. ฉันใช้อุปกรณ์สื่อสารพกพาของฉัน <u>ที่โรงเรียนหรือในชั้นเรียน</u> เพื่อการเรียนรู้ภาษาอังกฤษ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

ตอนที่ 3 -

คำถามต่อไปนี้จะเกี่ยวข้องกับการเรียนรู้ของนักเรียนและอุปกรณ์สื่อสารพกพามีผลกระทบต่อนักเรียนอย่างไร โปรดทำเครื่องหมาย / ในช่องที่ต้องการ เพื่อบอกว่านักเรียนเห็นด้วยหรือไม่เห็นด้วยกับข้อความเหล่านี้มากน้อยเท่าใด

	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
16. ฉันชอบเรียนวิชาภาษาอังกฤษ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. ความสามารถในการใช้ภาษาอังกฤษในอนาคตเป็นสิ่งสำคัญสำหรับฉัน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. การใช้อุปกรณ์สื่อสารพกพาควรได้รับการอนุญาต <u>ในโรงเรียน</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. การใช้อุปกรณ์สื่อสารพกพาควรได้รับการอนุญาต <u>ในชั้นเรียน</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. การใช้อุปกรณ์สื่อสารพกพามีประโยชน์ในชั้นเรียนที่เรียนภาษาอังกฤษ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. ฉันต้องการใช้อุปกรณ์สื่อสารพกพาของฉันในชั้นเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. ฉันคิดว่าอุปกรณ์สื่อสารพกพานั้นสนับสนุนการเรียนรู้ของฉัน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. ฉันจำเป็นต้องใช้อุปกรณ์สื่อสารพกพาเพื่อทำความเข้าใจกับคำศัพท์และประโยคภาษาอังกฤษ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. อุปกรณ์สื่อสารพกพาทำให้ฉันเสียสมาธิในการเรียน	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. การที่คุณครูผู้สอนเก็บอุปกรณ์สื่อสารพกพาของนักเรียนในระหว่างเรียนเป็นเรื่องที่เหมาะสมแล้ว	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
เวลาเรียนภาษาอังกฤษการใช้อุปกรณ์สื่อสารพกพาในชั้นเรียนหรือในโรงเรียนนั้น ทำให้...	เห็นด้วยอย่างยิ่ง	เห็นด้วย	ไม่เห็นด้วย	ไม่เห็นด้วยอย่างยิ่ง
26. ...ฉันสนใจในเรื่องของวัตถุประสงค์ของบทเรียนมากขึ้น	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. ...ฉันมีความอยากเข้าชั้นเรียนมากขึ้น	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. ...ฉันรู้สึกตื่นเต้นในการเรียนรู้มากขึ้น	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. ...ฉันมีคิดสร้างสรรค์มากขึ้น	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. ...ฉันมีความมั่นใจมากขึ้น	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. ...ฉันทำงานได้ดีขึ้น	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 32. ...ฉันทำงานร่วมกับเพื่อนร่วมชั้นได้ดีขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 33. ...ฉันสื่อสารกับเพื่อนร่วมชั้นและคุณครูผู้สอน ได้มากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 34. ...ฉันมีทักษะในการใช้เทคโนโลยีมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 35. ...ฉันสามารถเรียนรู้เรื่องต่างๆไปได้มากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 36. ...เกิดประโยชน์สำหรับการตรวจสอบการออกเสียงภาษาอังกฤษ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 37. ...เกิดประโยชน์ในแง่ของการเรียนรู้คำศัพท์ | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 38. ...รวดเร็วกว่าการใช้หนังสือ หรือ พจนานุกรม | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 39. ...ฉันสามารถเรียนรู้ได้ทุกที่ และทุกเวลา | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 40. ...ฉันสามารถเรียนรู้ด้วยตัวเองมากขึ้น | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

สิ้นสุดการทำแบบสอบถาม ขอขอบคุณครับ

Appendix G (Letters of Invitation to Participate)

Title of Study: Mobile Devices in English as a Foreign Language Contexts in Southern Thai High Schools

Principal Investigator: Graham Howlett, Master's Student (Teaching English as an International Language), Faculty of Liberal Arts, Prince of Songkla University

Faculty Supervisor: Zainee Waemusa, Asst. Prof., PhD, Advisor to the Principle Investigator, Department of Languages and Linguistics - Faculty of Liberal Arts, Prince of Songkla University

I, Graham Howlett, a Master's student from the Faculty of Liberal Arts, Prince of Songkla University invite you to participate in a research project entitled Mobile Devices in English as a Foreign Language Contexts in Southern Thai High Schools. I am conducting research to investigate the place of mobile devices (mobile phones etc) in the educational setting of Thai high schools in Southern Thailand. The purpose of this research project is twofold; 1) To investigate how students studying English use mobile devices in the school setting, and 2) To investigate teacher's attitudes towards mobile devices in the school setting.

Your school has been selected as it is part of The Office of Education Area 16, the population selected for this study. Should you choose to participate, your contact will be asked to distribute short questionnaires to a sample of M2 and M5 students and Thai teachers of English (expected to be less than 40 students per school, and as many teachers that are willing to participate). These questionnaires can either be posted by mail to your school, or be filled out online – according to your preference.

The questionnaires will be sent to schools in late October, from then the expected duration is dependent on how quickly they are administered to students and teachers.

The research should benefit schools and policy-makers regarding the potential benefits/drawbacks of allowing mobile device use in the school setting, and will provide a snapshot of how Southern Thai students and teachers are using and feel about mobile devices in the school setting.

If you have any questions, please feel free to contact me or my supervisor at PSU.

Thank you for your cooperation,

Graham Howlett
grahamhowlettresearch@gmail.com

Title of Study: Mobile Devices in English as a Foreign Language Contexts in Southern Thai High Schools (**Pilot**)

Principal Investigator: Graham Howlett, Master's Student (Teaching English as an International Language), Faculty of Liberal Arts, Prince of Songkla University

Faculty Supervisor: Zainee Waemusa, Asst. Prof., PhD, Advisor to the Principle Investigator, Department of Languages and Linguistics - Faculty of Liberal Arts, Prince of Songkla University

I am a Master's student from the Faculty of Liberal Arts, Prince of Songkla University and would like to invite you to participate in a research project entitled Mobile Devices in English as a Foreign Language Contexts in Southern Thai High Schools. I am conducting research to investigate the place of mobile devices (mobile phones etc) in the educational setting of Thai high schools in Southern Thailand. The purpose of this research project is twofold; 1) To investigate how students studying English use mobile devices in the school setting, and 2) To investigate teacher's attitudes towards mobile devices in the school setting.

As your school is not part of The Office of Education Area 16 (the population selected for this study), it would be ideal for piloting the research instruments. The pilot would require me and my Thai research assistant coming to your school and 1) giving questionnaires to around ten M2 and M5 students and talking with them about their understanding of the questions and 2) giving questionnaires to around five Thai teachers of English and talking with them about their understanding of the questions.

The research should benefit schools and policy-makers regarding the potential benefits / drawbacks of allowing mobile device use in the school setting and will provide a snapshot of how Southern Thai students and teachers are using and feel about mobile devices in the school setting.

If you have any questions, please feel free to contact me, my Thai assistant, or my supervisor at PSU.

Thank you for your cooperation,

Graham Howlett
grahamhowlettresearch@gmail.com

Paper 1

Digital Native / Digital Immigrant Divide: EFL Teachers' Mobile Device Experiences and Practice

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Abstract

The purpose of this study was to examine how Thai EFL high-school teachers view and use mobile devices (such as smart phones) in educational settings, and if the age-based digital native / digital immigrant divide would highlight any differences in responses. The participants were 55 Thai EFL teachers in 8 schools of different sizes in Southern Thailand, who were split into digital-native and digital-immigrant subgroups during data analysis. Participants completed a 35-item Likert-type scale questionnaire covering a range of topics related to mobile devices in the EFL setting including their ability, experience, school/personal policy, instructional utilisation, and whether they supported mobile devices as a learning aid. The findings showed that whilst digital native teachers consistently responded more positively towards the benefits/uses of mobile devices in EFL teaching/learning than the older digital immigrant teachers often at a significant level ($p < .01$), all teachers - regardless of age - agreed on the benefits and promotion of mobile devices as EFL learning aids. Results of this study expand the knowledge base of EFL teachers' mobile device experiences and practice while raising awareness of significant differences between digital natives and digital immigrants, and recommendations are made for policymakers, schools, and teachers.

