THE USE OF HANDHELD MOBILE DEVICES: AN EXPLORATORY STUDY OF ENGLISH LANGUAGE STUDENT EDUCATORS

by

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DECLARATION

I, **MAMAROBA SYLVIA LEDIGA** declare that the mini-dissertation entitled '**THE USE OF HANDHELD MOBILE DEVICES: AN EXPLORATORY STUDY OF ENGLISH LANGUAGE STUDENT EDUCATORS**' hereby submitted to the University of Limpopo, for the degree **MASTER OF ARTS IN ENGLISH STUDIES** has not previously been submitted by me for a degree at this or any other University. I further declare that all sources cited or quoted are indicated and acknowledged by means of a comprehensive list of references.

…….. **…….**

LEDIGA, M S **DATE**

DEDICATION

This study is dedicated to

- My mother Manoko Lediga; my son, Shaun, and my siblings, Mokgaetji, Lina, Mogaleadi and Lesibe.
- To my late father, Kau Lediga; my fiancée Themba Maluleke and my nephew, Karabo Lediga. May your beautiful souls rest in eternal peace. Your generosity and love will always be remembered.

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- My mother, son and siblings for their unwavering support at all times.
- The University of Limpopo second level student educators for assenting to participate in the study.
- My friend and colleague, Mr M Z Maponya for his words of encouragement and pushing me to work harder.

ABSTRACT

This study explores the use of handheld mobile devices in the learning and teaching of English language. The problem is that students have to stand in long queues at computer laboratories because the space is limited and they have to take turns in using the computers. Second level English student educators participated in the study; they responded to a questionnaire and sat for test on the use of mobile handheld devices. The study is underpinned by the integration of the Activity Theory and Social Constructivism. The solution is that mobile handheld devices can be used to provide access to learning material and just-in-time information outside and inside the formal class time and space because findings of the study show that almost all second level student educators at the University of Limpopo possess and use handheld mobile devices.

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CHAPTER 1

INTRODUCTION

1.1 THE PROBLEM DEFINED

Technology has arguably changed the way students learn and educators teach in the 21st century. This, therefore, places a premium on the role of technology in English language learning and teaching since the advent of computer technology. However, the use of technology in education remains an important issue today, considering the implications of quick and easy online access to information for knowledge and learning, as well as the effect of technology on learners' development. This is fertile ground for exploring the use of handheld mobile devices in the learning of English.

In line with the above, handheld computers are becoming an increasingly compelling choice of technology for teaching and learning in classrooms. This transition is driven partly by the relationship between cost and the student-computer-ratio. With desktop technology, the cost is high, and computer resources need to be shared among students. Large screen size computers may be useful, but come at significant costs. By comparison, handheld computers are more affordable, making a one on one student-computer-ratio and ready at hand computing feasible because of their smaller physical size (Rochelle & Pea, 2002: 146).

Furthermore, students bring their personal mobile devices to schools as well as universities. These devices are students' familiar, everyday tools and are becoming their first choice for accessing the Internet and making use of communication services (Lundin, Lymer, Holmquist, Brown & Rost, 2010: 5; Melton & Kendall, 2012: 7). Given the high ownership rate, it seems logical to explore opportunities to use students' mobile technology for learning (Fritschi & Wolf, 2012: 22). It is against this background that the use of mobile handheld devices by University of Limpopo (UL) English First Additional Language (EFAL) student educators will be explored. The UL is a historically disadvantaged institution (HDI) admitting mainly students from rural areas.

The University of Limpopo is the former University of the North (UNIN). It falls into the Black or Homeland category and was established in 2005 (Ngoepe, 2007: 6). This HDI also experiences poor computer-student-ratio and station-based computer usage.

Thus, this experience provides a fertile ground for exploring the use of mobile handheld devices in learning and teaching.

