

## INTRODUCTION

Integrating modern technologies into teaching and learning has been a trend for many educators and teachers. Recently, the development of mobile devices has especially drawn many researchers' attention for its potential contributions to general and language learning. Seppala and Alamaki (2003), a decade ago, suggested that pedagogical instruction through mobile devices would play a crucial role in the educational field as 98% of university students owned cell phones.

Mobile devices are comparatively small, portable, and easy to manage, and functions as powerful as personal computers. However, they are different from computers (desktops or laptops) in that their use results in different behavioral outcomes (Vogel, Kennedy, Kuan, Kwok & Lai, 2007). The use of wireless mobile technology in education makes learning more flexible; where students, especially EFL learners, can learn anywhere and at any time and are able to interact with people from different countries. Such educational use of mobile devices is referred to mobile learning (m-learning).

Mobile phones have been around for several years, but little attention has been given to their potential to assist in learning (Keegan, 2005). With the advent of technology, such technology-based learning is now challenging educators to develop new learning and teaching methods. Unfortunately, many teachers and/or even students, still hesitate to make any changes in teaching and learning with this modern technology. Some educators fear that students can get distracted easily by using their mobile devices in class to do non-learning activities, or do the cheating in examinations.

Indeed, learners' characteristics are considered as an essential factor in the realm of m-learning. Students' positive attitudes and behaviors towards mobile learning are crucial to their readiness and acceptance of mobile learning. However, many factors may negatively influence the effectiveness of m-learning on language instruction, resulting in lower levels of student learning participation (Kreijns, Kirschner, & Jochems, 2003; Mompean, 2010). Stockwell (2008) also pointed out that even for learners who are with a positive view of m-learning, factors such as psychological, technological, educational, and/or environmental obstacles may hinder them from adopting mobile devices for participating in learning activities.

Due to the features of mobility and feasibility, mobile devices can be used for formal or informal learning. Research suggests that when using mobile devices as educational tools,

learning tends to be more sustainable and learners use their spare time well (Morita, 2003). Meanwhile, learners do not need to wait for a certain time to learn or go to a certain place to learn what is assigned to them (Ally, 2009). So that learning is expected to benefit from the widespread possession of mobile devices (e.g., smartphones).

With the integration of mobile devices into our lives, it can be claimed that mobile technology has been an important part of most people's lives in Taiwan, especially for the younger generation. However, not as widely as applying computers to assist language learning in Taiwan, mobile devices have not been popular adopted as learning tools used in class within Taiwanese context. Many educators and teachers still doubt about the learning outcome when applying such new technology in traditional classrooms. Consequently, this remains to examine the prospects of future m-learning initiatives in Taiwan.

This study, therefore, would like to shed light on investigating students' acceptance and preparedness regarding the use of mobile devices for language learning purposes. It is hoped to get an overall picture of prospects for applying mobile devices in local English language education in the future.

## LITERATURE REVIEW

### *Mobile Learning and Its Features*

Mobile devices are small, lightweight, and portable, and provide a “wearable computing environments” (Sung et al, 2005, p. 2). An advantage of using mobile devices, smartphones in particular, as learning tools is that they can be always “on” or switched on immediately, making it possible to learn anywhere and anytime (Kukulka-Hulme & Traxler, 2005). Learners' interests can be increased by accessing notifications, activities, feedback, assignments, course materials, grading reports, and online libraries (Tayebnik & Puteh, 2012), and by deciding when and where to learn. Applying tasks and teaching instruction through mobile technology make learning more situated, ubiquitous, personal, and learner-centered (Kukulka-Hulme & Traxler, 2005; Naismith, Lonsdale, Vavoula & Sharples, 2004). Due to the features of usability and portability, mobile devices are especially supported for informal learning, that is, learning outside the classroom. Learners have the control over their goals, and they are free to choose the tasks and/or activities they decide to engage in (Jones, Issroff, Scanlon, Clough, & McAndrew, 2006). Similarly, in goal theories, the perceptions of goal properties are viewed as the foundation of motivational processes (Dörnyei, 2001). Thus, it is

suggested that a strong relationship between learners' goals and interests is likely to develop greater intrinsic motivation.

Mobile devices provide their users with a strong sense of ownership. Ownership can refer to ownership of the learning and/or the learning products (Jones & Issroff, 2007). In motivation literature, ownership is showed to be an essential factor allowing students to become decision makers (Corlett et al., 2004). Likewise, Isman and Celikli (2009) highlighted the point that students' attitudes is one of the core factors which determining the success of their participation in mobile learning. In Taiwan, Lin (2010) examined 184 junior high school students and found that students' ownership of mobile handsets was correlated to their attitudes towards learning via mobile devices. That is, students who owned a handset tended to be more optimistic about m-learning for language than those who did not have one.