Keywords: *Mobile Devices in EFL context; Mobile Assisted Language Learning; Digital Native; Digital Immigrant; Bring Your Own Device*

Introduction

Mobile devices - digital, easily portable, and internet accessible devices such as mobile phones and tablet computers which can facilitate many tasks (West & Vosloo, 2013) - are the most ubiquitous interactive Information and Communications Technology (ICT) in the world (West & Vosloo, 2013), holding huge potential as a multi-purpose learning tool and resulting in escalating transformations of the educational world (Alexander, 2014).

Learning English as a Foreign Language (EFL) in countries like Thailand can be challenging as there is very limited exposure to English in both daily life and in institutions (McCarty, Obari, & Sato, 2017). In Thailand, the grammar translation method of instruction - a traditional method where language is taught as an academic subject rather than a means of oral communication with a focus on grammar and rote learning - is claimed to still be very popular and successful among Thai EFL teachers (Sittirak, 2016). Thai students are often not willing to ask direct questions in class and tend to remain quiet (Gunawan, 2016), and allowing students to use mobile devices in class could possibly result in greater learning gains, providing the

interactivity and immediate responses to their actions today's digital native students crave (Prensky, 2001).

The powerful learning possible aided with mobile devices is only viable when properly supported and managed by teachers (Aldrich, 2017). As Thailand moves toward a new economic model which promotes among other things educational technology (Koanantakool, 2016), careful attention must be paid to mobile device use in school and the classroom by policymakers, schools, and teachers. In order for this transition to be possible teachers must possess appropriate pedagogical and technological knowledge (Koehler & Mishra, 2008), and in an environment like Thailand where traditional teaching practices are followed by a majority of older 'digital immigrant' teachers who have immigrated to the digital world (Prensky, 2001) the ability to transition may be easier for some than others.

Selwyn (2010) contended that the 'real-world' educational contexts within which technology use (and non-use) is located requires 'vigorous' academic study (p. 3). However, at the time of writing there was little previous investigation in Thai EFL contexts and particularly in the southern region. Little was known about the extent to which teachers in Thailand believed mobile devices could aid teaching/learning EFL in the classroom and broader school setting, and there had been little previous investigation regarding the differences between how digital native and digital immigrant teachers respond to questions relating to experiences and practice.

Mobile Devices in Schools

There is much literature (Squire & Dikkers, 2012; Thomas & Muñoz, 2016; Thomson, 2009; West & Vosloo, 2013) highlighting the powerful learning that is possible using mobile devices - especially as an aid to language acquisition (EF EPI, 2017) - bridging between formal and informal learning providing students with the ability to easily access supplementary materials to clarify ideas introduced by a classroom instructor (West & Vosloo, 2013). For the American school students in Squire & Dikkers' (2012) study, learning with mobile devices took on an organic quality, as participants "followed their interests, learned, and became more powerful participants in the world" (p. 450). In a UK study meanwhile, nine out of ten college lecturers believed using mobile devices in the classroom improved their teaching by using these devices to support student's learning (Thomson, 2009).

Conversely, other studies have found mobile devices reduce students' ability to pay attention in the classroom, with 89% of the United States college students in McCoy's (2016) study indicating mobile devices caused them to pay less attention and subsequently miss instruction. Moreover, the ability to use personal and social functions is not necessarily a good indicator of students' knowledge of the educational functions mobile devices afford (Stockwell & Hubbard, 2013).

Teachers, schools, and policymakers are said to be often unclear of the ways these devices can enhance learning (Thomas & Muñoz, 2016). Pahomov (2015) claimed that a typical response from teachers as to why they restrict use is that students have not yet learned how to manage their technology responsibly, where an uncontrollable learning environment is caused if nobody manages student's development and gives instruction on how to manage technology responsibly.

The UNESCO policy guidelines for mobile learning believe negative social attitudes regarding the educational potentials of mobile devices to be the most immediate barrier to the widespread embrace of mobile learning, with this technology being dismissed as distracting or disruptive in school as people generally view mobile devices as portals to entertainment, not education (West & Vosloo, 2013).

Another prominent argument against allowing in-class usage of mobile devices is the inequality of a digital divide of access between affluent and not-so-affluent students, but UNESCO's mobile learning policy guidelines claim that mobile devices hold special promise for education due to the access to devices most people already have (West & Vosloo, 2013). Moreover, Thomas & Muñoz (2016) argue that a new divide has emerged between the low levels of access to technology schools have in comparison to students. The Bring Your Own Device (BYOD) model, where learners supply their own device, is inexpensive for schools, easy to implement, and unlike a school owned piece of technology allows students to adopt such devices as a personalized learning tools and use them in informal contexts (West & Vosloo, 2013). Whilst schools may not be able to match the technological access students have outside of the classroom, by utilising a BYOD model in-class they can help create an appropriate learning environment for the digital native generation which utilises mobile devices as a learning aid at no cost and little effort (West & Vosloo, 2013). The drawback of this model lies in the aforementioned traditional digital divide in that not all learners own mobile devices, which may be exaggerated in environments such as rural areas in less-affluent countries.

For these reasons, despite the potential that learning facilitated by mobile devices presents, schools in Thailand and around the world often prohibit their use within the classroom (Beland & Murphy, 2015; "Cell phone-free Classroom", 2017). Thai Prime Minister Prayut Chan-o-cha expressed growing concern towards in-class mobile device use by students, prompting the Ministry of Education to encourage schools to consider restricting mobile phone use ("Cell phone-free Classroom", 2017).

Mobile Devices and MALL in EFL Context

Mobile Assisted Language Learning (MALL) is language learning that is assisted or enhanced using mobile devices (Valarmathi, 2011). There are many educational affordances unique to mobile devices including portability, the ability to exchange data and collaborate, context sensitivity, connectivity, individuality, enabling multiple modality, supporting student improvisation as needed within the context of learning, and supporting learning on the move (Klopfer, Squire, & Jenkins, 2002, p. 1; Liu, Scordino, Renata, Navarrete, Yujung, & Lim, 2015, p. 356). Moreover, previous studies have shown that students seem pro-MALL, with 67% of Saudi EFL students in Alsulami's (2016) study believing mobile devices can help improve their English language skills and 86% of students depending on the use of mobile devices to understand English words and sentences.

Mobile devices hold special promise in EFL contexts like Thailand as they can provide students with easy access to up-to-date materials and connect them to the real world and an authenticity of native English that is missing in classrooms led by non-native teachers. Studies have found that in EFL contexts technology can aid the learning of Grammar (Kılıçkaya, 2013; Saedi & Biri, 2016) and highest reading proficiency is acquired by students who use online

dictionaries (Dwaik, 2015). Moreover, technology and MALL can help teachers transform the language classroom, making English learning more personalised, more interactive, and more accessible (EF EPI, 2017). Phillips, Grosch, and Laosinchai's (2014) study found that Thai students are using mobile devices to assist their learning in many positive ways such as checking spelling using online and offline dictionaries, Google searching, translation, and taking photos. Moreover, their findings argued that instead of using new learning platforms, the technology that students already possess should be leveraged to help advance their learning.

Thai Context and Mobile Devices

Thailand was classed as having 'very low proficiency' of English skills in 2016 (EF EPI, 2017), with average English scores of 31.8% for 9th grade and 27.76% for 12th grade students (National Institute of Educational Testing Service, 2017). This far-from-satisfactory English language competence is a consequence of the few opportunities there are to use English in their daily settings (McCarty et al., 2017).

Former Minister of Education Somchai Wongsawat stated in the most recent Thai Basic Education Core Curriculum (Ministry of Education, 2008) that "innovative strategies must be identified to improve the quality of education... ..and learners' capacities for competitiveness and creative cooperation in the world society" (p. 7). The tradition of teacher-directed rote learning in Thai classrooms is still very popular among Thai EFL teachers (Sittirak, 2016) and strengthens Thai cultural norms which put value on status and age. As a result, the learner-centred approach which has long been rooted in Thailand's educational reform (which also includes the adoption of ICT) has not been widely accepted by teachers, students, or parents (Kantamara, Hallinger, Jatiket, 2006).