Currently, computer laboratories are set up with twenty or more computers in each room, to provide some experiences in computer-based learning. However, students do not always have access to these computers because of overcrowding in the laboratories. They have to wait in long queues to have access to the computers. The practice guarantees occasional use, and as a result, a challenge to integrating it with other learning materials. This further limits the optimum overall use of computing in education. Thus, if an instructional resource such as a handheld mobile device is used infrequently, it is unlikely to have a large effect (Rochelle & Pea, 2002: 146).

In a bid to overcome this problem of poor computer-student ratio and station-based computer usage in institutions of learning, it has been observed that some relatively advanced institutions have introduced the teaching and learning of English using handheld wireless computers. These handheld devices are deemed relatively inexpensive and learners can each have one, and use them on an anywhere-anytime basis (Crowe, 2004: 160).

It is also envisaged that these hands-on classroom tools with the ability to access the networks would motivate students to actively engage in learning and that their use could encourage the kind of independence and autonomy that many educators agree is important for learners to achieve in their learning. Besides effective technology integration, the quality of student educators' experiences with computer technology is also important, because it affects their attitude towards personal technology use and consequently, technology integration in their teaching (Crowe, 2004: 159; King, 2012: 36). Such experiences are also essential for the edification of EFAL student educators at UL.

Moreover, technology has increasingly become an integral part of students' lives, to such an extent that it seems unusual to even think of doing the simplest activity without using it. It has also become an integral part of some of UL's students' lives. The proposed study envisages exploring whether EFAL student educators use handheld mobile devices for learning and teaching purposes. The UL also experiences poor computer-student ratio and student-based computer usage. That some EFAL student educators own handheld mobile devices augers well for this study.

1.2 PURPOSE OF STUDY

The aim of this study is to explore the use of handheld mobile devices by English language student educators.

Objectives of the study are:

- to explore the use of handheld mobile devices in the learning of EFAL by UL student educators.
- to examine the use of handheld mobile devices in the teaching of EFAL by UL student educators.

1.3 METHOD OF RESEARCH

- Literature on handheld mobile devices in general as well as the use thereof will be surveyed.
- In line with an exploratory research design, a questionnaire and a test will be used to explore the use of handheld mobile devices in the learning and teaching of English by student educators.

1.4 PROGRAMME OF STUDY

Chapter 2 discusses the literature review in terms of core topics and key issues that have a bearing on the title of this study.

Chapter 3 deals with the research methodology regarding an exploratory design premised on an integration of activity theory and social constructivism.

Chapter 4 presents results of the study and analyses the data collected.

Chapter 5 concludes the study and makes recommendations for future research.

CHAPTER 2

THE SIGNIFICANCE OF HANDHELD MOBILE DEVICES IN ENGLISH LANGUAGE LEARNING AND TEACHING

2.1 INTRODUCTION

Handheld mobile devices can revolutionise the learning and teaching of English language at institutions of higher learning. English language learners and educators are likely to benefit from the use of the devices. Such an experience could be cost-effective for educational institutions, funders, parents, guardians as well as students themselves. The aim of this chapter is to discuss handheld mobile devices, historical development of handheld mobile devices, mobile learning, English language student educators at the University of Limpopo, types of devices, rationale for integrating Activity theory and Constructivism theory, uses of handheld mobile devices, advantages and disadvantages of using handheld mobile devices as well as handheld mobile devices and communication.

2.2 HANDHELD MOBILE DEVICES

Handheld mobile devices are small devices that are considered on-the-go computers. They are much smaller and cost less. The mobility of these handheld devices allows them to offer the same guarantee that made browsers popular with the users. They can normally retrieve wireless internet signals and can be used to surf the web. They can also be used as a calculator, word processor and so on. Presently, mobile handheld devices have increased in functionality within lecture halls and are used as teaching and learning tools (Traxler, 2007: 4). By extension, handheld mobile devices can also be used as tools in English language classes.

Successful learning is always effective learning. For learning to be effective, it needs to be student-centred, knowledge-centred, assessment-centred and community-centred (National Research Council, 1999). These four characteristics of effective learning indicate that learning is not an individual journey; it is rather an individual enterprise that is achieved with environmental and community support (Nordin, Embi, Yasin, Rahman & Yunus, 2010: 132). Thus, handheld mobile devices can enrich the English language learning environment as well as the English language academic community.

