

## **M-Learning Module for Self-Directed Language Learning; a Study of Students' Needs Analysis**

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**Abstract:** Self-directed learning has attained significant scholarly recognition as it promotes students to take charge of their learning pace. Thus, the central thesis of this paper is to identify students' needs for a mobile learning module to encourage self-directed learning among students. This study examines the students' needs based on four facets which are hardware, operational platforms, concepts, and learning strategies for the development of the mobile learning module, TutorMe. The needs analysis data were collected by administering questionnaires to 74 students. The results revealed that respondents' preferred hardware was smartphones while the learning management system (LMS) was indicated as the preferred operational platform for TutorMe. The results also demonstrated that the respondents' preferred learning strategy for TutorMe was self-learning and for TutorMe to be used during independent study hours (ISH). The development of TutorMe has provided an important opportunity to advance our understanding of students' needs to encourage students' participation in self-directed learning.

**Keywords:** Self-Directed Learning, M-Learning, Mobile Learning Module, Needs Analysis, Learning Management System

### **1. Introduction**

English language proficiency among Malaysian university students was reported to be unsatisfactory despite spending years learning the language formally in schools (David et al., 2015). This alarming circumstance is reinforced by the Graduate Employability Blueprint 2012-2017 which reported that 54% of Malaysian undergraduates possessed unsatisfactory English language proficiency.

This is concerning as Ting et al., (2017) highlighted that a poor grasp of the English language significantly affects the unemployment rate among graduates. The apprehension towards the poor command of the English language among Malaysian students has been widely highlighted (Kasuma & Wray, 2015; Thurairaj et. al, 2015; Palpanadan et. al, 2019). Therefore, there is an urgent need to boost students' English language proficiency to ensure they can obtain the best employment opportunities in the employment sector (August & Shanahan, 2017).

Embracing 'learner autonomy', as highlighted in the English Language Education Reform in Malaysia; The Roadmap-2015-2025, to guarantee better success in language learning, is an initiative taken by the Ministry of Higher Education to encourage students to take charge of their learning (Ramamurthy & Rao, 2015). The influx of technology and globalisation has accentuated the necessity for improved English language proficiency among Malaysians to facilitate students to acquire 21<sup>st</sup>-century skills competitively (Azman, 2016). Recent development has heightened the need for English as Second Language (ESL) instructors to recognise and organise relevant technologically enhanced learning resources, which can assist the students to become self-directed learners. In line with the advancement of technology, self-directed learners are able to, regardless of place and time, get connected and learn through mobile devices and the Internet (Tan & Koh, 2014). Nevertheless, it has to be pointed out that students must be visibly guided by language instructors or more competent learners to facilitate meaning construction (Schmidt & Wehmeyer, 2016). Therefore, higher learning institutions in Malaysia are motivated to embolden learner autonomy in numerous language programmes through the introduction of self-directed learning using technology (English Language Education Reform in Malaysia; The Roadmap (2015-2025)).

Ganapathy (2015) indicated that leveraging technology-enabled models is effective in stimulating more tailored learning and promote self-directed learning in classrooms. This is because teaching 21<sup>st</sup>-century students involves adaptive and technological induced methods by the educators. Hence, educators in Malaysia are embracing varied technological learning environments and mechanisms to mould competitive graduates. Thus, a transformation is essential for Malaysian students, from being supplied with assistance and information that the students do not need to think on their own, to accepting the concept of self-direct learning.

### 1.1 Needs Analysis

Needs analysis is an essential preliminary stage in the creation of a technology-oriented module that encourages students in becoming self-directed learners. Widodo (2017) stresses that needs analysis provides numerous functions which encompass lesson planning, syllabus design, materials evaluation and development, and instructional design and assessment development. Needs analysis is a standard procedure involved in the development of many language programmes. Hutchinson and Walters (1987) view needs analysis as a preliminary characteristic in assessing the nature of English that learners need to learn. Through needs analysis, educators are capable of distinguishing the specific needs of learners before and during a particular course.