Most importantly, mobile devices allow users to communicate, which supports learning through interaction and via collaboration (Naismith et al., 2004). As Crook (2000) suggests, self-motivation is triggered by working with others and learning under the right conditions. It goes without saying that mobile devices are broadly used for entertainment, particularly for the young generation. Therefore, it is possible that the use of mobile devices elicits excitement explaining why mobile devices are easily associated with fun.

One distinctive feature of using mobile devices in learning is that they allow users to access resources and information when needed without the limitations of time and place. Learning can happen in any context as long as learners want to learn. In addition, the portability of mobile devices also provides continuity in different settings so that information or sources can be transferred and used by learners in different locations.

#### *Perceptions and Attitudes*

Several studies have examined learners' perceptions and attitudes towards mobile learning. Pollara and Broussard (2011) examined students' perceptions on m-learning from 18 related studies, and found that student preference of m-learning was initially a suggestion to the future research. Until recently, studies have obtained a positive result on students' perceptions regarding m-learning. For example, Al-Fahad (2009) investigated 186 female students in Saudi Arabia, and found most students supported the idea of m-learning. The wireless network increased the flexibility of language learning. In her study, students were not only much engaged in m-learning activities, but also changed their learning behavior from passive to truly involve in the learning tasks. Al-Fahad (2009) confirmed the advantage of

mobile learning and recommended that it would enhance student communication and enrich learning experience of learners.

Other studies also agreed that most learners display positive attitudes towards the idea of applying mobile devices as tools in the process of language learning (e.g., Lin, 2010; Motita, 2003; Rhema & Miliszewska, 2014; Suri & Sharma, 2013). For example, in Australia, Fujimoto (2012) focused on examining students' readiness for language learning through mobile devices. By collecting data from 182 university students, she confirmed that learners generally expressed positive attitudes towards m-learning for educational learning purposes. In Japan, studies also obtained similar results. Thornton and Houser (2005), for instance, reported that a majority of Japanese university students (93%) responded favorably to m-learning and believed that mobile phones were a valuable tool for learning. More recently, White and Mills (2012) carried out a survey with 403 Japanese EFL students at a private university. They also reached an affirmative result. Most students have a positive view on using mobile devices for educational purposes in language classrooms. However, there are still limitations which affect students' perceptions regarding the use of mobile devices as a learning tool. Stockwell (2008) compared learners' intentions on learning vocabulary through mobile phones and computers. He found that around 61% of students in his study reported that they never tried using their mobile phones for activities in his study. Meanwhile, though generally students presented an interest in using mobile devices for language learning, barriers such as environmental factors (e.g., task design) and cost factors (e.g., costs of applications and Internet access) need to be overcome. Interestingly, in Stockwell's (2008; 2010; 2013) three related studies; he found that students seemed to prefer to do tasks on computers rather than do them on cell phone screens if the students were given a choice of delivery.

Wang and Higgins (2006) pointed out that psychological challenges and technological limitations may hinder learners from applying mobile devices for language learning. In line with Stockwell's results mentioned above, Wang and Higgins (2006) found that Japanese students mostly viewed their mobile phones as entertainment devices rather than learning tools. Students psychologically felt uncomfortable when being asked to use their personal gadgets for educational purposes, they preferred to complete required tasks via their personal computer. These technological problems have been repeatedly mentioned in many studies, including small screens and difficulty of typing (Stockwell, 2008; Thornton & Houser, 2002; Wang & Higgins, 2006). Yet, with the advent of technology, many technological limitations

are expecting to be amended or improved in the near future.

As a matter of fact, little experience of using mobile devices for learning and functional limitations is likely to result in low motivation for m-learning (Wang & Higgins, 2006). Studies also highlighted that learners are easily to get distracted by surroundings if they do not feel using mobile devices as a learning tool, and this will affect their motivation to conduct learning tasks on their mobile devices (Wang & Higgins, 2006; Stockwell, 2008; Hsu, 2012). Learners' acceptance of applying mobile technology for learning purposes in class is linked to their experience of using mobile devices in private life (Kennedy & Levy, 2008). Accordingly, understanding current social and cultural trends helps researchers and teachers to be more effective in applying this new technology to teaching and learning context (Kukulka-Hulme, 2009; Stockwell, 2012). Since mobile devices, smartphones in particular, are mainly used in a personal context rather than a formal learning milieu, understanding learners' private use in their everyday lives has been necessary.