Ten years on from the publication of Thai Basic Education Core Curriculum the government is pushing Thailand 4.0, an economic model which promotes a 'smart Thailand' of creativity, innovation, and educational technology (Koanantakool, 2016). Whilst Thai policymakers have an agenda for incorporating technology and the promotion/utilization of learners' 21st century learning skills, vague policy and seemingly contradictory comments from the Prime Minister Prayut Chan-o-cha asking teachers to consider restricting mobile phone use ("Cell phone-free Classroom", 2017) seems to have left many teachers and schools unable or unaware of how to transition to MALL.

Despite this, the BYOD model to facilitate MALL appears feasible in the Thai context with mobile device use/ownership growing year on year (National Statistical Office of Thailand, 2017), 90.4% of Internet users in going online using smartphones, and 81% of Thai teenagers spending more than an hour a day on their mobile device (Kantar Millward Brown, 2017).

Digital Native / Digital Immigrant Dichotomy

A barrier to the widespread adoption of mobile devices as a pedagogy such as MALL is often attributed to Prensky's (2001) digital native and digital immigrant divide, a way to differentiate between those born into the digital world and those born before and have had to learn and adapt to new technologies.

Whilst the native/immigrant analogy can help us understand the differences between those

comfortable with technology and those not (VanSlyke, 2003), over fifteen years have passed since Prensky's dichotomy during which ICT adoption and assimilation has accelerated rapidly, providing many digital immigrants with increased exposure to digital technologies, increasing their digital literacy. Consequently, nowadays Prensky's dichotomy is not as clear-cut of a divide as it was before, with some considering the key to the native/immigrant divide being experience and not age (Jones, Ramanau, Cross, & Healing, 2010).

In his 2001 article, Prensky did not define a specific year or date in which he believed the digital age began and when the divide occurs. In this present study, Digital Native teachers (DNs) were categorised as those below 35 years of age (born from 1982), and Digital Immigrant teachers (DIs) were those above 35 years of age (born before 1982). The divide aimed to differentiate between those who were children/teens in the 1990's during the rapid development of the ICT (DNs), and those born prior (DIs). The year 1982 was designated as the divide after consulting literature including Palfrey & Gasser (2011) who arbitrarily named it as 1980 as the time when social digital technologies (such as bulletin boards) came online, and Jones et al. (2010) who considered 1983 to be a suitable place to differentiate.

The digital native / digital immigrant dichotomy can help understand whether any resistance, slow adaptation, or negative attitudes towards mobile devices belong only to digital immigrant teachers, who are said to be slower to pick up new technologies than digital natives (Prensky, 2001) and in an unfamiliar culture of technology use, language, and behaviours (Toldeo, 2007). If a difference were to be observed between digital immigrant (who make up the majority of in-service teachers) and digital native teachers (who share the digital native characteristics of students) it could suggest a disconnect between two subsets of teachers operating in the same educational system, which looks headed towards increasing technological integration. Previous to this study there appeared to be little to no research on the native/immigrant divide in the context of EFL teachers, though Martin's study of (non-EFL) American K12 teachers did not suggest a divide between the two groups use of technology (2012).

Research Questions

As the introduction hopefully highlights, there is already substantial evidence to show the powerful learning that is possible aided by mobile devices, but only when properly supported and managed by teachers. Previous to this study, little was known about the extent to which teachers in Thailand believed mobile devices could aid learning EFL, and whether comparing teachers in relation to Prensky's digital native / digital immigrant dichotomy would highlight differences. Thus, this study sought to answer the following questions:

1. What are Thai EFL teachers' practices and experiences of mobile devices in school and the classroom?
2. Are there any significant differences when comparing between digital native / digital immigrant EFL teachers' practices and experiences of mobile devices in school and classroom?

Methodology

This study followed a quantitative design using a cross-sectional survey in the form of a questionnaire. The use of quantitative methods for data collection and analysis make possible

the generalization of interactions made with one group (Williams, 2007) and the interpretation of research findings need not be viewed as coincidence (May & Williams, 1998).

Research Setting and Sampling

Southern Thailand was chosen as the geographical setting for this study due to seemingly no previous related research having been conducted in the area, and its proximity to the author's university and expected ease of access. Purposive sampling of high schools for this study was based on the following criteria:

1. Schools of different sizes (as defined by the Ministry of Education, Thailand)
2. Schools in both urban and rural areas
3. Public high schools under administration of The Office of Education Area 16 (which covers two provinces in Southern Thailand)

All schools covered by the Office of Education Area 16 were initially invited by mail to participate, with teachers from 8 of the responsive schools making this studies' population. Of these 8 schools, 4 were Extra Large (> 1500 students), 2 were Large (600-1500 students), and 2 were Small/Medium (< 600 students) (as categorised by the Office of the Basic Education Commission, 2016). The 4 Extra Large schools were in urban areas, while the Large and Small/Medium schools were in rural areas, and these were purposively selected to reflect any potential lack of access to mobile devices or digital divide that may be a consequence of the setting. Non-parametric testing was used to look for any significant differences in relation to urban/rural location. Backed by the National Statistical Office of Thailand data (2017), this research commenced on the basis that a large proportion of Thai's had access to mobile devices, but random selection of participants ensured that this was reflected honestly and accurately.

The population of 68 Thai teachers of English working within the eight schools were invited to participate in the study and sent questionnaires. Of these, 55 responded (81%) and thus the sample size for the quantitative data collection was 55 teachers. Of these 55 participants, 14 were aged under 35 years and when necessary will be referred to as DNs (Digital Native teachers), and 41 were aged over 35 years and will be referred to as DIs (Digital Immigrant teachers). Teachers were not informed of the two strata of age in this research to avoid it influencing their responses.

Instruments and Piloting

This study followed a quantitative approach, using a 35-item questionnaire which mainly consisted of 6-point Likert-type scale questions of agreement from strongly agree [1] to strongly disagree [6] and 5-point Likert-type scale questions of frequency from always [1] to never [5]. The questionnaire was adapted from previous studies including Baker, Lusk, & Neuhauser (2012), Nalliveettil & Alenazi (2016), O'Bannon & Thomas (2015), and the Technological Pedagogical Content Knowledge (TPACK) framework (Koehler & Mishra, 2008). The items were presented as a list in no specific order as an effort to stop any strong themes having bearing's on how participants responded, and a number of items testing similar constructs to check the reliability of responses were placed at different points in the questionnaire. A bilingual translator translated the questionnaire from English to Thai and

worked closely with the researcher during the various incarnations of the instrument pre and post pilot.

A Thai government high-school in the same geographical area but not under administration of the Office of Education Area 16 was randomly chosen to participate in the pilot. Five Thai EFL teachers of different ages were randomly chosen to complete the questionnaire and participate in an item by item discussion with the researcher and his Thai bilingual assistant, commenting on the clarity and content of each item and participating in a short focus group to identify any other relevant topics the questionnaire did not already address. Whilst the structure of the questionnaire remained the same, some items were edited or removed for clarity before the final questionnaire was assessed by three experts in the field for validity.

Data Collection and Analysis

The final questionnaire consisted of 35 items and was distributed in December 2017 to teachers working in the 8 schools. All teachers, regardless of age or school size, received the same questionnaire and participation was voluntary and anonymous to encourage honest responses.

The collected data were analysed using a software package used in statistical analysis of data. The disproportionate 14 DNs to 41 DIs is reflective of a school environment dominated by digital immigrants and a majority of teachers working in schools over 35-years-old compared to under 35-years-old. Due to the two groups having different numbers of participants, non-parametric Mann-Whitney U test was used to assess for significant differences between DNs and DIs. The mean (\bar{x}) and standard deviation (SD) of the Likert-type scale responses are presented for all items. The Likert-type scale intervals are accepted as equal (0.8 on 5-point scale and 0.83 on 6-point scale), as follows:

Frequency	Mean Range
Always	1.00 - 1.80
Often	1.81 - 2.60
Sometimes	2.61 - 3.40
Rarely	3.41 - 4.20
Never	4.21 - 5.00

Level of Agreement	Mean Range
Strongly Agree	1.00 - 1.83
Agree	1.84 - 2.66
Partly Agree	2.67 - 3.50
Slightly Disagree	3.51 - 4.33
Disagree	4.34 - 5.16
Strongly Disagree	5.17 - 6.00

Findings

The findings are presented in relation to the two research questions. Several items first addressed participants demographic details and the types of mobile devices they use to help describe the Thai EFL context of the study.

