Malaysian ESL Students' Perceptions on the Usability of a Mobile Application for Grammar Test: A Case Study of ESL Undergraduates in Universiti Sains Malaysia

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ABSTRACT

With the proliferation of mobile technologies nowadays, English language educators and instructors globally are increasingly looking into the potential of mobile learning as pedagogical practice to teach the language, including as a tool to test students' grammatical ability. However, users' perception on the usability of such advanced approach in education is critical to a successful mobile learning implementation. While there is a considerable enthusiasm for incorporating mobile technologies in English language education, there is a paucity of research evidence about whether mobile-based test is perceived as usable by English language students in Malaysia. The purpose of this paper is to examine Malaysian English as a Second Language (ESL) students' perception on the usability of a mobile application for grammar test; namely MyGrammarTest (MyGraTe) App. The App was developed by a mobile learning research team from Universiti Sains Malaysia (USM) who studied the development of an intelligent mobile learning tool that can map grammar learning content to their learning style preferences. Upon successful development, the MyGraTe App prototype was piloted on a group of undergraduate students who undertook ESL courses in USM. Then, a questionnaire consisting of items adapted from the System Usability Scale (SUS) by Brooke (1986) was distributed to respondents to gain input on the perceived usability of the App. Findings from this study provide several important insights on the usability of mobile applications as learning support tools for English language learning, specifically in testing students' grammatical ability.

Keywords: mobile learning; mobile application; MyGraTe; English grammar test; System Usability Scale

INTRODUCTION

The education system in Malaysia aspires to prepare students holistically to allow them to succeed in the 21st century, with all of the opportunities and challenges that this new era presents. In order to compete with the best in the world, the education system is targeted at developing young Malaysians who are knowledgeable, can think critically and creatively, have leadership skills and are able to communicate with the rest of the world (Malaysia Education Blueprint 2015). In this vein, particular emphasis is placed on enhancing students' learning experience by leveraging on technology-enabled models to enable more personalised learning in the higher level learning classrooms as teaching digital age 21st century students requires adaptive and technological induced methods by educators (Ganapathy 2015).

New technologies such as social networking, podcasting, or speech recognition integrated through mobile applications accelerate the changes occurring in the manner in which teaching and learning takes place and transforms classroom experiences. This is especially evident with the ubiquitous use of smartphones that has resulted in proliferation of

mobile applications for ESL students (Kim & Kwon 2012). The situated learning theory also shows a parallel enthusiasm for mobile learning. Situated Learning Theory (Collins et al. 1989, Warschauer 1997) maintains that genuine learning is unintentional and situated within authentic activity, context, and culture. Discussing the effectiveness of using mobile applications in the learning of a second language, Burston (2011) highlights that behaviorist, teacher-centered theories can supplement and assist in the development of mobile phone applications for student-centered vocabulary.

However, pedagogies employed in ESL classrooms at the universities are still reflecting traditional approaches where grammar teaching is carried out very traditionally, making the lesson dull and uninteresting. Students are not motivated to learn when teachers used traditional methods of teaching such as the 'chalk and talk' approach which can be dull and predominantly teacher-centered. ESL lecturers have been found to spend most of the time lecturing in front of the classroom while the students are busy copying the notes given without concern for whether they were understood (Chen & Li 2010). University students prefer to learn according to their current interest and convenience (Ganapathy, Vighnarah & Kaur 2015). Mobile apps offer a wide range of learning tools as they can be downloaded to students' mobile devices and used productively at favorable times in a variety of settings and on-the-go.

Yet few studies have investigated students' personal use of mobile apps for learning and the learning benefits students perceive for their university studies. Indeed, most studies of mobile learning in university settings have tended to focus on teacher-led mobile initiatives. Language skills are also often overlooked. The discipline is important here as learning is experienced differently in different fields of study. This paper reports on students' insights based on the usability of mobile applications as learning support tools for English language learning, specifically in testing undergraduate students' grammatical ability.

LITERATURE REVIEW

While the literature on mobile phone use in classroom is scarce, there has been some research shedding light on the usage of mobile phones as a teaching tool and this study aims to determine the usability of MyGraTe App for grammar practice through mobile phones.