To be aware of how mobile devices have significantly changed learning styles is important (Kukulka-Hulme, 2009), and this remains a close examination. However, as Fujimoto (2012) suggested, it is necessary to recognize the existed relationship between types of mobile devices and activities or tasks that can be applied. Such understanding helps to construct what the most important things to be learned in both private and formal learning settings, to decide how to naturally use mobile devices in the learning context, and to help learners to be positive about using mobile devices for learning purposes (Fujimoto, 2012; Stockwell, 2010). Few studies have contributed to the literature regarding language learners' perceptions of the use of mobile devices for personal, educational and language learning purposes. Thereafter, the purpose of this present study is to examine and analyze for what private use of mobile devices and the engagement of English on their mobile devices, and what attitudes they hold towards using mobile devices to facilities language learning as well as the relationship between the learners' use of mobile devices and their attitudes towards mobile learning, addressing the following research questions:

1. What non-learning purposes do learners usually use their mobile devices for?
2. What are students' experiences of engaging with English via mobile devices?
3. How do students' perceive using mobile devices for learning English in the future?

## **METHOD**

The survey was developed by the researcher to examine the use of mobile devices in

students' everyday life for non-educational purposes as well as their perceptions of the usage of mobile devices for language learning. It included 22 questions to cover major point to answer the research questions. The questionnaire items were derived from related studies (e.g., Ally et al., 2007; Lin, 2010; Tsai & Tsai, 2003; Tsai, Tsai, & Hwang, 2010; Wang & Fang, 2011), and some items were modified to fit the context of mobile learning. A five point Likert Scale with strongly agree, agree, neutral, disagree, and strongly disagree was used for the questionnaire items. Meanwhile, the students had to complete two open-ended questions asking opinions regarding their preferences and expectations of mobile technology for language learning.

This study was carried out in a national university in Chia-Yi City, Taiwan. A sample of first-year biological science and agriculture undergraduates (N=79) filled in the questionnaire. The classes were streamed. The students' English proficiency was at an intermediate level determined by the test score from the General English Placement Test taken before the new semester started. The survey was designed to take around 20 minutes to finish. Due to the intact classes were used for this present study, the sample can be defined as a convenience. The students were informed the purpose of this study. The participation was totally voluntary and it was administered anonymously to the student subjects. As a result, only one copy which contained invalid information was excluded. The percentage of valid copies was 98.7%, and the reported Cronbach Alpha value of the questionnaire items was 0.79. Data was collected through a paper-based format during English class in March, 2014. After the students completed the questionnaire, all item scales were turned into numbers and were input into an SPSS file, and statistical analysis was carried out.

## RESULTS

All results were illustrated in relation to answer the three questions set for this present study: the use of mobile devices for non-learning purposes, the experiences of English engagement via mobile devices as well as their perception of learning English through mobile devices in the future.

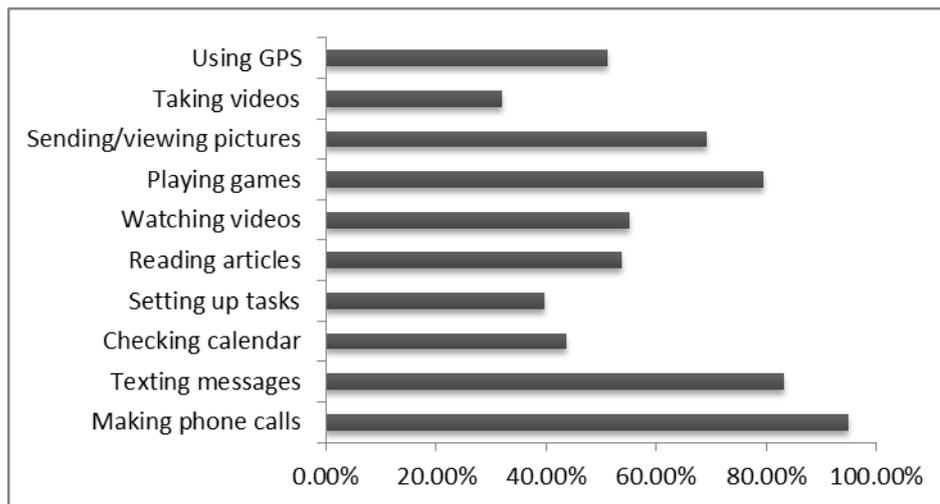
### *The use of mobile devices for non-learning purposes*

Among these students, 91% of them reported owning a smartphone, whereas tablet owners were only 7.7%. Smartphones seemed to be an essential electronic gadget for these students. In terms of the average of the time spent on using their phones, 26.9% of the respondents reported that they spent two to three hours per day using their handsets, and

25.6% used their mobile devices for more than three hours per day. In terms of the time spent on the Internet via mobile devices, over one-third of the handset owners reported that they accessed the Internet for more than two hours a day, whereas others spent less than two hours using the Internet.