As previously mentioned, fourteen teachers were aged under 35 years (categorised as DNs in this study), and forty-one aged over 35 years (categorised as DIs). Regarding the types of mobile device(s) they owned/used, 56.36% reported using an Android phone, 27.27% iPhone, 3.64% other smart phone, 5.45% tablet/iPad, and 3.45% other devices. Crucially, only 1.82% of participants reported not owning a mobile device and 3.64% owning a mobile phone with no connectivity to the Internet, meaning the overwhelming majority of the sample owned and

used mobile devices (92.73%). Teachers reported using mobile devices mostly in the office (89.09% of teachers), secondly in the classroom (56.36%), and least in other school situations (29.09%).

Q1: What are Thai EFL teachers' practices and experiences of mobile devices in school and the classroom?

The questions regarding EFL teachers' practices and experiences are presented in six groups; ability, student access/use, mobile device policy, promotion of mobile devices, distraction/banning, and use of mobile devices in EFL classes.

Table 1: Questionnaire items of agreement (6-point scale from strongly agree [1] to strongly disagree [6])

	DNs		Dis		All	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
Ability						
I can use mobile devices with ease.	1.38	0.51	2.12	0.95	1.94	0.92
I feel confident at using mobile devices.	1.38	0.65	2.15	0.48	1.96	0.62
I use mobile devices in my free time.	1.46	0.66	1.97	0.78	1.85	0.78
Student access/use						
Most of my students have access to a mobile device.	1.77	0.93	2.12	0.95	2.04	0.95
Most of my students use mobile devices in class.	2.54	1.61	2.78	1.06	2.72	1.20
Students use mobile devices for educational means in school.	3.15	1.68	3.46	1.31	3.39	1.39
Students do not use mobile devices for educational means in school.	2.85	1.52	2.98	1.54	2.94	1.52
Mobile device policy						
I know my school's policy on mobile devices.	2.00	0.71	2.15	1.14	2.11	1.05
I agree with my school's policy on mobile devices.	2.08	0.76	2.39	1.00	2.31	0.95
I have my own policy on mobile devices in the classroom.	1.77	0.73	2.27	0.71	2.15	0.74
In-class mobile device policy should be decided by the teacher.	1.46	0.97	1.78	0.52	1.70	0.66
Promotion of mobile device use						
I am aware of the ways mobile devices can aid EFL learning.	1.77	0.73	2.10	0.66	2.02	0.69
Mobile devices should be promoted as learning aids.	1.38	0.51	2.05	0.80	1.89	0.79
I know ways to promote positive educational mobile device use.	1.83	0.94	2.31	0.80	2.20	0.85
I support the use of mobile devices in the classroom.	2.50	1.09	2.78	1.15	2.72	1.13
I trust students to use mobile devices in appropriate educational ways in the classroom.	2.92	1.50	2.98	0.96	2.96	1.10
Distraction / banning						

Mobile devices are a distraction in the classroom.	2.54	1.20	2.88	1.20	2.79	1.20
Mobile devices should be banned from the classroom	3.54	1.33	3.17	1.28	3.26	1.29
Mobile devices are a distraction in school.	3.00	1.63	3.05	1.36	3.04	1.41
Mobile devices should be banned from use in school.	3.46	1.66	3.49	1.23	3.48	1.33

Ability

Teachers rated their ability to use technology on a five-point scale from novice (1) to expert (5), which was interpreted using the Dreyfus model of skill acquisition (Dreyfus & Dreyfus, 1980). Overall participants regardless of age reported being 'proficient' ($\bar{x} = 3.40$, S.D. = 0.89). Teachers either strongly agreed or agreed with the other three items related to ability in Table 1.

Student access/use

Using a 6-point scale from strongly agree (1) to strongly disagree (6), teachers agreed that their students had access to mobile devices ($\bar{x} = 2.04$, S.D. = 0.95), but with a significant difference ($U = 125$, $p < 0.01$) in relation to urban/rural school location. This was the only of all 35 questionnaire items that highlighted significant differences of $p < 0.01$ when comparing between urban/rural school location.

Table 2: Mobile device access in relation to urban/rural school location

	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U (U)	Z	Asymp. Sig. (2-tailed)
Most of my students have access to a mobile device.	Urban	42	24.48	1028.0	125	-3.00	.00*
	Rural	12	38.08	457.0			
	Total	54					

* $p < 0.01$

Teachers partly agreed that most of their students used mobile devices in class ($\bar{x} = 2.72$, S.D. = 1.20), and believed students used mobile devices for non-educational means ($\bar{x} = 2.94$, S.D. = 1.52) in school more than for educational means ($\bar{x} = 3.39$, S.D. = 1.39), although only partly agreeing with both statements.

Mobile device policy

Teachers agreed that they both knew ($\bar{x} = 2.11$, S.D. = 1.05) and agreed with ($\bar{x} = 2.31$, S.D. = 0.95) their school's mobile device policy. They also agreed that they had their own policy on mobile devices in the classroom ($\bar{x} = 2.15$, S.D. = 0.74). They were in strong agreement that the teacher should be the one to decide in-class mobile device policy ($\bar{x} = 1.70$, S.D. = 0.66).

Promotion of mobile device use

Teachers agreed that they knew how mobile devices could aid EFL learning ($\bar{x} = 2.02$, S.D. = 0.69) and that mobile devices should be promoted as learning aids ($\bar{x} = 1.89$, S.D. = 0.79). However, they agreed slightly less ($\bar{x} = 2.20$, S.D. = 0.85) that they knew ways to promote positive educational mobile device use. Teachers partly agreed that they supported the use of mobile devices in the classroom ($\bar{x} = 2.72$, S.D. = 1.13) and that they trusted students to use mobile devices in appropriate educational ways in the classroom ($\bar{x} = 2.96$, S.D. = 1.10).

Distraction / banning

Teachers partly agreed that mobile devices were a distraction in both the classroom ($\bar{x} = 2.79$, S.D. = 1.20) and in school ($\bar{x} = 3.04$, S.D. = 1.41), with the findings indicating they believed they were slightly more of a distraction in the classroom than the general school environment. They were neutral to the items regarding the banning of mobile devices, responding close to the mid-point of the scale they should be banned from use in school ($\bar{x} = 3.48$, S.D. = 1.33) and partly agreeing they should be banned from the classroom ($\bar{x} = 3.26$, S.D. = 1.29).

Use of mobile devices in EFL classes

Table 3: Use of mobile devices in EFL classes (5-point scale from always [1] to never [5])

	DNs		DIs		All	
	\bar{x}	SD	\bar{x}	SD	\bar{x}	SD
I use mobile device(s) in EFL classes as a teaching tool.	2.07	1.07	2.85	1.00	2.65	1.07
I allow students to use mobile devices to check vocab.	1.71	0.99	2.48	0.91	2.28	0.98
I allow students to use mobile devices to translate text.	2.57	1.34	3.23	1.03	3.06	1.14
I allow students to use mobile devices to search for info.	1.93	1.00	2.70	0.99	2.50	1.04
I allow students to use mobile devices in any way they like in my class.	3.36	1.74	3.90	1.24	3.76	1.39

Using a 5-point scale of frequency from always (1) to never (5), teachers responded on the threshold of sometimes and often ($\bar{x} = 2.65$, S.D. = 1.07) using mobile devices as a learning tool in their EFL classes. Whilst teachers often allowed students to check vocabulary ($\bar{x} = 2.28$, S.D. = 0.98) and to search for information ($\bar{x} = 2.50$, S.D. = 1.04), they sometimes ($\bar{x} = 3.06$, S.D. = 1.14) allowed students to translate text. Teachers demonstrated they controlled the autonomous use of devices by students in their classes, with DN sometimes ($\bar{x} = 3.36$, S.D. = 1.74) and DI rarely ($\bar{x} = 3.90$, S.D. = 1.24) allowing students to use mobile devices in any way they like.

Q2: Are there any significant differences when comparing between digital native / digital immigrant EFL teachers' practices and experiences of mobile devices in school and classroom?

