

# **21<sup>st</sup> 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 21<sup>st</sup> 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; 21<sup>st</sup> 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 which is possible by mobile devices, especially as support in language acquisition (EF EPI, 2017; Godwin-Jones, 2018). Mobile Assisted Language Learning (MALL) can bridge 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 21<sup>st</sup> 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 fostering 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 in which 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. 21<sup>st</sup> Century Learning Skills and language learning**

21<sup>st</sup> 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 21<sup>st</sup> 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 complements students' 21<sup>st</sup> 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 20<sup>th</sup> century approach to education was focused 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'. 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' 21<sup>st</sup> 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 Method – 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 be still very popular and successful among Thai EFL teachers (Sittirak, 2016). Moreover, the tradition of teacher-directed rote learning in Thai classrooms is strengthened by 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) have 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 learning, 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).

There has been increasing 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 21<sup>st</sup> 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 focusing on Thai students' perspectives towards the affordances of mobile devices in the EFL context and their level of readiness 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 (> 1,500 students), 2 as large (600-1,500 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 schools. 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, whether students took mobile devices to school, whether they 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		

### 3.4. 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% some 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' ( $\bar{x} = 3.49$ ,  $SD = 0.79$ ), 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
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD		
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 ( $\bar{x} = 3.55$ ,  $SD = 1.45$ ) which was significantly different ( $p < 0.01$ ) to students in urban schools who always bring their devices to school ( $\bar{x} = 1.76$ ,  $SD = 1.36$ ). 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 ( $\bar{x} = 2.87$ ,  $SD = 1.80$ ). Whilst students in rural schools claimed that they were rarely allowed to bring devices to school ( $\bar{x} = 3.74$ ,  $SD = 1.61$ ), they reported that schools rarely/never allowed use in the classroom ( $\bar{x} = 4.07$ ,  $SD = 1.06$ ), and though students in urban schools claimed they were almost always allowed to bring their devices to school ( $\bar{x} = 1.96$ ,  $SD = 1.52$ ), they reported that teachers only sometimes allowed in class use ( $\bar{x} = 3.05$ ,  $SD = 1.15$ ).

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 ...	$\bar{X}$	SD	Agreement Level
...is faster than using a book/dictionary	1.55	0.59	Strongly Agree
...allows me to learn anywhere and at anytime.	1.56	0.59	Strongly Agree
...allows me to take charge of my own learning.	1.60	0.61	Strongly Agree
...is helpful for checking pronunciation.	1.62	0.63	Strongly Agree
...is helpful for learning words.	1.63	0.63	Strongly Agree
...improves my general learning.	1.65	0.59	Strongly Agree
...increases my technology skills.	1.69	0.65	Strongly Agree
...increases the amount of work I can do.	1.76	2.00	Agree
...makes me feel more confident.	1.78	0.64	Agree
...increases my ability to work with other students.	1.80	0.64	Agree
...improves my creativity.	1.81	0.64	Agree
...increases my communication with teachers and other students.	1.82	0.71	Agree
...increases my excitement to learn.	1.83	0.65	Agree
...increases my attention to the lesson objectives.	1.84	0.63	Agree
...increases 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 ( $\bar{x} = 1.55$ ,  $SD = 0.59$ ), helpful



for checking pronunciation ( $\bar{x} = 1.62$ ,  $SD = 0.63$ ), and helpful for learning words ( $\bar{x} = 1.63$ ,  $SD = 0.63$ ). 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 ( $\bar{x} = 1.83$ ,  $SD = 0.65$ ) and to attend classes ( $\bar{x} = 1.87$ ,  $SD = 0.64$ ), 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 21<sup>st</sup> 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. Students' 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 current 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 while 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 in 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 strongly in favour of the various ways in which 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 21<sup>st</sup>

century learning skills) can be used to solve problems suggest an increase in learning possible through autonomous use of 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). This is because they help 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 Method) 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 now 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 should 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 own 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' 21<sup>st</sup> 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 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 Thailand or the world. 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.

### **Acknowledgements**

This work was supported by the Thailand Higher Education Commission - TEH-AC Higher Education Research Promotion Fund.

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