For non-learning purposes of mobile device use, Figure 1 details the results of personal purposes which the students frequently used their mobile devices for.

**Figure 1 Distribution of the purpose of mobile device uses (N=78)**



It can be seen that the mobile devices, mainly smartphones, were mostly served for multiple tasks among these students. Apparently, the uses for communication purpose ranked highest, including 94.9% for making phone calls and 83.30% reported for sending text messages. Other than personal communication, the greatest response from these students was the use of mobile devices for entertaining and as multimedia devices (i.e., camera). The students reported that they used their mobile devices to play games (79.50%), to take, save or view pictures (69%); to watch videos (55%), and to take videos (32.10%).

As for other non-learning purposes, more than half of the student participants (53.8%) mentioned that they had used their mobile devices for reading short articles, books, or online content for pleasure. Based on the findings, it can be easily understood why a majority of the participants (79.5%) responded positively (Mean=3.95) to use the functions of their mobile devices “for fun”; since using mobile devices for entertaining purposes is now playing an important role in these students’ everyday lives. This indicates that other than traditional voice and text messaging functions, these other functions on mobile devices attract young adults to a certain degree.

*Students’ experiences of using mobile devices for English engagement*

This survey included questions asking about students' experience of using English through their mobile devices. Nearly 53% of the students reported that none of the text messages sent in the previous month were in English, and only 5.2% of the students claimed that over 16% of the messages were in English. This suggests that English is not commonly used in the everyday lives of these students. Table 1 presents the frequency with which respondents applied English on their mobile devices other than texting.

**Table 1 Frequency of using English on mobile devices (N=78)**

English used on mobile devices	Response rate
Listening to English songs	73.1%
Watching English videos	29.5%
Playing games in English	23.1%
Reading English books	3.9%
Calling an English speaker	2.6%
Called by an English speaker	0%

As the table shows, listening to English songs was ranked as the most common activity (73.1%) which related to the English language. Watching English videos was second (29.5%) and playing games in English was third (23.1%). As reported previously, mobile devices were served as multimedia tools, it can be easily understood why the percentage of listening to English songs was reported the highest.

Other activities involving English were less popular. Speaking with English speakers was relatively rare, and none of the student participants reported that they received calls from any native speakers of English. This suggests that these students did not often use English as a communication language in their everyday lives and/or they barely have the opportunities to use English with their international friends.

Concerning students' experiences of visiting English websites via their mobile devices, the responding rate was also low. Among respondents, 78.2% reported that only a few of the websites they visited were in English. Similarly, among the number of English applications downloaded, 33.3% reported that less than 5% were in English, and only 7.7% claimed they had nearly 20% of English applications downloaded. This seems to imply a great effort can be made to help students in creating an English environment through their mobile devices.

#### *Students' perceptions of the use of mobile devices for learning English in the future*

After understanding the students' regular use of mobile devices and their experiences of engagement pattern with English, this part is set to examine students' perceptions of the use of mobile devices as a tool for learning purposes in the future. Approximately, 80% of the student participants showed a positive attitude towards adopting mobile devices as a tool for learning, though there were around 20% of them not sure about the possibility of using such a

small gadget for language learning. Nevertheless, a mean of 3.90 indicated that students were somewhat optimistic about the idea, and more than half of them (56.4%) were interested in using mobile devices as learning tools in the future.

Meanwhile, there is a slight difference between students with and without mobile devices (Table 2). Those who did not own a smartphone generally presented favorable attitudes towards learning through mobile devices, except in the case of being more interested in learning English via mobile devices. This may be because those who did not own a smartphone were looking forward to experiencing such new technology used for learning. The results suggest that participants view positively regarding learning through mobile devices.