Whilst DN responded in more agreement/frequency than DI for all questionnaire items (as previously detailed), the 11 items in the following table highlight those with significant differences between DN and DI.

Table 4: Items which highlight significant differences in relation to DN/DI

	Group	N	Mean Rank	Sum of Ranks	Mann-Whitney U (U)	Z	Asymp. Sig. (2-tailed)
Rating of ability from novice (1) to expert (5)	DNs	14	34.79	487.0	192	-1.95	.05**
	DIs	41	25.68	1053.0			

	Total	55					
I can use mobile devices with ease.	DNs	13	16.96	220.5	130	-3.08	.00*
	DIs	41	30.84	1264.5			
	Total	54					
I feel confident at using mobile devices.	DNs	13	14.38	187.0	96	-3.93	.00*
	DIs	40	31.10	1244.0			
	Total	53					
I use mobile devices in my free time.	DNs	13	19.08	248.0	157	-2.29	.02**
	DIs	39	28.97	1130.0			
	Total	52					
I have my own policy on mobile devices in the classroom.	DNs	13	20.31	264.0	173	-2.10	.04**
	DIs	41	29.78	1221.0			
	Total	54					
The teacher should decide in-class mobile device policy.	DNs	13	19.38	252.0	161	-2.41	.02**
	DIs	41	30.07	1233.0			
	Total	54					
I use mobile device(s) in my EFL classes as a teaching tool.	DNs	14	20.04	280.5	176	-2.21	.03**
	DIs	40	30.11	1204.5			
	Total	54					
I allow students to use mobile devices to check vocabulary.	DNs	14	18.61	260.5	156	-2.58	.01*
	DIs	40	30.61	1224.5			
	Total	54					
I allow students to use mobile devices to search for information.	DNs	14	19.25	269.5	165	-2.38	.02**
	DIs	40	30.39	1215.5			
	Total	54					
Mobile devices should be promoted as learning aids.	DNs	13	17.96	233.5	143	-2.72	.01*
	DIs	41	30.52	1251.5			
	Total	54					
I know ways to promote positive educational mobile device use.	DNs	12	19.33	232.0	154	-1.95	.05**
	DIs	39	28.05	1094.0			
	Total	51					

* $p < 0.01$, ** $p < 0.05$

Whilst the two subgroups of teachers in this study were categorised by age in relation to Prensky's dichotomy (and the period with/without technology they were born in to), several items were included to assess whether the assumed natural ability and characteristics of DNs occurred within the sample. There was a significant difference ($U = 192$, $p < 0.05$) between teachers rating their ability to use technology from novice to expert, with DN's responding as 'proficient' ($\bar{x} = 3.79$, $S.D. = 0.97$) and DI's as 'competent' ($\bar{x} = 3.27$, $S.D. = 0.84$). For the statement "I can use mobile devices with ease" there was a significant difference between DNs and DIs ($U = 130$, $p < 0.01$), and DNs felt significantly ($U = 96$, $p < 0.01$) more confident at using mobile devices than DIs. Moreover, DNs also reported to using their mobile devices in their free time significantly ($U = 157$, $p < 0.05$) more often than Dis.

DNs strongly agreed ($\bar{x} = 1.77$, $S.D. = 0.73$) that they had their own policy on mobile devices in the classroom significantly more ($U = 173$, $p < 0.05$) than DIs ($\bar{x} = 2.27$, $S.D. = 0.71$), and that the teacher should decide in-class mobile device policy ($U = 161$, $p < 0.05$).

DNs reported ($\bar{x} = 2.07$, S.D. = 1.07) using mobile devices in their EFL classes as a teaching tool significantly ($U = 176$, $p < 0.05$) more often than DIs ($\bar{x} = 2.85$, S.D. = 1.00). There were also significant differences between DNs and DIs regarding how often they allowed students to use mobile devices to check vocabulary ($U = 156$, $p < 0.01$) and to search for information ($U = 165$, $p < 0.05$).

Finally, DNs strongly agreed that mobile devices should be promoted as learning aids, which was significantly different ($U = 143$, $p < 0.01$) to DIs, with further significant differences ($U = 154$, $p < 0.05$) between DNs and DIs regarding whether they knew ways to promote positive educational mobile device use.

Discussion

The main goals of this study were twofold; to survey teachers on a variety of topics related to mobile devices in the EFL context to establish whether they saw them as advantageous and to see whether comparing between DNs/DIs provided different outcomes to the topics surveyed. The findings revealed two consistent trends which occurred in almost every questionnaire item asked;

1. All teachers in varying levels of positive agreement towards the benefits and promotion of mobile devices in EFL teaching/learning.
2. A difference in response between DNs and DIs (with DNs always agreeing more, reporting higher frequency of use, and higher ability using mobile devices than DIs).

The significant differences between DNs and DIs in relation to confidence, ease of use, technological proficiency, and frequency of use in free time and in the classroom correlate with the general assumptions of both Prensky's 'born in to' definition and recent arguments that the digital divide is about experience and not age (Jones et al., 2010). The results of this study showed DNs were indeed using technology more than DIs and were seemingly more proficient and confident for that reason.

Whilst teachers agreed that they knew of and supported their school's mobile device policy and strongly agreed that teachers should be the ones to decide in-class mobile device policy, there was a significant difference between DNs and DIs actually enforcing their own policy in the classroom. The findings showed DNs used mobile devices as a learning tool in their classes significantly more than DIs, which implies DNs own policy of mobile devices was to utilise them, going against the common school policy of banning mobile devices, a policy which is unsupportive of teachers' efforts to integrate technology into their teaching practice (Koehler, Mishra, & Cain, 2017). This could suggest that DNs were aware of the advantages of mobile devices and overruling school policy with their own, while DIs may have been unsure or unable to construct their own policy favouring instead school policy.

There were significant differences between DNs and DIs regarding how often they allowed students to use mobile devices in the various educational ways. Despite these differences, the findings indicated that DIs knew how mobile devices could aid EFL learning and that they were trusting of students to use devices appropriately in class, so the fact they allowed student use significantly less than DNs teachers highlights a contradiction between belief and practice. Prensky claimed that "digital immigrant teachers assume that learners are the same as they

have always been, and that the same methods that worked for the teachers when they were students will work for their students now” (2001, p. 3), and the findings of this study suggest his claim may still be true.

Implications for Policymakers, Schools, and Teachers

Teachers partly agreed that mobile devices are a distraction and that students use mobile devices for non-educational means in school more than for educational means, confirming much previous literature and suggesting that negative possible uses of mobile devices are currently too much of a challenge for teachers to embrace in-class use. The fact that the responses regarding whether devices should be banned were so neutral (almost exactly in the middle of the scale) highlights perhaps the biggest issue; teachers are still unsure of their place in school and in the classroom, sitting somewhere between banning them and embracing a classroom that integrates mobile devices (as suggested by Pahomov, 2015). Whilst teachers appeared to have technological ability and supported the promotion of mobile devices as learning aids, it seems they are not quite ready to embrace an environment which considers these devices as everyday learning tools, sitting on students’ desks like traditional paper dictionaries. If there is resistance from teachers, especially DIs who currently make up the majority of in-service teachers in schools, the opportunities mobile devices present cannot be effectively utilised. Thus, it is recommended rather than prohibiting mobile devices and obstructing the full potential of students using mobile devices to facilitate learning, schools and policymakers construct policies which promote the use of mobile devices in the EFL environment. Technology such as mobile devices are now highly effective tools which learners are already more than competent in, requiring teachers to move away from the old pedagogies (such as grammar translation) to a method where students learn for themselves using these technologies. In schools which do not dictate a clear policy, it is arguably the responsibility of educators to carefully consider the affordances of mobile devices in the EFL setting.