Previous studies on needs analysis in improving students' English language proficiency has been extensive. Wu and Lou (2018) examined 80 first-year Chinese chemical engineering and technology students' needs for a language programme by employing surveys and interviews. They revealed that (1) the students' language proficiency level was average; (2) listening and speaking were ranked as the most important language skills; (3) understanding instructions, following question/answer sessions, answering the questions, reading field-related textbooks, instructions for assignments, taking notes in lectures were emphases; and (4) positive responses toward the needs. The findings from the needs analysis are crucial for creating a solution to address these issues. In a similar vein, Hidayatullah (2020) used the result of needs analysis to develop the syllabus and instructional materials for midwifery students. Revisions and suggestions from students were incorporated to improve the instructional materials. This study cements the criticality of needs analysis in the development of materials to assure students be more engrossed in learning.

Menggo et al., (2019) investigated the types of learners' target needs and learning needs in the academic English-speaking course for material development. A total of 312 English department

students from six universities in three Indonesian provinces were involved in this investigation. Questionnaire and in-depth interviews were utilised, and the data were then analysed using an excel chart data series. The results from the needs analysis reported that the learners' target needs are necessities, lacks, and wants. In addition, the learning needs cover input, procedure, setting, and learner's role. In this study, students' wants signposted that material design should possess the capability in promoting 21<sup>st</sup>-century skills. This study has provided evidence that educators adapt their instructional materials based on need analysis.

In the Malaysian context, Zuhodi and Yunus (2018) surveyed 50 students' needs in utilising a blended learning module on L2 grammar. The students' needs analysis was explored prior to the implementation of the module. The findings highlighted that these students require comprehensive online modules which can be used without technical glitches. Similarly, Nasir and Ismail (2016) denote that students' needs for online forums encourage self-directed learning. Hence, this study concludes that needs analysis is an essential first stage prior to a module development to ensure the students' needs are aligned with the module functions.

## 1.2 Mobile Learning

Moser (2016) characterised mobile learning (hereafter referred to mLearning) as the implementation of mobile technologies to assist and to support learning, anywhere and anytime. mLearning can also be described as any activity that permits individuals to be more dynamic when using, interacting with, or establishing information, being mediated via a compact digital portable device that they carry constantly (Ciampa, 2014). Mupfiga et al., (2017) have highlighted that mLearning is the result of the intersection between mobile education and eLearning, and amongst popular mobile devices being used in mobile-assisted language learning classrooms are laptops and smartphones.

Ojokoh et al., (2016) have listed the benefits of the implementation of mLearning which include students need not waste their time copying notes written on the whiteboard. At the same time, the students can proceed with their individual activities without having to disturb their course mates who may have other needs. In addition, with the implementation of mLearning, educators can provide examples that can be accessed at a specific time to improve the level of retention among students. Dashtestani (2016) draws our attention to the distinct benefits of mobile-assisted language learning were also highlighted, including (1) opportunities for ubiquitous learning, (2) access to the Internet, (3) use of multimedia in the classroom, and (4) portability. In addition, most of the students in this study owned smartphones and laptops and showed interest in using these two mobile technological devices for learning English.

Pimmer et. al (2016) indicated that mLearning is increasingly attracting academic and public interest, particularly pertaining to its use in the higher education environment. In accordance with the current attention in the world of education, several studies were conducted to investigate the students' and lecturers' perceptions of mLearning globally. A research was conducted to explore 100 university students' preference in using PC (personal computer) and mobile phones (Bibby, 2013). The research revealed that students preferred using mobile phones when learning as compared to PC which indicates that students are prepared to 'go mobile' in their learning. These findings support Park and Slater (2014) who underlined that the learners in their study had already used a variety of mobile device functions to learn English. However, they stressed that educators themselves require assistance in understanding the mobile application. By doing so, it will assist them to maximise the benefits of mobile-assisted language learning.