**Table 2 Students' perceptions of m-learning in relation to the ownership of smartphone (N=78)**

Descriptions	Smartphone	N	Mean	SD
1. Mobile devices can be good tools for English learning	No	7	4.00	.577
	Yes	71	3.89	.599
2. Becoming more interested in learning English via mobile devices	No	7	3.14	.690
	Yes	71	3.59	.748
4. Using mobile devices for learning would save a lot of time	No	7	3.57	.787
	Yes	71	3.55	.789
5. Using mobile devices for learning would enhance the effectiveness of learning	No	7	3.86	.690
	Yes	71	3.47	.675

Regarding the issue of efficacy, more than half of the students (53.9%) reported that learning English through their handsets can be time-saving ( $M = 3.55$ ) and effective ( $M = 3.51$ ). However, around 40% of the participants were, still in fact neutral about the potential results of mobile devices for language learning purposes.

Table 3 further illustrated these students' responses in terms of the strengths and weakness of learning English via mobile devices. Though mobile devices can be a learning tool with several advantages, there are drawbacks which may also hinder learners from using such gadgets for learning purposes.

**Table 3 Strengths and weakness of using a mobile device for learning purposes (N=78)**

Advantages	% of students	Mean	SD
Learning can be anytime, anywhere	78.2	3.88	.806
Increasing chances in learning	78.2	3.82	.639
Learning can be interactive	62.8	3.63	.667
Learning can be more fun	41.0	3.37	.791
Feeling cool	39.8	3.22	.816
Disadvantages			
Small screen	75.6	3.92	.908
Inconvenient inputting	56.4	3.59	.904
Expensive	30.8	3.18	.864
Too distracting	48.8	3.54	.907
For communication tool more than for learning	43.5	3.41	.673

Nearly 80% of respondents reported that learning can be more flexible with mobile devices which can happen anytime and anywhere ( $M = 3.88$ ), there can be more opportunities for learning English ( $M = 3.82$ ), and more interactive ( $M = 3.63$ ). One student commented positively on his mobile learning experience:

“I like such learning experience. I can download apps for learning English such as TED talk or English radios. I used to doing nothing when I was free, but after having a smartphone, I can listen to a short English talk within 15 minutes and also learn something new.”

In contrast, features that might discourage students from using mobile devices for learning purposes are vary. The size of the screen was reported to be the most influential (75.6%). Indeed, reading on a small screen can hurt and tire eyes, and small screens can be inconvenient for typing (56.4%), especially for those who are with bigger hands. One third of the participants (30.8%) reported that using a mobile device to learn English can be also expensive. Cost concerns may be related to the fare of Internet access and the charge of downloading applications. However, as it is free for students on campus to access the Internet, online learning can be affordable unless students need to incur extra costs to purchase specific software or applications.

Furthermore, Table 4 describes the results of the students' attitudes towards mobile learning environments. The results indicated that most respondents were generally interested in adopting mobile devices as part of the learning process. Learning can become more independent ( $M=3.78$ ) and collaborative, generating more ideas ( $M=3.53$ ) and promoting creative work ( $M=3.68$ ) without feelings of boredom and/or discomfort. Notably, 53.8% of the students reported neutral to the motivation enhancement through mobile learning, this may because that they were currently not in the mobile learning environment, therefore, and they are not able to confirm their levels of motivation. Nevertheless, 32.1% indicated a clear favorable attitude towards a potential mobile learning environment.

**Table 4 Students' attitudes towards mobile learning environment (N=78)**

In the M-learning environment, a mobile device will...	Mean	SD	% of students
a. allow me to use independently	3.78	.772	74.3%
b. I hope to apply mobile devices in various learning activities	3.71	.686	68.0%
c. allow me to do interesting and imaginative work	3.68	.693	66.7%
d. be helpful for learning	3.59	.692	57.7%
e. help to attain more ideas	3.53	.699	50.0%
f. I hope to use a mobile device regularly for learning English	3.33	.733	44.9%
g. enhance my desire to learn	3.19	.740	32.1%
h. make me feel uncomfortable	2.65	.787	12.9%
i. make me feel bored	2.38	.707	5.1%

A student commented that technology can create a customized learning environment when the instructor is unavailable:

“Mobile devices allow me to find the information I need, anytime, anywhere. When the teacher is not around, I still can get the information to study English, and not just the content from the textbook.” (S04)

However, this does not mean that traditional learning can be replaced by new technologies but offering more choices for supplementary learning. One student’s comment revealed this point:

“We can download English video clips, English books or test our English language knowledge through related apps. But, I do think mobile device is just a supplementary learning tool, and it should be integrated into our regular curriculum, so that our English ability can be really improved.” (S06)

From this student’s viewpoint, mobile learning can be served as an additional learning tool which can help learners to continue learning process outside the classroom.