Despite teachers agreeing that mobile devices should be promoted as learning aids and knowing both how mobile devices can aid EFL learning and ways to promote positive educational usage, they were in less agreement that mobile device use should be allowed in the classroom. If teachers really knew the advantages of promoting mobile device use, as highlighted in the introduction of this study, it is reasoned they would be finding ways to make more frequent use of devices in the classroom. Without full pedagogical knowledge of how to utilise devices in the EFL setting, it is impossible to expect teachers to be able to productively take advantage of them, even in schools with policy which allows their use. Thus, if schools or policymakers deem mobile devices appropriate learning aids it is essential teachers are given adequate training on how to manage and utilise them, as the effectiveness of integrating technology will depend on the learning activities that students encounter (Pheeraphan, 2013). If clear expectations and guidelines are laid out to students regarding how and when it is appropriate to utilise mobile devices, teachers (and students) may have a more positive experience and better attitude towards embracing MALL. Finally, due to the contradiction previously highlighted between digital immigrants beliefs and actual practice, in schools which accept mobile devices to be advantageous and allow and encourage the BYOD model and MALL it is recommended that careful attention be paid in particular to digital immigrants (and their inherent backgrounds of traditional teaching methods) to ensure they are onboard with school policy to create a consistent environment for learners.

Limitations and Recommendations

Despite consistent differences between digital native and digital immigrant teachers in this study, the findings suggested both subgroups had a commonality of experience and ability to use technology, and it is recommended more precise and practical measurement of teachers' technical knowledge and ability is utilized in future studies. More detailed investigation into the way's teachers are using technology as a pedagogy (through instructional strategies and teaching methods) in EFL classes is also recommended. This could allow for more refined recommendations on the specific educating and training needed for EFL teachers to succeed in a classroom full of digital native students who are increasingly engaging with mobile devices. Finally, as the author of this study was unable to find clear nationwide mobile device policy (in the Basic Education Core Curriculum or elsewhere), a large-scale survey of policies in Thai schools would provide interesting insight into the general framework teachers are operating under.

The design of this study was quantitative, and the addition of qualitative interviews may have enriched the data, however it should be noted that Thais may not be as forthcoming in an interview session as in an anonymous questionnaire due to their passive and shy nature (Mann, 2012). Despite this, the benefits of mixed method research are well known (Creswell, Clark, Gutmann and Hanson, 2003) and it is recommended further research in this field use additional methods to gather data. Whilst efforts were made to make this study as relatable as possible to the general Thai context (by choosing public schools of different sizes in different urban/rural areas across two provinces), this study was carried out in two of Thailand's 77 provinces and thus it cannot be assumed that the results would be the same in other parts of the country. Given the significant differences relating to access in this study between urban/rural location it is recommended similar research is conducted in more extreme urban and rural areas where access to mobile devices may be substantially different to this studies' research setting.

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Paper 2

**21st CENTURY LEARNING SKILLS AND AUTONOMY:
STUDENTS' PERCEPTIONS OF MOBILE DEVICES
IN THE THAI EFL CONTEXT**

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Abstract

This study examined the extent to which English as a Foreign Language (EFL) high-school students believed mobile devices increase learning and learner satisfaction in the Thai school/classroom context, and whether they are prepared for autonomous learning using these devices. The participants were 277 students in eight high-schools in Southern Thailand who completed a questionnaire constructed around the core competencies of 21st century learning skills and autonomous traits in relation to mobile device use. The findings indicated that students had access/ability to use mobile devices, and either agreed/strongly agreed that mobile devices increase their learning potential and satisfaction, suggesting they are ready for autonomous learning using mobile devices in partnership with their 21st century learning skills. Recommendations are made for teachers and policy-makers to allow students to complement their learning using mobile devices.

Keywords: mobile devices in EFL context; MALL; 21st century learning skills; learner autonomy

1. Introduction

Mobile devices - digital, portable, and internet accessible devices such as smartphones and tablets - have become an integral part of modern daily life with the potential to be used for varied educational and learning activities (Nankani & Ojalvo, 2010). There is much literature (Squire & Dikkers, 2012; Thomas & Muñoz, 2016; Thomson, 2009; West & Vosloo, 2013) highlighting the powerful learning possible aided by mobile devices, especially as an aid to language acquisition (EF EPI, 2017; Godwin-Jones, 2018). Mobile Assisted Language Learning (MALL) can bridge between formal and informal learning, providing students with the ability to easily access supplementary materials to clarify ideas introduced by a teacher (West & Vosloo, 2013).

Despite their omnipresence, schools often prohibit mobile device use within the classroom and school (Beland & Murphy, 2015), with Thai Prime Minister Prayut Chan-o-cha recently expressing growing concern towards in-class mobile device use by students, prompting the Ministry of Education to encourage schools to consider restricting mobile phone use (“Cell phone-free Classroom”, 2017). The UNESCO policy guidelines for mobile learning believe negative social attitudes regarding the educational potentials of mobile devices to be the most immediate barrier to the widespread embrace of mobile learning. This technology is dismissed as distracting or disruptive in school as people largely view mobile devices as portals to entertainment and not education (McCoy, 2016; West & Vosloo, 2013). Moreover, the ability to use personal and social functions is not necessarily a good indicator of students’ knowledge of the educational functions mobile devices afford (Stockwell & Hubbard, 2013), and the shy and passive nature of Thai’s suggests they may not be suited to autonomous learning using these devices (Mann, 2012).

Thus, this study aimed to consider the students voice; to what extent they perceive mobile devices to be advantageous in studying English, and whether they are prepared for self-sufficient autonomous learning using these devices. At the time of writing there was little previous investigation of the extent to which students’ value mobile devices in English as a Foreign Language (EFL) learning in relation to autonomy and 21st century skills, especially in the Thai EFL context.

2. Background to the study

2.1 Autonomy and mobile devices

Learner autonomy is the “ability to take charge of one’s own learning” and a potential capacity to act in a learning situation (Holec, 1981, p. 3). Kaur (2013) posited that the ultimate goal of education is “to produce lifelong learners who are able to learn autonomously” (p. 10). Yet the practicality of promoting learner autonomy in different cultural contexts can be challenging. Largely promoted by Western teachers and academics, attempts made to implement learner autonomy in different contexts (such as in EFL speaking countries) have often encountered difficulties due to cultural differences (Palfreyman, 2006).

Mobile devices give students the flexibility to follow their own interests and move at their own pace, which can increase their motivation to pursue learning opportunities (West & Vosloo, 2013). In the language classroom, mobile devices can leverage individual preferences to personalize learning and develop learner autonomy, and encourage lifelong language learning (Godwin-Jones, 2018). Consequently, a cultural shift is underway in many classrooms, away from the traditional teaching model to one where students actively participate in their own learning through mobile devices (Matchan, 2015). Mobile devices are contributing to a greater personal efficacy for students, with the participants in Squire and Dikkers' (2012) study able to use devices in innovative and creative ways that could not be expected ahead of time. Mobile devices amplified interest and functioned somewhat like a 'lifeline', acting as a personalized information retrieval source and orienting students positively toward independent, intuitive, interest-driven learning (Squire & Dikkers, 2012, p. 458). Turula (2017) found that tandem language learning websites have considerable potential to develop and reinforce learner autonomy, which is 'very much promoted' by new tendencies in language learning and the affordances new media offers (p. 3).

2.2 21st Century Learning Skills and language learning

21st century learning skills are the core competencies for learning and innovation that are believed to help students thrive in today's digitally and globally interconnected world (Partnership for 21st Century Skills, 2016). These are creativity and innovation, critical thinking and problem solving, communication, collaboration, plus information, media and technology skills. Mobile learning allows increased opportunities to cultivate the complex skills required to work productively with others (West & Vosloo, 2013). New technology actively promotes and compliments students' 21st century learning skills (Trilling & Fadel, 2009), with mobile devices being used by learners and educators to "access information, streamline administration and facilitate learning in new and innovative ways" (West & Vosloo, 2013, p. 6).

The 20th century approach to education was focussed on 'learning-about' and compiling stocks of knowledge (Brown, 2005), and an EFL context of information acquisition with motivation for learning English coming from the desire to score high in proficiency tests (McCarty, Obari, & Sato, 2017). While this is still true today in

many classrooms, English is a communication device that learners should be able to use, not simply ‘learn-about’, and moreover this traditional approach to learning will not advance learners’ critical thinking or autonomous learning skills (Scott, 2015). Brown (2005) suggested modern students want to create and learn at the same time, pulling content into situated and actionable use immediately bridging the gap between knowledge and knowing. Mobile devices can arguably act as a powerful tool to support these learning preferences, leading to greater learner autonomy. In the ESL context of Malaysia, researchers found that smartphone use boosted learners’ 21st century learning skills to a certain degree, that students gained great satisfaction when learning using smartphones, and that smartphone use leads one towards being a lifelong autonomous learner (Ramamurthy & Rao, 2015).