Soleimani and Mustaffa (2014) investigated the extent of acceptance of mobile-assisted language learning among Malaysian postgraduate and inferred that most of the students felt that mobile-assisted language learning is (1) convenient, (2) practical, and (3) easy in helping these students to improve language learning. These researchers had also suggested that educators and curriculum designers should think of ways to make use of mobile devices for autonomy and collaboration. These findings corroborate Hashim et. al (2016) which links positive attitude among language learners and mobile-assisted language learning. In view of all that has been mentioned so far, the results justified the need

to integrate the use of mobile technology devices as a learning support for language learners to enhance their language proficiency.

### 1.3 Self-Directed Learning

Traditionally, the process of teaching and learning is expected to be conducted using a particular textbook, and the teacher plays the primary role of providing all the information to the students (Tomlinson, 2014). However, this conventional learning method has been criticised as a limited and restricted view of the learning process (Collins & Halverson, 2018) This is because learning does not finish outside the boundaries of the classroom walls. Ideally, these learners should conduct as much learning process as possible outside a formal classroom (Fraser, 2015).

Self-directed learning is not considered a novelty in the field of learning (Marsick & Watkins, 2015). Self-directed learning is a concept that has been extensively implemented by autonomous learners. As the creator of this prominent idea, Knowles (1975) defines self-directed learning as a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. Self-directed learning allows each individual to take the initiative and the accountability for things that will happen. Individuals choose, organise, and evaluate their personal learning activities that can be done at any time, in any place, via any means, at any age (Saeid & Eslaminejad, 2016). In the context of language learning, self-directed learning, according to Grover et al., (2014), is when the instructors nurture behaviours that assist their students to advance their language proficiency outside the classroom. By fostering the ability to be self-directed, it can primarily help these students to take ownership of their learning. In the context of this study, self-directed learning is limited to 'self-learning' or 'independent learning'.

Abe (2016) has highlighted the encouraging influence of the use of technology among self-directed foreign language learners in comprehending foreign reading materials. Comparable to Abe (2016), Mendieta et al., (2015) have also investigated the effect of Collaborative Strategic Project (CSR) on students' reading comprehension skills. The results of the study indicated that the use of CSR positively impacted participants' learning attitudes and habits. After reviewing these problems together with the potential to stimulate self-directed learning through the use of technology, there is an urgent need to outline a set of design principles in establishing a mLearning module for self-directed learning. Hence, this research was carried out to analyse the primary needs of ESL students toward a mLearning module, TutorMe.

## 2. Materials and Methods

This study employed a quantitative approach to determine students' needs for a mobile learning module. Questionnaires were distributed to identify students' needs for the mLearning module, TutorMe. The questionnaires contained 23 items that were adapted using elements suggested by Noah and Ahmad (2005) and Dahaman (2014) which include the concept, learning strategies, logistics - technological tools and media - operational platform. The questionnaire employed a 4-point Likert scale that ranges from 1 (strongly disagree) to 4 (strongly agree). The questionnaire was distributed after rigorous checking and a pilot study to ensure the questionnaire did not contain any ambiguous items. Purposive sampling was employed in the selection of the respondents of this study. The respondents must fulfil two criteria. The first criterion is that the respondents have registered for the English for Academic Survival Skills (UHB10302) course. This course was chosen as TutorMe was developed to cater to the students in this course as this course encompasses teaching all four language skills (listening, writing, reading and speaking). In addition, the students of this course have yet to be supplied with a module. The second criterion is that the respondents have obtained C+ and below for their English in Sijil Pelajaran Malaysia (SPM), a university entrance exam held annually in Malaysia. Students' data were obtained from the Academic Management Office of the research setting to ensure the selected respondents fulfil the stipulated criteria. Thus, the questionnaires were administered to 74 respondents who fulfilled the criteria. Subsequently, data analysis was conducted using MiniTab and the data were reported descriptively.

### 3. Results and Discussion

#### 3.1 Results

The first section of the questionnaire required respondents to give information on three characteristics as part of the demographic analysis. The characteristics analysed are respondents' English Sijil Pelajaran Malaysia (SPM) grade, level of ICT skills, and ownership of mobile technological devices. The demographic profile of the respondents is summarised in Table 1.