A web-based application called Grammar Clinic was designed by Li and Hegelheimer (2013), which has the potential to be installed in mobile phones as an additional tool for students' self-editing activities. This Grammar Clinic application consists of fifteen common grammatical error types that students tend to make. There were ten items in each Grammar Clinic assignment and students were required to identify only one error in each item and select an error type from four choices. The final step required students to correct the error. When students completed a set of grammar exercises, students were able to check their score report on the 10 points, which is accompanied by useful feedback. In designing this application, many principles were taken into consideration pertaining to the nature of writing, the feature of mobility, and limitations of mobile phones features such as small-sized screen. The Grammar Clinic application in cell phones allow students to do the assignments both in and out of class at their convenience.

Wang and Smith (2013) examined both the feasibility and the limitations of developing English reading and grammar skills through the interface of mobile phones. During the study, reading and grammar materials were regularly sent to students' mobile phones. Students read or had the liberty to participate in any part of the materials that they were interested in trying out. Information gathered from participants and server logs reflected that reading and learning grammar using mobile devices is construed as a positive language

experience. However, the data also indicated that the success of any mobile learning project could be limited unless certain criteria are applied which consider: (a) providing engaging learning materials that are neither too long nor overly-demanding; (b) a proper degree of teacher monitoring; (c) student involvement; (d) the need for incentives; (e) a respect for privacy; and (f) a safe and secure mobile-learning technical environment.

Thoronton and Houser (2005) provide insights into mobile phone learning experiences of Japanese university students. They tested them in terms of the email exchange in the mobile phones, receiving vocabulary lessons at timed intervals to the mobile phones and finally using video capable mobile phones for explaining English idioms. Students perceived that using mobile phones in learning is "a valuable teaching method" (p.217) and they highly rated its "educational effectiveness" (p.217) in the classroom. Another study by Kiernan and Aizawa (2004) concur with the findings where the use of mobile phones as tools for classroom learning was evaluated. Freshman university students were surveyed and pre-tested to assess particular target learning structure. Then they were subdivided into three groups: using cell phones text messages, using computer e-mail, and speaking. The study suggested that mobile devices were an effective "language learning resource worthy of further investigation" (p.71). They promote flexibility in learning at no fixed location or time of learning (Kinshuk 2003). Mobile devices allow for a more student-centred approach in learning where the student is more responsible for acquiring, processing and using information. They also allow for increased interactivity between teachers and students, enabling teaching and learning to be a more personal activity.

A further finding in the literature suggests the feasibility of using mobile learning in the academic environment. Mostakhdemin-Hosseini (2009) commented that the usability evaluation for mobile learning applications is critical since devices become smarter and more complex and therefore need to be more robust to accommodate the requirement. In this regard, he reiterates that mobile tools can be integrated as a supplementary tool in terms of reinforcing content learning individually or collaboratively. A feasibility study of mobile learning implementation among Iranian universities was conducted by Massomeh Kord & Faranak Omidan (2015) and it was found that students at the Islamic Azad and Payam Noor universities had 95% confidence in using mobiles for learning purposes. It was also noted that there were sufficient facilities and the education system was prepared to implement the usage of mobiles for learning in their curricula. Nestel et al. (2014) concur regarding the positive findings where educational benefits were experienced by students, but highlight that challenges of costs and maintenance have to be addressed in order for full implementation to take place. Hence, mobile learning applications in the academic context is viable since majority of students at universities are confident in using mobile tools and have had positive experiences. Viberg & Gronlund (2013) reiterated that studies focusing on grammar learning, pronunciation and writing skills are underrepresented in the reviewed literature and little attention has been given to research that relates to the usability assessment in the field of mobile learning application design.

Taking this into consideration, this study sought to address the following questions:

1) How do respondents perceive the usability of MyGraTe app?
2) Do differences in mobile experience influence respondents' perception of the MyGraTe usability?

By addressing these questions, this paper aims to fill the gap in the current research pertaining to mobile learning for grammar practice as well as inform future research of relevant observations regarding this specific student population. Mobile phones and their use in language learning have yet to receive much attention.

DESCRIPTION OF MYGRATE APP

Figure 1 explicates the MyGraTe App which is referred to as the i-MoL (Intelligent Mobile Learning) architecture supported through various low-end to high-end mobile platforms, including Android, iPhone and even basic mobile phones with SMS and MMS capabilities. The MyGraTe App is equipped with several mobile-based applications for grammar learning including notes, quizzes, enrichment, and forum. The App will be available in the form of web-based portals and mobile learning applications and provides ready-to-use templates for lecturers to utilise in helping and reinforcing grammar learning among students. The intelligent part of the application provides interfaces for lecturers to automatically send the reinforced contents according to students' identified learning styles and the interface of the learning style mechanism is available for all visual, kinesthetic, reading, writing and auditory learners, which relates to VARK's learning style model (Fleming 1992). This study was grounded on VARK's (Visual, Aural, Reading or Write and Kinesthetic) model to ensure that when the MyGraTe app is used to teach grammar, lecturers are able effectively promote diverse learning styles in the teaching of grammar.