One way students are more self-directed in their learning is through mobile devices. As learning experiences and preferences of today's learners' change, more and more learning occurs outside of traditional settings. With the increased availability of computing devices, and the internet, learning can happen almost anywhere (Pew Research Centre, 2015). So should learning happen almost anywhere regarding UL EFAL student educators with increased computing devices such as the handheld mobile ones.

Nordin, *et al*., (2010: 131) note that since contemporary students are always on the move, their learning must adapt to their mobility. Similarly, the learning of UL EFAL student educators on and off campus should adapt to their mobility.

Furthermore, 'mobile', in the context of mobile devices, refers to the portability of these devices and how easy it is to transport them from one place to another. The concept of mobility also suggests that the devices and their operating technologies have been designed for personal rather than shared usage (Naismith, Lonsdale, Vavoula & Sharples, 2004: 2).

One of the most valuable features of mobile phones is that they can be used at any time or at any place. Students and lecturers can use the mobile phones in situations in which a computer is not available to complete their preparation for class or their homework. They can also undertake these operations while waiting in queues, travelling by train or bus, or at any other interval of spare time during the day or night (Virvou & Alepis, 2005: 53).

In addition, Kumar *et al*., (2010: 24) argue that mobile devices such as cell phones are a good vehicle for making educational opportunities accessible to rural children in places and times that are more convenient than formal schooling. A 26-week study was conducted to investigate the extent to which rural children would voluntarily make use of mobile devices like cell phones to access educational content. The results showed a reasonable level of academic learning and motivation. Further, Koole (2009: 23) asserts that there is a tremendous scope for learning with mobile devices. Hence, a framework to assist practitioners in designing activities appropriate for mobile learning was developed.

According to Kam, Kumar, Jain, Mathur and Canny (2008: 21), cell phones are increasingly adopted in the developing world, and an increasing fraction of these phones feature multimedia capabilities for gaming and photos. These devices are a promising vehicle for out-of-school learning which can complement formal schooling. In particular, learning English as a Second Language (ESL) by playing games on cell phones present an opportunity to dramatically expand the reach of English learning, by making it possible to acquire ESL in out-of-school settings that could be more convenient than the school one.

Ally (2009: 2) points out that rather than acquiring another technology to receive learning materials, people throughout the world will want to access learning materials on their existing mobile devices. As a result, educators and trainers must design learning materials for delivery on different types of mobile devices. The nomadic learner and worker who travel frequently from place to place will similarly use mobile technology to access information and learning materials from anywhere and anytime.

Moreover, Salem (2006: 187) argues that the impact of information and communication revolution did not stop an e-learning model that uses wired technologies in education, but has produced a new model that is considered a new quantum leap after e-learning, which could be described as mobile learning. Mobile learning depends on applying wireless technologies in education, such as Mobile phones, Personal Digital Assistants (PDAs) and Tablets PCs. This study, therefore, sets out to determine whether UL EFAL student educators can access information anywhere and anytime from their mobile handheld devices.

In addition, learning assisted by mobile devices, also known as Mobile Assisted Language Learning (MALL) is an approach to teaching and learning of the English language that is promoted and aided by the use of mobile handheld devices. It is a branch of teaching and learning assisted by the computer (Valarmathi, 2011: 2). This could be described as the learning of English language which depends on mobile phones and wireless devices such as smartphones and tablets. The UL student educator's environment augurs well for exploring the use of handheld mobile devices in the learning and teaching of EFAL.