Finally, a further correlation analysis was carried out to examine the relationship between students’ perceptions of using mobile devices as learning tools and mobile learning environment (Table 5).

**Table 5 Correlation of students’ perceptions of m-learning and m-learning environment (N=78)**

In the M-learning environment, a mobile device...	Good learning tool		More interested		Time-saving		Effectiveness	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
a. use independently								
b. helpful for learning	.402	<.000	.266	<.000	.279	.013	.367	.001
c. enhance my desire to learn			.392	<.000			.364	.001
d. do interesting and imaginative work			.344	.002				
g. use regularly for learning English	.467	<.000					.232	.043
h. apply in various learning activities	.339	.002	.270	.017			.326	.004

As shown in Table 5, students who viewed mobile devices are helpful for learning correlated significantly with viewing mobile devices as a good ( $r = .402, p < .000$ ), effective ( $r = .367, p = .001$ ) learning tool and also showed more interested in learning ( $r = .266, p < .000$ ). Interestingly, students with greater interest in using mobile devices as learning tools significantly correlated to engaging in more interesting and imaginative work ( $r = .344, p = .002$ ). Perhaps, this new technology may help students to think differently, as they can relate the authentic material to what they learn in textbooks, either through peer collaboration or individually.

## DISCUSSION and IMPLICATIONS

This paper presented findings from a small-scale study examining university students’ perceptions and attitudes towards using mobile devices for language learning purposes in the future. According to the survey results, most students owned a smartphone. Though different

students may have a different brand of handsets, there was not much difference in the responses of the use of mobile devices for private use. Communication purposes are found to be the major functions for personal purposes. However, as smartphones are with multi-functions, most students also used their mobile devices for non-educational purposes such as playing games, taking pictures and watching videos.

Based on the findings of this study, the use of English seemed to be less a part of students' everyday lives. English was barely used either in making phone calls or in texting messages. Activities which English involved were mostly connected to entertaining activities such as listening to English songs, watching English movies, and playing games in English. The results indicate a tendency that future mobile learning activities and/or tasks may consider incorporating songs, video clips or games to trigger learners' motivation and increase the opportunities for learners' use of English either in private context or in classrooms. Meanwhile, as English is a foreign language in Taiwan, it is natural that students are exposed to a limited English language environment. With mobile devices and downloaded applications, it would be possible to improve the current limited English environment and consequently, to create a richness personal English environment for language learning.

The majority of students in this study owned smartphones and/or tablets, and the use of mobile devices in learners' everyday lives has extended their life styles. Such user experiences had given them a positive perception in relation to the use of mobile devices for learning purposes. Also, for those who did not own a smartphone at the moment, instead of being less interested, they were found to be open-minded towards using mobile devices for learning purposes. Such optimistic attitudes and the willingness of students to engage in mobile learning suggest a great potential implication for teaching and learning through mobile devices.

Students of this study generally expressed their welcome towards using mobile devices for language learning purposes, though there still are some flaws need to be overcome. With the mobile devices, learning can happen anywhere and anytime, and learning is controlled by learners themselves. The finding is in line with the important features that researchers (Kukulka-Hulme & Traxler, 2005; Naismith et al., 2004) have proposed; learners are in charge of their learning while the teacher assists the students' learning rather directs their progress. Still, there were some students with negative or uncertain perceptions found in this study, it is also a need to change their negative perception before widely applying such a new

learning method. Additionally, mobile devices can be a good tool to support the development of English speaking ability. Thus, it is suggested that mobile learning activities and/or tasks can incorporate a variety of authentic materials for using the English language more practically. Ultimately, it is to encourage language learners to take responsibility for their learning.

No surprise, there was an uncertainty of using mobile devices for language learning based on the findings. It is reasonable that learners with little experience of the use of their mobile devices for educational purposes can present a certain degree of hesitation. Thus, coping with barriers and learners with low motivation can be a challenge for teachers in providing mobile language learning tasks or activities in or after the class. Providing a guide about how to use mobile devices for learning to learners is suggested. In addition, one of the distinctive drawbacks of mobile devices is the limited size of the screen. Hence, designing materials which can be readable on small-sized screen of smartphones is a solution to enhance learners' willingness to learn through such portable devices. Certainly, some technical problems would be worked on by professionals. Nevertheless, teachers can explore effective methods which are more suited to the interface of the mobile devices, whereas learners can take time to be familiar with learning through their mobile devices.