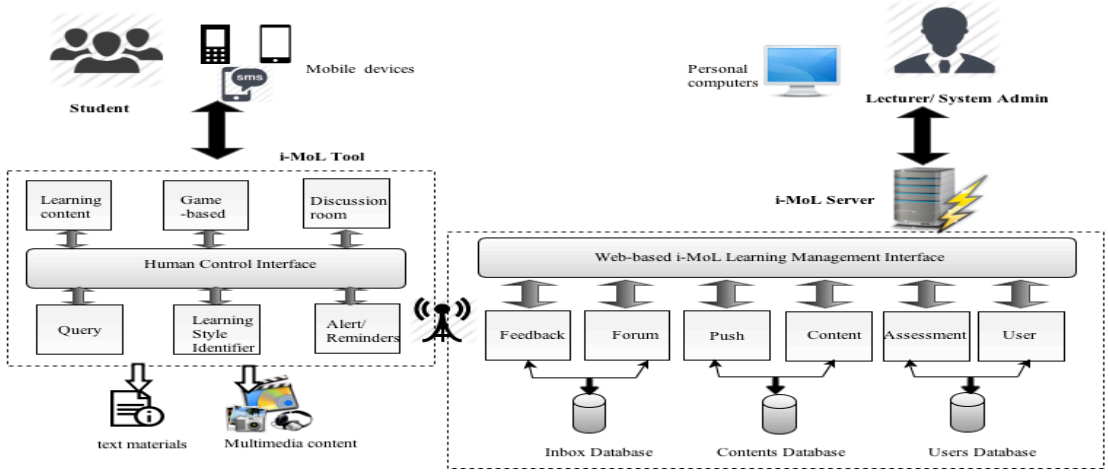

FIGURE 1. MyGraTe App Architecture (Shuib et al. 2015)

The various elements of VARK's model were embedded in each of the MyGraTe App features below:

- Reinforces content: ready-to-use notes dissemination template with scheduling, header and footer, grouping and reinforcement setting interface.
- Game-based application: a selection of interactive game-like (quiz, enrichment, inquiry-based, ranking game) mobile modules.
- Discussion room: forum application to facilitate group-based learning
- Alert and reminder: a reinforcement tool to help students obtain instant information on grammar learning content:
  a) Learning style identifier: SMS-based and mobile application that can automatically identify students' learning style through a series of questions
  b) Query: a student-centered mobile application that helps students to get instant feedback from their lecturer regarding the subjects.

METHODOLOGY

This study employed the quantitative approach and used a self-administered survey to gather respondents' input pertaining to their perceptions on the usability of the MyGraTe App. An email was sent to each respondent after consent was given by their lecturers to invite them to

participate in the pilot study. Participants who consented to participate in the study were guided on the manner in which the app would be installed on their mobile phones and they were asked to try out the app several times. Therefore, they could be considered as users of the MyGraTe app who could provide beneficial feedback on the usability of the app. Prior to their experiences in using mobile phones, all respondents were initially surveyed to identify themselves as one of the following:-

- Advanced mobile user (someone who has extensive experience using mobile phones and devices)
- Intermediate mobile user (someone who has considerable level of experiences in using mobile phones and devices)
- Novice mobile user (someone who has limited experiences using mobile phones and devices)

A total of 78 undergraduates taking the ESL courses from Universiti Sains Malaysia were purposively selected to participate in this study. The app had been installed one week earlier prior to the administering of questionnaires. The questionnaire was self-administered to respondents after their classes to ensure high participation rate and considerable focus on the survey. Students were briefed about the objectives of the survey and given verbal instructions to go through the app again for 10 to 15 minutes. After completing the grammar test through the app, questionnaires were distributed to the respondents in which, out of 78 questionnaire sets being distributed, all were returned, providing a 100% return rate.