2.3 Mobile devices and the Thai EFL context

Learning EFL in countries like Thailand can be challenging due to limited exposure to English in both daily life and in institutions (McCarty et al., 2017). In Thailand, grammar translation - a traditional method of instruction where language is taught as an academic subject rather than a means of oral communication with a focus on grammar and rote learning - is claimed to still be very popular and successful among Thai EFL teachers (Sittirak, 2016). Moreover, the tradition of teacher-directed rote learning in Thai classrooms strengthens Thai cultural norms which put value on status and age, and thus the innovative strategies and learner-centred approach rooted in Thailand’s educational reform (Ministry of Education, 2008) and Thailand 4.0’s economic model of creativity, innovation, and educational technology (Koanantakool, 2016) has not been widely accepted by teachers, students, or parents (Kantamara, Hallinger, Jatiket, 2006).

The national/cultural background of learners has often been viewed by teachers as an obstacle in promoting autonomy, in particular for ‘dependent’ Asian learners (Palfreyman, 2006). Thai students are more familiar with social learning (such as in the classroom setting) than individual, needing a lot of guidance from teachers even in higher education (Pagram & Pagram, 2006) as all ages of students have never been taught to learn by themselves, posing a serious problem that must be faced by Thai education (Malaiwong, 1997 in Pagram & Pagram, 2006). The implication that Thai

students are better at group learning, especially when they have extrinsic motivation, suggests they may not be suited to autonomous learning. However, Tananuraksakul (2015) looked at autonomy in relation to online dictionary use on mobile devices among Thai EFL students and concluded that students had positive attitudes towards being self-reliant in class and improving their English aided by technology, suggesting a relationship between learner autonomy and motivation (Little, 2006 in Tananuraksakul, 2015).

Increasingly, there has been interest in the Bring Your Own Device (BYOD) model (Rogers, 2016), where learners supply their own device to be utilized in school/class. This seems feasible in the Thai context, with mobile device use/ownership growing year on year (National Statistical Office of Thailand, 2017). 81% of Thai teenagers spend more than an hour a day on their mobile device (Kantar Millward Brown, 2017), highlighting their close connection to technology and ever-increasing skill. BYOD holds special promise in EFL contexts such as Thailand as mobile devices can provide students with, aside from the benefits in relation to autonomy and efficacy, easy access to up-to-date materials and connect them to the real world and an authenticity of native English that is missing in classrooms led by non-native English-speaking teachers (Godwin-Jones, 2018).

3. The current study

The core competencies of 21st century learning skills and autonomy are not necessarily inherent in Thai students, due to the social learning and rote-learning context they are typically subjected to and their stereotypically shy and passive nature. Technology is said to actively promote these learning skills, so using these competencies as a framework was important to investigate the extent to which Thai students believed mobile devices can facilitate these skills. If students exhibited awareness of the affordances of mobile devices in the EFL context and a majority owned and had ability to use said devices, it could be argued that teachers move away from teacher-centered rote-learning and move towards integrating mobile devices in a more student-centered and autonomous learning environment. Thus, a survey focussing on Thai students' perspectives towards the affordances of mobile devices in the EFL context and how

ready they are to use said devices for autonomous learning was designed, with the following research questions in mind;

1. To what extent do EFL students agree that mobile devices help them to study English and provide learning satisfaction?
2. Are students prepared for and in possession of the skills necessary to use mobile devices for autonomous learning?

3.1 Methodology, setting, and participants

This study followed a quantitative design using a cross-sectional survey in the form of a questionnaire. The use of quantitative methods for data collection and analysis make the generalization of interactions made with one group possible (Williams, 2007) and the interpretation of research findings need not be viewed as a coincidence (May & Williams, 1998).

Southern Thailand was chosen as the geographical setting for this study due to seemingly no previous related research having been conducted in the area. Purposive sampling of high schools was based on the following: 1) schools of different sizes 2) schools in both urban and rural areas 3) public high schools under administration of The Office of Education Area 16 (which covers two southern Thai provinces). All schools in The Office of Education Area 16 were invited to participate in the study, with eight of these schools eventually making up the population of this study. Four schools were in urban areas and four in rural areas, with the schools fitting into three different size categories as follows; 4 as extra-large (> 1500 students), 2 as large (600 - 1500 students), and 2 as small/medium (< 600 students) (as defined by the Office of the Basic Education Commission, 2016). These urban/rural location and school size variables were tested during data analysis to look for any significant differences in participants responses.

The population of this study from the 8 Thai high-schools were 4,037 students; 2,429 studying in Grade 8 and 1,608 studying in Grade 11 (using data from the Office of the Basic Education Commission, 2017). Grade 8 and 11 students were selected as sub-groups within the sample to represent both the lower (Grade 7-9) and upper (Grade 10-12) sections of Thai high school. From the population of 4,037 students, using a

margin of error 5% and a confidence level of 91.5%, the sample was calculated as 277 participants (made up of 199 females and 78 males).

3.2 Instrument and piloting

The 24-item questionnaire consisted of a combination of 4-point Likert-type scale questions of agreement from strongly agree (1) to strongly disagree (4), and 5-point Likert-type scale questions of frequency from always (1) to never (5). The questionnaire established participants demographic details and mobile device access, if students took mobile devices to school and were allowed to use them in the classroom, and how students believed mobile devices aid their learning, with questions adapted from Kashefian's 'Learner Autonomy Questionnaire' (2002) and Ramamurthy & Rao (2015). A bilingual translator translated the questionnaire from English to Thai and worked closely with the researcher during the creation and post-pilot editing of the instrument.

A Thai government high-school in the same geographical area but not under administration of the Office of Education Area 16 was chosen randomly to participate in the pilot. Ten Grade 7 and Grade 10 students were randomly chosen to complete the questionnaire and participate in an item by item discussion with the researcher and his Thai assistant, commenting on the clarity and content of items. After small alterations were made, the instrument was assessed by three experts in the field for validity before distribution.

3.3 Data collection and analysis

The final questionnaire was distributed in December 2017 to the eight participating schools. All students received the same questionnaire, and participation was voluntary and anonymous to encourage students to give honest answers without fear of consequences from the teachers who assisted with data collection. In order to understand the collected data, it was analysed using a software package used in statistical analysis of data. In the findings that follow, the mean (\bar{x}) and standard deviation (SD) of the Likert-type scale responses is presented. The Likert-type scale intervals are accepted as equal and are interpreted as follows:

5-point Likert-type scale intervals (showing frequency)		4-point Likert-type scale intervals (showing agreement)	
1.00 - 1.79	Always	1.00 - 1.74	Strongly Agree
1.80 - 2.59	Often	1.75 - 2.49	Agree
2.60 - 3.39	Sometimes	2.50 - 3.24	Disagree
3.40 - 4.19	Rarely	3.25 - 4.00	Strongly Disagree
4.20 - 5.00	Never		

3. Findings

Several items first addressed the types of mobile devices participants used and their ability to do so. Students reported owning/using (with the option to select multiple choices); 62.45% Android phone, 22.74% iPhone, 12.27% other smart phone, 10.47% tablet/iPad, 2.17% iPod, and 6.14% other devices. Only 6.14% of participants reported not owning a mobile device and 6.50% owning a mobile phone with no connectivity to the internet, meaning the overwhelming majority of the sample owned and used mobile devices. Participants rated their ability to use technology on a scale from novice (1) to expert (5) as 'proficient' ($\bar{x} = 3.49$, S.D. = 0.79), interpreted using the Dreyfus model of skill acquisition (Dreyfus & Dreyfus, 1980). There were no significant differences of ability in relation to urban/rural school location or school size.