**Table 1: Demographic profile of respondents**

Item	Description	Frequencies	Percentage (%)
English SPM Grade	C+	26	35
	C	20	27
	D	24	32
	E	4	5
ICT Skills	Not Competent	0	0
	Fairly Competent	33	45
	Competent	37	50
	Very Competent	4	5
Ownership of Mobile Technological Devices	Smartphones	74	100
	Broadband/Mobile Data	74	100
	Laptop	68	92
	Tablet	5	7
	Netbook	0	0

Table 1 reported that a majority of respondents attained C+ (35%) while only 5% attained E for their English SPM. The data in Table 1 also established that 33% of the students were fairly competent in ICT and 50% were competent in ICT. Only 5% of them were very competent in ICT. Their ICT skills were considered before 'TutorMe' was implemented because they were the primary users of mLearning module. It is very apparent in Table 1 that all students owned a smartphone and 92% of them owned a laptop. This shows a very large possibility that students own multiple technological devices. Also, the table highlighted that only 7% of the students owned a tablet, but none of them owned a netbook. The data also showed that all students subscribed to broadband/Internet service. This subscription can possibly translate to students' readiness to use TutorMe for daily learning.

Table 2 presents the mean, standard deviation, and interpretation of the preferred hardware for TutorMe. From the table, it can be observed that the students view laptops, netbooks, smartphones, and tablets were relevant devices to obtain access to TutorMe. The result demonstrated that smartphones obtained the highest agreement (mean=3.56, SD=0.52), while netbook obtained the lowest agreement (mean=3.08, SD=0.75). Data from Table 2 can be compared to Table 1 as the results between these two tables match.

**Table 2: Suggested mobile technological hardware for 'TutorMe'**

Mobile Tech Devices	Mean	SD	Interpretation
Smartphones	3.56	0.52	High
Laptops	3.50	0.50	High
Tablets	3.17	0.69	High
Netbooks	3.08	0.75	High

The following Table 3 depicts the mean, standard deviation, and the interpretation of the preferred operational platform for 'TutorMe'. Most items gained high mean values such as LMS (mean=3.33, SD=0.52), e-mail (mean=3.11, SD=0.64), and blog (mean=2.89, SD=0.54). The items with moderate mean value were instant messaging application (mean=2.36, SD=0.690) and website (mean=2.26, SD=0.49). The results indicated that the students selected Learning Management System as the preferred operational platform for 'TutorMe'.

**Table 3: Preferred operational platform for 'TutorMe'**

Operational Platform	Mean	SD	Interpretation
Learning management system (LMS)	3.33	0.52	High
E-mail	3.11	0.64	High
Blog	2.89	0.54	High
Instant messaging application	2.36	0.69	Moderate
Website	2.26	0.49	Moderate

Table 4 below highlights the mean, standard deviation, and the interpretation of the preferred concepts of 'TutorMe'. All items listed in this section obtained a high mean value. The results demonstrated the highest agreement for TutorMe to be used during Independent Study Hours (ISH) (mean=3.25, SD=0.48) while the lowest agreement was for TutorMe to be used as a compulsory module of the course (mean=3.02, SD=0.46).

**Table 4: Preferred Concepts for 'Tutor Me'**

Concept	Mean	SD	Interpretation
To be used during Independent Study (IS) hours	3.25	0.48	High
To be used during tutorial sessions of the course	3.22	0.47	High
In line with the syllabus of the course	3.14	0.47	High
Specifically designed for self-directed learning	3.14	0.54	High
To be used as a compulsory module for the course	3.02	0.46	High

As listed in Table 5, nine items were used to examine students' preferred learning strategies for TutorMe. Overall, the mean values of all strategies were high. The most preferred learning strategy among the respondents was self-learning (mean=3.44; SD=0.50) while the least preferred learning strategy was the drill strategy (mean=3.01; SD=0.59). Although drill is the least preferred learning strategy, the mean value was still considered high. Discussion (mean=3.37;SD=0.49) and lecture (mean=3.32, SD=0.49) also obtained high agreement from the respondents as suitable learning strategies for TutorMe.