As for the study instrument, the System Usability Scale (SUS) questionnaire was adapted to gain a quick understanding of the perceived usability of the app. SUS is a simple, ten-item scale instrument which was developed by Brooke (1996). According to Lin et al. (2011), SUS is a questionnaire that is used to evaluate users' subjective impressions as well as their degree of satisfaction towards a certain system or product. It is generally used after the respondents have used the system or product which is evaluated and to ensure that they have not been involved in any orientation or discussion yet (Suominen 2013). The SUS questionnaire consists of 10 items rated on a five-point Likert scale (0 = strongly disagree and 5 = strongly agree), in which odd-numbered items were worded positively and even-numbered items were worded negatively. For the purpose of this study, the word 'system' in the original SUS questionnaire was replaced with the words 'MyGraTe App' and the word 'cumbersome' was replaced with the word 'complex' to avoid confusion. One open-ended question was also added at the end of the questionnaire to seek respondents' qualitative input regarding the strengths and areas of improvements for the app.

Data were analysed by using Predictive Analytics Software (PASW) 18.0, a statistical software. Descriptive statistics of individual SUS items and overall SUS score were determined through descriptive and frequency analyses. T-test and ANOVA statistical tests were also conducted to gauge whether there was any difference in the respondents' perceived usability based on their mobile ownership and experiences by comparing mean values of overall SUS score for every group of items in this section. Results of the qualitative data from the open-ended question in the questionnaire were also discussed briefly in another section to support the quantitative findings.

FINDINGS

DEMOGRAPHIC PROFILES

Table 1 summarises the demographic profiles of the study's respondents. Of 78 respondents, 16.7% are male while 83.3% are female. Respondents' ages vary between 21 to 27 years old,

with almost half being 22 years old (46.2%). In terms of ethnicity, the majority of respondents are Malay (51.3%), followed by Chinese (28.2%), Indian (7.7%), and various other ethnicities (12.8%). As for academic background, most of them were in their third year (80.8%) while the rest were in their second year (17.9%). More than half of total respondents (55.1%) were taking the English for Professionals course, 25.6% the Bachelor of Education (TESOL) course, 11.5% the English Language and Literature Studies (ELLS) course, and the remaining 7.7% the English Language Studies (ELS) course. In terms of academic performance, almost half of the respondents (44.9%) achieved a Cumulative Grade Point Average (CGPA) score between 3.00 to 3.49 and 60.3% of them achieved the Band 4 level for the Malaysian University English Test (MUET).

TABLE 1. Demographic Profiles

Variables	*N* (%)
Gender	
Male	13 (16.7%)
Female	65 (83.3%)
Age	
21	9 (11.5%)
22	36 (46.2%)
23	21 (26.9%)
24	7 (9.0%)
25	2 (2.6%)
26	1 (1.3%)
27	1 (1.3%)
Ethnicity	
Malay	40 (51.3%)
Chinese	22 (28.2%)
Indian	6 (7.7%)
Others	10 (12.8%)
Year of Study	
Year 2	14 (17.9%)
Year 3	63 (80.8%)
Programme of Study	
English Language and Literature Studies (ELLS)	9 (11.5%)
Bachelor of Education (TESOL)	20 (25.6%)
English Language Studies (ELS)	6 (7.7%)
English for Professionals	43 (55.1%)
Current CGPA	
2.00 to 2.49	6 (7.7%)
2.50 to 2.99	16 (20.5%)
3.00 to 3.49	35 (44.9%)
3.50 to 4.00	20 (25.6%)
Unspecified	1 (1.3%)
English Achievement Level	
MUET Band 2[1]	1 (1.3%)
MUET Band 3[2]	5 (6.4%)
MUET Band 4[3]	47 (60.3%)
MUET Band 5[4]	12 (15.4%)
MUET (Band unspecified)	5 (6.4%)
IELTS[5]	5 (6.4%)
Others	3 (3.8%)

INTERNAL CONSISTENCY OF SUS ITEMS

Cronbach's Alpha was firstly analysed to determine the strength of the relationship among the items within each SUS scale. The negatively worded items were reverse-coded. From Table 2, it can be seen that the Alpha value is 0.791 which exceeds the conventional 0.70 (Nunnally 1978). Thus, the SUS items in this study are deemed to be reliable.

TABLE 2. Internal Consistency of SUS Items

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	N of Items
0.791	0.794	10

DESCRIPTIVE STATISTICS OF EACH SUS ITEM

The descriptive statistics of each SUS item as shown in Table 3 revealed the following findings. The 7th item of the SUS questionnaire gains the highest mean value, which is the closest to scale '4' (mean = 3.90). This indicates that most students agreed that it would be easy for most people to learn using the MyGraTe app very quickly. As for other positively-worded items, their mean values were found to be in the range between 3.51 to 3.73, which suggests respondents' moderate agreement towards various usability aspects of the MyGraTe app. Specifically, respondents agreed generally that the app was easy to use (mean = 3.73), they felt confident to use the app (mean = 3.66), various functions in the app were well integrated (mean = 3.52), and they would like to use the MyGraTe app frequently (mean = 3.51). Overall, the mean values for all positive usability items ranged from 3.51 to 3.90, suggesting respondents' moderate agreement towards the usability of the MyGraTe app.