2.3 HISTORICAL DEVELOPMENT OF HANDHELD MOBILE DEVICES

Mobile phones, smartphones, tablet computers, eBook readers, personal digital assistants (PDA), and other similar devices can all be defined as mobile devices. A mobile device can be defined as a small touch display or a small keyboard for text input (Kukulska-Hulme, Sharples, Milrad, Arnedillo-Sánchez & Vavoula, 2009: 25). Although handheld devices have been available commercially since Apple computer released the Apple Newton MessagePad in 1993, Palm Inc. released the Palm Pilot in 1996, and Microsoft Corporation released the Tablet PC in 2001. However, handheld mobile devices were not very popular and did not have a significant impact in the education market because they were technically ahead of their time (Runnels & Rutson-Griffiths, 2013: 278).

The Newton was the first PDA to be released commercially and included basic software programmes for personal data organisation and management. When it was first released, it generated a lot of excitement among computer enthusiasts. However, it never became commercially successful. One of the main problems was that it used handwriting recognition as the main method of text input but it was highly ineffective. The character recognition problems were initially so severe that it contributed to the unpopular image of the device. Although the software substantially improved, it was not enough to keep the device alive. The last Newton product was sold in 1998 (Honan, 2013: 34).

Palm computer released its first PDA in 1996 and Palm Pilot the following year. Three years after the Newton was launched, the Palm Pilot sold millions of units over a ten year period subsequent to the launch. Although similar to the Newton, the Palm device was smaller, easier to use and had a better handwriting system. It was also cheaper and could easily connect to a computer. Due to its popularity, mostly among business managers, journalists and educators, a large number of applications were released to the device, making it a versatile handheld computing platform. It was good for accessing contact information, word processing, spreadsheet and database programmes. Eventually, the popularity of cell phones changed the market dynamics and the Palm evolved into a smartphone platform. Its popularity continued to increase until 2007 when

the iPhone was released by Apple Computer. By this time, the Palm Operating System (POS) was getting outdated and could not compete with the iPhone (Arar, 2009: 3).

The iPhone was released by Apple Computer in summer of 2007 and soon became a leading device in the cell phone market. The popularity of the cell phone was such that it became easier for most people to have one and it soon became apparent that not only adults but also children wanted to have them. A growing number of education-related applications were released and educational institutions became interested in using this mobile device as a learning tool. This was a significant event for the language learner because of the ability of users to listen to podcasts, watch videos and read text on a handheld device for the first time. The first iPad was released in 2010. The iPad could now be used by both educators and learners not as audio and recording tools, but as an eBook reader (Banister, 2010; Ockert, 2014).

According to Apple, 2015; Arar, 2009; Honan, 2013, a summary of the historical timeline of development of mobile devices is as follows:

Device	**Year**	**Comment**
Newton Message Pad	1993	First PDA on the market
Palm Computing	1996	First commercially successful PDA
Microsoft Tablet PC	2001	First tablet on the market
Apple iPod	2001	First commercially successful MP3 player
Apple iPhone	2007	First smartphone from Apple-iOS released
Apple iPod Touch	2007	First non-phone PDA from Apple
Amazon Kindle	2007	First commercially successful eBook reader
Google Android OS	2008	First serious competitor to Apple iOS
Apple iPad	2010	First commercially successful tablet computer
Apple iPad Mini	2012	First small tablet computer from Apple

Table 1: Historical timeline of handheld mobile devices

2.4 TYPES OF DEVICES

Types of handheld mobile devices include smartphones, tablets pcs, IPhones and IPADS.

2.4.1 Smartphone

A smartphone is a portable mobile phone that includes advanced functions beyond making phone calls and sending text messages. Most of the smartphones have the ability to display photos, play videos, check and send e-mail, and browse the internet. A smartphone is a phone that runs an open operating system which is permanently connected to the internet. This could refer to mobile phones that combine the characteristics of mobile phones and properties of wireless computers and can download applications and browse the web (Litchfield, 2010: 1).

2.4.2 Tablet PC

A Tablet PC is a computer for general purposes joined in a single panel, and its distinctive characteristic is the use of touch screen as input device. It is defined as a tablet computer that is portable by hand and the screen operates by touch. It is supported by wireless networks such as Wi-Fi, 3G and 4G and is available to access internet through them, download applications and browse the net. The touch screen and multi-display mode make the experience on a tablet different from the laptop, which reaches an arm length. The possibility of supporting a tablet computer for learning is considered big (Quinn, 2012: 8).