**Table 5: Preferred learning strategies for ‘TutorMe’**

<b>Learning Strategies</b>	<b>Mean</b>	<b>SD</b>	<b>Interpretation</b>
Self-learning	3.44	0.50	High
Discussion	3.37	0.49	High
Lecture	3.32	0.49	High
Step-by-step	3.30	0.51	High
Problem solving	3.30	0.55	High
Scaffolding	3.20	0.48	High
Questioning	3.20	0.55	High
Project	3.09	0.63	High
Drill	3.01	0.59	High

#### 4. Conclusion

This study sets out to identify students’ needs in the development of mLearning module for students to improve their English language proficiency. This study identified that LMS is the preferred operational platform for ‘TutorMe’. Joksimović (2015) stressed that LMS can be implemented as means of interaction that has been demonstrated to influence the learners’ learning outcomes positively. Via this platform, the students would be able to communicate with their lecturers and more competent course mates. Learning management systems (LMS) are denoted as an intelligent solution utilised by educators. This system proposes clarifications that extend the limitations of traditional learning methods. LMS is a software-based platform that simplifies the process of managing, delivering, and measuring a learning programme. With the new development in learning technology, LMS delivers better-quality data collection activities and supports activities such as mLearning. It is also a platform that supports an active learning environment among students (Emelyanova & Voronina, 2014). At the same time, LMS has been verified as a platform that promotes a constructive approach for knowledge acquisition. Yuan et al. (2013) stressed that the learning platform has the capability to become an accessible and adaptable learning environment. LMS provides knowledge sharing and community-building opportunities that can support both critical thinking and higher-order learning skills through conversation and collaboration (Zanjani et. al, 2016).

This study has also established that students prefer to utilise smartphones as the hardware to engage in TutorMe. The present finding mirrors Dashtestani (2016) who has also reported that students; prefer to employ smartphones in mLearning. This finding is further endorsed by Sarrab et. al (2014) who indicated that the implementation of mobile devices in ESL learning has influenced the education field and prompted the development of mobile education and electronic learning (eLearning). Mupfiga et. al (2017) have also highlighted laptops and smartphones are the most widely used devices by students in engaging mobile learning (Huang, 2014; Ge, 2015). The findings of this study also aligned with Bibby (2013) who revealed that students preferred using mobile phones when learning as compared to personal computers which indicate that students are prepared to ‘go mobile’ in their learning.

The third primary finding of the needs analysis is that students prefer to use the mLearning module, TutorMe during their independent study hours (ISH). This aligns with the preferred learning strategy reported in Table 5 which was self-learning. Although self-directed learners are not supposed to learn on their own, the students believe that self-learning would provide them the opportunity the learn at

their own pace and build an environment that allows them to make mistakes and without fearing negative evaluation (Rana et al., 2016; Song & Bonk, 2016; Kranzow & Hyland, 2016). As depicted in Table 5, the overall high mean values of all the learning strategies, especially self-learning, shows the students' agreement with the recommended learning strategies that are consistent with various learning theories such as social constructivist theory, scaffolding theory, and the interaction hypothesis. These findings also infer that students are prepared to incorporate the mobile learning module, TutorMe and have a very clear perception of their wants in TutorMe.

This present study has extended our knowledge on the criticality of needs analysis in the development of the mobile learning module, TutorMe. A key strength of this study is the identification of needs for a mLearning module among students who possess low English language proficiency. Hence, this study has fulfilled the primary objective which is to identify students' needs prior to the development of TutorMe. Finally, a number of important limitations need to be considered. The most important limitation lies in the fact that TutorMe was developed for students who are completing the English for Academic Survival Skills course, thus, the results from this needs analysis are not generalisable to students from other language courses. Secondly, this study did not incorporate the course educators' perspectives in the development of TutorMe. This study recommends future studies to use methods such as surveys and interviews to gather their perspectives which can deepen our understanding of students' needs in creating more comprehensive content for TutorMe.

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