As for negatively-worded items, the 2nd, 4th, 6th, 8th, and 10th items, their mean values were found to be between scales 2 to 3, suggesting that most respondents disagreed on the negative aspects of the app. They mostly disagreed that they would need the support of a technical person to be able to use the MyGraTe app (mean = 2.33) and they did not find that the app was very complex to use (mean = 2.35). Some of them somewhat disagreed that the MyGraTe app was unnecessarily complex (mean = 2.62) with too much inconsistency (mean = 2.69), and that they need to learn a lot of things before familiarizing themselves with the app (mean = 2.62). Overall, mean values between 2.33 to 2.69 indicated respondents' moderate disagreement towards the negative usability aspects of the MyGraTe app.

TABLE 3. Descriptive Statistics of Each SUS Item

#	SUS Item (N = 77)	Mean	SD	Skewness	Kurtosis
1	I think that I would like to use the MyGraTe app frequently.	3.51	0.719	-0.460	-0.178
2	I found the MyGraTe app unnecessarily complex	2.62	1.026	-0.295	-0.392
3	I thought the MyGraTe app was easy to use.	3.73	0.853	-1.007	1.656
4	I think that I would need the support of a technical person to be able to use the MyGraTe app.	2.33	1.063	-0.395	-0.778
5	I found the various functions in the MyGraTe app were well integrated.	3.52	0.736	-0.576	0.994
6	I thought there were too much inconsistency in the MyGraTe app.	2.69	0.892	-0.094	-0.380
7	I would imagine that most people would learn to use the MyGraTe app very quickly.	3.90	0.640	-0.216	0.283
8	I found the MyGraTe app very complex to use.	2.35	0.984	-0.430	-0.429
9	I felt very confident using the MyGraTe app.	3.66	0.681	0.028	-0.220
10	I needed to learn a lot of things before I could get going with the MyGraTe app.	2.62	0.952	-0.175	-0.610

OVERALL SUS SCORE

The SUS questionnaire offers a simple formula for researchers to analyse the system or product usability in which the overall SUS score ranges from 0 to 100. Brooke (1996) provided a standard scoring method to calculate for an overall SUS score that turns the raw individual survey ratings into a single SUS score as a measurement for overall usability of a certain system or software for easy interpretation. The higher the score is, the more useful the system or product is perceived to be (Isman Aytekin & Isbulan Onur Isman 2010, Ng et al. 2011). The calculation of the overall SUS score is given by Brooke (1996) as follow. The sum of score contributions from each SUS item was firstly calculated whereby score contributions for positively-worded items, the 1st, 3rd, 5th, 7th, and 9th items, were determined by calculating the scale position minus 1. As for the negatively-worded items, which are the 2nd, 4th, 6th, 8th, and 10th items, score contributions were determined by calculating 5 minus the scale position. Sum of scores was then calculated by summing up these obtained values. Finally, the overall SUS score was calculated by using the formula: sum of scores multiplied by 2.5. The descriptive analysis for the overall SUS score in this study is summarised in Table 4.

In order to interpret the overall SUS score, Bangor et al. (2008) suggested that a good system scores between 70 to 80 points of the overall SUS score while an exceptional one scores 90 or more. If the system scores between 50 to 70 points of the overall SUS score, Bangor et al. (2008) stated it should be judged to be marginally acceptable, while any score less than that is considered as not acceptable. As can be seen from Table 4, the mean SUS score of the usability evaluation of the app is 64.17, median is 65, minimum value is 35, and maximum value is 97.5. These scores indicate that the MyGraTe app was generally perceived by the respondents as marginal at best in terms of its usability. However, Sauro (2011a) explained, the average SUS score obtained from 500 studies is a 68 in which a score that is above 68 is considered as above average and anything below 68 is below average. Therefore, although marginally accepted, the MyGraTe app is slightly below what respondents experienced as average usability, which indicates that the app still has several areas that need to be improved.