Table 1. Bringing and use of mobile devices in school/classroom

	Rural		Urban		All		t-test	p
	\bar{X}	S.D.	\bar{X}	S.D.	\bar{X}	S.D.		
I bring a mobile device to school.	3.55	1.45	1.76	1.36	2.67	1.66	10.55	0.00
My school allows me to bring my mobile device(s) to school.	3.74	1.61	1.96	1.52	2.87	1.80	9.35	0.00
My teachers allow me to use my mobile device(s) in the classroom.	4.07	1.06	3.05	1.15	3.57	1.22	7.64	0.00

Using a 5-point scale from always (1) to never (5), students from rural schools reported rarely bringing their devices to school ($\bar{x} = 3.55$, S.D. = 1.45) which was significantly different ($p < 0.01$) to students in urban schools who always bring their devices to school ($\bar{x} = 1.76$, S.D. = 1.36). Perhaps unsurprisingly, students reported bringing their devices to school more often than their schools permit, with schools only sometimes allowing students to bring their mobile devices to school (2.87). Whilst

students in rural schools claimed that they were rarely allowed to bring devices to school ($\bar{x} = 3.74$, S.D. = 1.61), they reported that schools rarely/never allowed use in the classroom ($\bar{x} = 4.07$, S.D. = 1.06), and though students in urban schools claimed they were almost always allowed to bring their devices to school ($\bar{x} = 1.96$, S.D. = 1.52), they reported that teachers only sometimes allowed in class use ($\bar{x} = 3.05$, S.D. = 1.15).

Table 2. Advantages of mobile devices in EFL setting (ranked from most agreement to least)

When studying English, the use of mobile devices in the classroom or school setting ...	\bar{X}	S.D.	Agreement Level
...are faster than using a book/dictionary	1.55	0.59	Strongly Agree
...allow me to learn anywhere and at anytime	1.56	0.59	Strongly Agree
...allow me to take charge of my own learning	1.60	0.61	Strongly Agree
...are helpful for checking pronunciation	1.62	0.63	Strongly Agree
...are helpful for learning words	1.63	0.63	Strongly Agree
...improves my general learning	1.65	0.59	Strongly Agree
...increase my technology skills	1.69	0.65	Strongly Agree
...increase the amount of work I can do	1.76	2.00	Agree
...make me feel more confident	1.78	0.64	Agree
...increase my ability to work with other students	1.80	0.64	Agree
...improve my creativity	1.81	0.64	Agree
...increase my comm. with teachers and other students	1.82	0.71	Agree
...increase my excitement to learn	1.83	0.65	Agree
...increase my attention to the lesson objectives	1.84	0.63	Agree
...increase my excitement to attend classes	1.87	0.64	Agree

Using a 4-point scale from strongly agree (1) to strongly disagree (4), students agreed with all the statements on the affordances and learning gains possible using mobile devices, with differing levels of agreement from \bar{x} 1.55 to \bar{x} 1.87 and none of the items provoking significant differences of any level regarding urban/rural school location. Many of the highest responses of strong agreement were in regard to specific language learning uses mediated by mobile devices; that they are faster than using a book/dictionary ($\bar{x} = 1.55$, S.D. = 0.59), helpful for checking pronunciation ($\bar{x} = 1.62$, S.D. = 0.63), and helpful for learning words ($\bar{x} = 1.63$, S.D. = 0.63). Students were also in strong agreement that mobile devices allow them to learn anywhere and at any time, let them take charge of their own learning, improve their general learning, and increase

their technology skills. Students agreed the least that mobile devices increase their excitement to learn ($\bar{x} = 1.83$, S.D. = 0.65) and to attend classes ($\bar{x} = 1.87$, S.D. = 0.64), though they were still in positive agreement, nonetheless.

4. Discussion

As the findings above highlight, students were in agreement with every aspect regarding the advantageous ways mobile devices can help them study English in the EFL classroom or school setting. In accordance with the affordances of 21st century learning skills (Partnership for 21st Century Skills, 2016) and consistent with Brown (2005) and West & Vosloo (2013), they believed mobile devices make them more creative, increase communication and collaboration with teachers and other students, increase their technology skills, and improve their general learning. Student's lowest level of agreement (though still positive) that the use of mobile devices in EFL classes would increase their excitement to attend classes and to learn may be indicative of how mobile devices have been accepted as learning aids and have lost any novelty they may have once had due to their now ubiquity. The similarly low ranking of the question regarding mobile devices increasing students' attention to lesson objectives may be indicative of the non-educational uses possible on mobile devices distracting them (as suggested by McCoy, 2016), though they still responded positively with strong agreement that mobile devices increase attention.

The findings suggest that students not only get satisfaction learning with mobile devices, but also view them as highly beneficial aids to their language learning, in line with Ramamurthy and Rao (2015) and Tananuraksakul (2015). The fact they exhibit awareness of these advantages suggests they are capable of autonomous learning using mobile devices and a more learner-centred environment, contrary to previous studies (Mann, 2012; Pagram & Pagram, 2006). Furthermore, the specific item in relation to autonomy, worded more simply for students as the general definition of autonomy allowing them '...to take charge of (their) own learning' is the third highest ranked positive response. Even if students are unaware of the concept of autonomy, it appears they agree with the principles and are in strong agreement with the various ways mobile devices can aid their learning. Moreover, the fact that Thai students are often not willing

to ask direct questions in class and tend to remain quiet (Gunawan, 2016), and the non-threatening way mobile devices (in partnership with their 21st century learning skills) can be used to solve problems suggests an increase in learning possible through autonomy using mobile devices.

Finally, regardless of urban/rural school location, almost all of the 277 students reported having access to mobile devices and proficient ability in using them, meaning a BYOD model is possible in this context, as recommended by Godwin-Jones (2018).

5. Implications for policymakers, schools, teachers, and students

Mobile devices hold huge potential as a multi-purpose tool for learning enhancement and are resulting in escalating transformations of the educational world (Alexander, 2014), having the potential to facilitate a change from old pedagogies to more student-centred learning in EFL contexts such as Thailand both at policy and practical levels. Students in this study claimed that teachers rarely allow them to use mobile devices in class. As long as schools and EFL teachers are preventing in-school or in-class use, they are obstructing the full potential of students using mobile devices to facilitate learning. Technology such as mobile devices are now highly effective instruments, if appropriately used and supported, which Thai learners are already more than competent in. Thus, it is encouraged that teachers move away from the old pedagogies (such as grammar translation) to a method where students are encouraged to learn for themselves using these technologies. Ten years ago, Prensky (2008) claimed that technology's goal should be to support autonomous learning. Today, not only has technology developed substantially but also EFL learners, who seem able to be independent and autonomous if given the chance. Thus, as students in this study had access/ability to use mobile devices and believed they can increase learning and learner satisfaction, it is recommended that rather than prohibiting mobile devices schools and policymakers consider the students' voice and construct policies which promote the pedagogical use of mobile devices in the EFL environment and allow students to complement their learning aided by their devices. Furthermore, where mobile devices are deemed appropriate learning aids it is essential teachers are given adequate training on how to manage and utilise them, as the effectiveness of autonomous learning facilitated by

mobile devices and students' 21st century learning skills will depend on the scaffolding provided to students and the learning activities they encounter (Pheeraphan, 2013).

6. Final conclusions, limitations and recommendations

This study explored the extent to which Thai EFL high-school students believed mobile devices increase learning and learner satisfaction in the school environment, and whether they are ready to use these devices for autonomous learning. It is concluded that students had access and ability to use mobile devices, with students either agreeing or strongly agreeing that mobile devices do increase their learning potential and satisfaction, suggesting they help to foster and aid learner autonomy. As it appeared students are capable of a more learner-centred environment facilitated by mobile devices, recommendations were made for mobile devices to not only be permitted in the school environment but actively promoted as an aid to EFL learning.

Whilst attempts were made to make this study as relatable to the general Thai EFL context as possible (by choosing schools of different sizes in different urban/rural areas across two provinces and two grades of students), it cannot be assumed that the results would be the same in other parts of the country. It is therefore recommended similar studies are conducted in other areas, especially the more extreme urban and rural areas where access to mobile devices may be substantially different to this studies' research setting. The addition of qualitative interviews or focus groups could have enriched the data, with the benefits of mixed method methodology being well known (Creswell, Clark, Gutmann, & Hanson, 2003). More tangible experimental studies such as a survey for students to complete after each class to gauge the utilisation of their skills and satisfaction either aided with/without mobile devices, or an experimental/control group study where the experimental group are given explicit training on how to be effective autonomous learners, are also recommended. Finally, as almost all students reported access to mobile devices regardless of their school's location, it should be investigated why there were significantly different policies regarding the use of mobile devices in school and the classroom between urban and rural schools.

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List of Publications

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