In fact, students in many traditional classrooms are still forbidden from using their smartphones or tablets in class. For e-learning to be widely accepted in higher education in Taiwan, there is a need to provide related training for mobile learning at different levels. In addition to focusing on the design of learning applications, the development of expertise in mobile learning should be the first step in the implementation and promotion of mobile learning in Taiwan. Developing adequate awareness, positive attitudes, and motivation among teachers, students and educational authorities are the important tasks to do. The findings of this study were positive, and this suggests a possibility for incorporating the increased availability of mobile devices to create a learner-centered environment, to provide sufficient English language exposure and to trigger independent learning. Also, educators need to consider the way to integrate mobile learning in learning to offer great improvements in educational delivery. Perhaps, designing materials that are close to what learners regularly do might gradually and naturally help learners accept mobile learning and reduce their negative perceptions.

## **CONCLUSIONS**

Generally, students of this study displayed positive attitudes towards the use of mobile devices for language learning purposes. Literature indicated that portability and accessibility to the mobile devices have made it popular in educational field. In addition, crucial technical issues such as difficulty of typing and browsing information seem to be improved, and Wi-Fi connections are also embedded within current smartphones and tablets. Thus, teachers may need to work on providing learning materials and activities for their students and encourage their students to learn more via their mobile devices by giving more choices of language learning activities in and after the class. Meanwhile, it is also necessary to carefully consider how learners use their mobile devices in their personal lives, and how this can be incorporate to language learning purposes, so that mobile language learning can be accepted naturally. Though it is obvious that much work needs to be done for these devices fully accepted for educational purposes in the classroom, positive learner perceptions suggest an encouraging future for the use of mobile devices in language teaching and learning.

## REFERENCES

- Al-Fahad, N, F. (2009). Student attitudes and perceptions towards the effectiveness of mobile learning in King Saud University, Saudi Arabia. *Turkish online Journal of Educational Technology*, 8(2), 111-119
- Ally, M. (Ed.). (2009). *Mobile learning: Transforming the delivery of education and training*. Athabasca University Press.
- Ally, M., McGreal, R., Schafer, S., Tin, T., & Cheung, B. (2007). Use of mobile learning technology to train ESL adults. *Proceedings of the Sixth International Conference on Mobile Learning*, Melbourne.
- Corlett, D., Sharples, M., Chan, T., & Bull, S. (2004). A mobile learning organizer for university students. *Proceedings of the 2nd IEEE International Workshop on Wireless and Mobile Technologies in Education*, 35-42.
- Crook, C. K. (2000). Motivation and the ecology of collaborative learning. In: R. Joiner, K. Littleton, D. Faulkner & D. Miell (Eds.), *Rethinking collaborative learning* (pp. 161-178). London: Free Association Press.
- Dörnyei, Z. (2001). *Teaching and researching motivation*. Pearson Education Limited.
- Fujimoto, C. (2012). Perceptions of mobile language learning in Australia: How ready are learners to study on the move? *The JALT CALL Journal*, 8(3), 165-195.
- Hsu, L. (2012). English as a foreign language learners' perception of mobile assisted language learning: A cross-national study. *Computer Assisted Language Learning*, 26(3), 1-17.
- Isman, A., & Celikli, G. E. (2009). How does student ability and self-efficacy affect the usage of computer technology? *The Turkish Online Journal of Educational Technology*, 8 (1), 33-38.
- Jones, A., & Issroff, K. (2007). Motivation and Mobile Devices: Exploring the Role of Appropriation and Coping Strategies. *Research in Learning Technology*, 15(12), 247-258.
- Jones, A., Issroff., K., Scanlon, E., Clough, G. & McAndrew, P. (2006). Using mobile devices for learning in informal settings: is it motivating? Paper presented at the IADIS International Conference on Mobile Learning, Dublin, 14-16 July.
- Keegan, D. (2005). The incorporation of mobile learning into mainstream education and training. In *Proceedings of the 4<sup>th</sup> World Conference on MLearning* (M-Learning: 2005). SA, 25-28 October.
- Kennedy, C., & Levy, M. (2008). L'italiano al telefonino: Using SMS to support beginners' language learning. *ReCALL*, 20(3), 315-330.
- Kreijns, K., Kirschner, P.A., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer supported collaborative learning environments: a review of the research. *Computers in Human behavior*, 19, 335-353.
- Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, 21(2), 157-165.