TABLE 4. SUS Score Descriptive Statistics

	N	Mean	Median	Min	Max	SD	Skewness	Kurtosis
Statistics	75	64.17	65	35	97.5	12.85	0.142	-0.413

DIFFERENCES IN OVERALL SUS SCORES AS MOBILE EXPERIENCE VARIES

In order to study the effect of user experience on usability, ANOVA test was used to analyse whether there was a significant difference in overall SUS scores as students' experience in using mobile technology varies. As observed from Table 5, the p-value of less than 0.05 suggests that there was a statistically significant difference in overall SUS scores between the three groups of respondents' type of mobile users [$F(2,72) = 3.231$, $p < 0.05$]. Specifically, the overall SUS score is the highest for advanced users (mean = 66.91), followed by intermediate users (mean = 64.4), and significantly least for novice users (mean = 49.38). Therefore, it can be concluded that the higher respondents perceived themselves as a mobile user, the higher the app was perceived as usable by the respondents.

TABLE 5. ANOVA Results

Mobile Experience *(N = 75)*		Overall SUS Score	Std. Deviation	F-test	Sig.
With regard to mobile technology in general, how would you describe yourself?	Advanced user	66.91	12.89	3.231	0.045
	Intermediate user	64.40	12.70		
	Novice user	49.38	1.25		

In addition to the above, t-test was also conducted to study whether respondents' perceived usability differed by their experiences in using other grammar test apps. As can be seen from Table 6, there was no statistically significant difference in overall SUS scores between the 'Yes' and 'No' groups for this item [t-value = 1.230, p > 0.05].

TABLE 6. ANOVA Results

Item *(N = 75)*		Overall SUS Score	Std. Deviation	t-test	Sig.
Have you used any mobile application before for grammar test?	Yes	68.33	12.12	1.230	0.223
	No	63.37	12.92		

Another ANOVA test was also used to study whether respondents' perceived usability was influenced by their mobile device ownership. Results in Table 7 revealed that there was no statistically significant difference in overall SUS scores for each group in mobile device ownership [F(2,72) = 0.122, p > 0.05].

TABLE 7. ANOVA Results

Mobile Experiences *(N = 75)*		Overall SUS Score	Std. Deviation	F-test/ t-test	Sig.
Mobile device ownership	One mobile phone only	63.85	12.91	0.122	0.885
	More than one mobile phones	65.21	11.94		
	Other mobile devices	67.50	24.75		

STRENGTHS AND WEAKNESSESS OF MyGraTe APP

The questionnaire also included an open-ended question that required respondents to provide comments and suggestions about the strengths and weaknesses of the MyGraTe app. According to Albert and Tullis (2013), open-ended questions in usability studies can be helpful in identifying ways to improve the product. The respondents' comments and suggestions on the usability of the MyGraTe app were related to five main themes as explained below:

- Convenient : ease of use and user-friendliness
- Helpful : usefulness of the app in assisting grammar learning
- Effective : success of the app in producing the intended learning outcome
- Accessible : available at anytime and anywhere
- Interesting : fun and interesting elements in the app

Generally, it was mentioned by many respondents that the MyGraTe app was convenient since they found that it was easy, simple, and understandable to use. Respondents also found that the app was helpful and effective in assisting them to test their grammatical level as well as in improving their grammatical knowledge. Moreover, respondents commented that the app provided greater accessibility as they can use it at anytime and anywhere. To them, it is fun and exciting to use the MyGraTe app as a testing tool as compared to the conventional test method. Below are selections of comments and suggestions made by respondents:-

..It is also easy to use with no complex interface. (R32)
It is good because it provides an explanation for each question (R5)
The app would be good for testing a user's level of proficiency. (R2)
It made me to be aware of the neglected grammatical issues that are necessary. (R55)
Students are able to practice grammar daily anywhere and everywhere (R53)
It is more fun and exciting than a pen and paper test (R14)
..Relevant to the technology era. (R40)

However, despite the positive comments on the MyGraTe app, there were also some comments and feedback from respondents which suggest potential areas of improvement of

the MyGraTe app. The most highlighted drawback of the app was pertaining to technical glitches, particularly in terms of time lagging, limited time, lack of compatibility to certain types of mobile phones, and installation failure. Some respondents noted,

> The app is really slow at times. It lags.. (R3)
> Maybe to extend time limit because it took time to read the questions (R7)
> Some Android systems do not support this system. (R51)
> Many people are having problems installing the app. (R69)
> Some phones have a very limited storage capacities. (R78)

Furthermore, some respondents also highlighted the needs to include more questions and extra features in the app to make the app more interesting and usable. As suggested by some respondents,

> Add more questions. (R37)
> I think the feature of this application should include more graphical content and interactive explanation. (R46)
> Provide games about grammar. (R18)
> .. add some other test like vocabulary. (R50)
> Extra notes should/ can be added as an extra feature. (R67)

Therefore, these comments and suggestions provided clear input which suggest that there are several areas in which the MyGraTe App can be improved in order to make it more usable and effective from the users' perspective.

DISCUSSION

This study investigated the usability of a mobile application, namely the MyGraTe App as a tool for ESL students in Universiti Sains Malaysia to test their grammatical level. Therefore, it sought to uncover students' perceptions of the usability of the MyGraTe App and to explore differences in perceived usability as mobile experiences vary. In doing so, the SUS questionnaire was adapted to gather respondents' feedback on the usability of the app after they had installed and tried the app for several times. It can be observed from the descriptive analyses that the MyGraTe App was perceived to be moderately usable by respondents (mean = 64.17; range = 35, 97.5; n = 75). Most respondents somewhat agreed that it would be easy for most people to learn using the app, and thus, they disagreed that the app was very complex to use and that a technical person is needed to support users. Overall, the mean value of overall SUS score fell slightly below 68, which indicated that the app was marginally accepted by them, suggesting that there are still several areas of improvement for the app to be perceived as more usable, particularly in handling technical issues.

A possible factor explaining the moderate usability level could be that respondents only have few experiences with the MyGraTe app since they were given limited time to try out the app and thus, they may not be really familiar with it. This is supported by Sauro (2011b) who explained that a first-time user tends to provide lower SUS scores as compared to those experienced ones. In a similar vein, Orfanou et al. (2015) observed a significant difference in the SUS scores between users with prior experience with the learning system and first-time users. Furthermore, their study also found that the more often students use the learning system, the higher SUS score they provide. Therefore, it is possible that the level of overall SUS score in this study could be higher if the respondents were given more exposures and time to explore the app. Conforming to this, results of t-test and ANOVA test for the second research question found a statistically significant difference in overall SUS scores between each group of mobile users respondents. As showcased by the results, respondents were found to perceive the app more usable when they see themselves as more skillful mobile

users. On the other hand, the app was perceived as least usable by those who believed they have minimum skills and knowledge in using mobile phones.

This study corroborates the results of earlier studies on other learning systems as reported in the literature (Bangor et al. 2009, Thuseethan & Kuhanesan 2014, Rastad 2011). Bangor et al. (2009) explained that scores within the 'OK' range, i.e. between 52 to 72 indicate that they system is okay, but still clearly deficient in terms of perceived usability. Similarly, Thuseethan and Kuhanesan (2014) also reported similar findings whereby the learning management system being evaluated through SUS was found to have weaknesses in terms of its functional, design and technical problems even though most students liked the system and found it very easy to access. In another study that evaluated the usability of personal video recorded by Rastad (2011), the average SUS score was found to be 64. As Rastad (2011) commented, "the system was experienced as 'okay' and that, while not unacceptable, it should be considered a candidate for continued improvement" (p. 33).

The MyGraTe app is still at a prototype level and thus, moderate level of usability is considerably accepted and indicates the need for further improvement. Nieminen et al. (2014) agreed that, for a prototype system with numerous known technical flaws and missing features, marginal value of overall SUS score is acceptable. Kukulska-Hulme's (2007) supported the improvements as pertinently needed in a usability study in which she reiterated that, "usability is typically considered from the point of view of issues or problems encountered by users, but good usability essentially means that learning can proceed without obstacles and might even be enhanced by the availability of certain features" (p. 6). As Kukulska-Hulme (2007) elaborated, "the field of mobile usability is in a state of evolution, as it reflects and, indeed, takes forward some of the developments in the field of usability as a whole" (p.10).

In addition, this study also highlighted some challenges that the developer of MyGraTe app needs to consider in developing the app. Scholars agreed that assessing usability of mobile learning applications would face a diverse set of challenges (Fadhl Hujainah et al. 2013, Kukulska-Hulme 2007, Mostakhdemin-Hosseini 2009). According to Mostakhdemin-Hosseini (2009), the usability of mobile learning applications would need to consider various aspects, including device usability, application usability and content usability. In terms of device usability, our study found that the development of the MyGraTe app faced several challenges and technical glitches, particularly in terms of limited phone capacity and installation failure due to device incompatibility. Jun and Tarasewich (as cited in Fadhl Hujainah et al. 2013) identified five types of challenges relating to device usability that researchers might face during the process, which are mobile context, connectivity, small screen size, different display resolutions, and limited processing capability and power. While commenting on constraints in mobile learning, Matrix (2013) also agreed that, although mobile apps can potentially solve some of the technological problems, they can also introduce new problems.