- Kukulka-Hulme, A., & Traxler, J. (2005). Mobile teaching and learning. In Kukulka-Hulme, A. & J. Traxler (Eds.), *Mobile learning: a handbook for educators and trainers*. London: Routledge.
- Lin, Y. K. (2010). The prospect of learning English via mobile phones for junior high school students in Taiwan. In *Proceedings of 2010 Conference on English Learning, National Ping-tung University of Education*: 188-209.
- Mompean, A. R. (2010). The development of meaningful interactions on a blog used for the learning of English as a foreign language. *ReCALL*, 22 (3), 376-395.
- Morita, M. (2003). The Mobile Based Learning (MBL) in Japan. Proceedings of the First Conference on Creating, Connecting and Collaborating through Computing. Retrieved on 12 December, 2012, from <http://csdl2.computer.org/comp/proceedings/c5/2003/1975/00/19750128.pdf>
- Naismith, L., Lonsdale, P., Vavoula, G., & Sharples, M. (2004). Literature Review in Mobile Technologies and Learning, NESTA (National Endowment for Science Technology and the Arts), Bristol, UK.
- Pollara, P. & Broussard, K. K. (2011). Student Perceptions of Mobile Learning: A Review of Current Research. *Society for Information Technology & Teacher Education International Conference*.
- Rhema, A., & Miliszewska, I. (2014). Analysis of student attitudes towards e-learning: The case of engineering students in Libya. *Issues in Informing Science and Information Technology*, 11, 169-190.
- Seppala, P., & Alamaki, H. (2003). Mobile learning in teacher training. *Journal of Computer Assisted Learning*, 19 (3), 330-335.
- Stockwell, G. (2008). Investigating learners' preparedness for and usage patterns of mobile learning. *ReCALL*, 20(3), 253-270.
- Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of the platform. *Language Learning & Technology*, 14(2), 95-110.
- Stockwell, G. (2012). Introduction. In G. Stockwell (Ed.), *Computer-assisted language learning: Diversity in research and practice* (pp. 1-13). Cambridge, UK; New York: Cambridge University Press.
- Stockwell, G. (2013). Tracking learner usage of mobile phones for language learning outside of the classroom. In P. Hubbard, M. Schulz & B. Smith (Eds.), *Learner-computer interaction in language education: A festschrift in honor of Robert Fischer* (pp. 118-136). San Marcos, TX: CALICO.
- Sung, M., Gips, J., Eagle, N., Madan, A., Caneel, R., DeVaul, R., Bonsen, J. and Pentland, A. (2005). Mobile-IT Education (MIT. EDU): m-learning applications for classroom settings. *Journal of Computer Assisted Learning*, 21, 229-237.
- Suri, G., & Sharma, S. (2013). The impact of gender on attitude towards computer technology and e-learning: An exploratory study of Punjab University, India. *International Journal*

- of Engineering Re-search*, 2(2), 132-136.
- Tayebinik, M., & Puteh, M. (2012). Mobile learning to support teaching English as a second language. *Journal of Education and Practice*, 3(7), 56-63.
- Thornton, P., & Houser, C. (2002). M-learning: Learning in transit. In: Lewis, P. (Ed.) *The changing face of CALL: A Japanese perspective*. The Netherlands: Swets & Zeitlinger, 229-243.
- Tsai, M. J. & Tsai, C. C. (2003). Information searching strategies in web-based science learning: The role of Internet self-efficacy. *Innovations in Education and Teaching International*, 40 (1), 43-50.
- Tsai, P.-S., Tsai, C.-C., Hwang, G.-H. (2010). Elementary school students' attitudes and self-efficacy of using PDAs in a ubiquitous learning context. *Australasian Journal of Educational Technology*, 26 (3), 279-380.
- Vogel, D., Kennedy, D. M., Kuan, K. Kwok, R. & Lai, J. (2007). Do Mobile Device Applications Affect Learning? In *Proceedings of the Fortieth Annual Hawaii International Conference on System Sciences*, Hawaii, USA.
- Wang, F., Chen, X., & Fang, W. (2011). Integrating cell phones into a Chinese high school EFL classroom: Students' attitudes, technological readiness, and perceived learning. *Journal of Educational Technology Development and Exchange*, 4(1), 91-102.
- Wang, S., & Higgins, M. (2006). Limitations of mobile phone learning. *The JALT CALL Journal*, 2(1), 3-14.
- White, J., & Mills. (2012). Get smart!: Smartphones in the Japanese classroom. In A. Stewart & N. Sonda (Eds.), *JALT2011 Conference Proceedings*. Tokyo JALT.