As for challenges in terms of application usability, students in this study reported on the limitation of the MyGraTe app in terms of time lagging as well as the need to extend the time limit in answering the questions and to add more graphical and interactive features. A study by Al-Khalifa (2010), who evaluated the usability of a learning management system, namely JUSUR, System Usability Scale (SUS) scores, suggested that even though the system was seen as user-friendly and easy-to-use by respondents, they still reported some inconsistency and complexity in the functionalities of the system's application. As for content usability, students in this study mentioned about the need for variety of contents in the MyGraTe app, such as vocabulary test and extra notes. A similar notation on this issue was noted in a study by Asebere (2013) in which the author stated that among of the technological implementation challenges of mobile learning are the smoother delivery of learning content

and the innovations in content creation. Similarly, Matrix (2013) also suggested that supplemental materials should also be provided in the learning app, particularly for those students who are more motivated to go beyond the required readings.

In light of these challenges, it is therefore important for mobile learning providers, researchers and practitioners to consider the provision of technical support to assist students throughout their mobile learning experiences. A study by Chen and Denoyelles (2013) reported that students still need technical support on how to use mobile technologies for learning. There is also a need to facilitate specialised professional development for instructors to plan and develop the learning content to effectively integrate mobile technologies into the curriculum. As suggested by Dahlstrom et al. (2013), technical training and skill development are crucial factors since students perceive both as more important than the technology itself. This requires mobile learning providers to have a clear understanding of the needs to provide more student-centered support and services in order to develop an effective mobile learning environment for language learners.

CONCLUSION

In today's digital ecosystem, mobile learning is increasingly seen as the 'now' technology that revolutionises education and brings dynamic transformation to traditional classroom-based teaching and learning. The interactive features of the MyGraTe app appeal to students especially for English language teaching and learning. Mobile learning has opened up a myriad of learning opportunities for students who need to grasp the rudiments of the language through methods that are 21st century compliant and avail them of the digital age benefit. Nonetheless, it is important to realise that a successful implementation of a mobile learning application would depend on human factors in the use of such an application. Perceived usability is one of the crucial aspects that determine whether it will be accepted or not by users since it affects users' learning effectiveness and experiences.

In the present study, the usability of a mobile application for grammar test, i.e. the MyGraTe app was investigated from the perspective of ESL students in a Malaysian public university by using the SUS questionnaire. As reported above, the usability of the MyGraTe app was found to be at acceptable level. In detail, there was a moderate agreement among respondents about the usability of the MyGraTe app. The study also found a significant difference in overall SUS scores between different groups of mobile users. The advanced ones would perceive the app as more usable as compared to the less advanced group. Moreover, there are several areas where further development actions would be needed, particularly in terms of the technical aspects so that users would perceive it as more usable and effective in supporting their learning of English grammar. Specifically, findings obtained from the open-ended question highlighted some important issues to consider about the use of mobile application for grammar test in English classes. The issues are pertaining to variety of mobile devices, connectivity, phone capabilities, data storage, and lagging problem. Other than that, respondents also highlighted the need to improve the app in terms of its content and appearance, with more questions, interactive elements, and other value-added features so that the app would better suit their learning needs and environment. These findings shed light on the importance of the usability aspect in mobile learning and serve as a reference for measuring the usability of mobile learning applications for English language teaching and learning.

The present study is not without its limitations and caveats. Firstly, the study explored the usability of the app by involving respondents from one public university only. It might be useful if the app is tested by a bigger sample group over a longer field trial period. Secondly, the study only presented the usability data from SUS evaluation. It may also be useful to

investigate the usability of the app from qualitative perspectives such as focus group interviews, system observation, or document analysis, rather than on a quantitative basis only. This is because the complexity in mobile content would require different evaluation process that investigates the issue from many facets of usability. Lastly, there are also certain usability aspects that the present study did not investigate. One which is worthy of exploration for mobile learning research is the efficiency of the application. Therefore, future work of mobile applications for grammar learning could involve more extensive usability assessment by considering these three study limitations.

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ENDNOTE

[1] Limited Proficiency
[2] Modest Proficiency
[3] Competent Proficiency
[4] Good Proficiency
[5] International English Language Testing System

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