2.4.3 IPhone

An IPhone is a smart phone manufactured by Apple Inc., and includes the following three products: developed mobile phone, iPod wide-screen touch control, and a connection to the internet that support web browsing, search, e-mail and maps, all in one handheld device, small size and light. The iPhone provides great services in supporting learning languages, especially learning English language for its obvious importance in various purposes. There are many applications in the Apple’s App Store that help to learn English, some paid and some for free. There is also the application of

audio and visual media services Podcast provided by specialists in teaching English as a foreign language (EFL) or English as a second language (ESL) in the form of a series of lessons and different periods which anyone can see at any time and any place (AlShareef, 2015: 82).

2.4.4 IPAD

The IPAD device connects easily with the Internet, enabling it to perform many different functions. When combined with wireless connectivity, it makes it possible for learning activities to be monitored and coordinated between locations (Kukulska-Hulme & Traxler, 2005: 2). This would be ideal for UL EFAL student educators, especially those staying off-campus and those from rural areas.

2.5 MOBILE LEARNING

Various definitions can be found in literature on mobile learning from spatial, technical to context driven perspectives. However, they all mainly focus on the notions of mobility and wireless ability. If one separates ‘mobile learning’ into the concept of ‘mobile’ and ‘learning’, the learning aspect is the most important concept in the developing world. The computing device just happens to be mobile (Ford & Leinonen, 2009: 196).

According to Mockus, Dawson, Edel-Malizi, Shaffer, Sung and Swaggerty (2011: 5), mobile means “on the move” and refers to mobile devices that are portable or mobile, can access internet whenever and wherever a learner is away from a computer. These devices are always on the move. Further, when the word ‘learning’ is appended to the definition, it then refers to ‘knowledge on the move’ where mobile learning could include acquiring knowledge while, for example, commuting or waiting at a specific location or event.

Moreover, Naismith, *et al*. (2004: 2-4) argue that the following six types of learning can be undertaken with the use of handheld mobile devices: behaviourist, constructivist, situated, collaborative, informal and lifelong, and learning and teaching support.

2.5.1 Behaviourist

Computer aided learning can present a problem and then help the student to find the solution (see Appendices A and B). For example, instant feedback from the system can reinforce English language learning.

2.5.2 Constructivism

Students are encouraged to be active in the construction of their personal knowledge and skills. The students' mobile phones that enable them to operate in real life, are also used as tool in the acquisition of their learned knowledge (see Research Methodology).

2.5.3 Situated

Since mobile phones can be used in a context-aware environment, they can also be used to enhance learning activities in different situations (see UL Student Educators). These situations include the anywhere and anytime ones.

2.5.4 Collaborative

In this type of learning, mobile phones do not replace important human-to-human interactions but provide other ways of collaboration (see Appendix A). The EFAL student educators should be encouraged to collaborate across levels as well as across campus.

2.5.5 Informal and lifelong

Mobile phones permit embedded learning to take place in everyday life, and they become a source of information and support. The devices can facilitate embedded EFAL learning as information could be accessed anywhere and anytime.

2.5.6 Learning and teaching support

Lecturers can use handheld mobile devices to communicate with their own students. They can also use them to record attendance, marks and the accessibility of school data. Students can use their handheld mobile devices to communicate with their lecturers, to obtain course material, to observe due dates, and to acquire other necessary administrative information. Ideally, UL EFAL students' lecturers should communicate with students, keep and access records, for example.

The information set above suggests that the latest mobile technologies can be used to improve and extend teaching and learning, and to support other learner-related activities (Kukulska-Hulme, 2005: 28). The findings of this study will eventually motivate student educators as well as lecturers to use the devices.

Author/ Researcher (year)	**Mobile devices used**	**Behaviorist/ constructivist**	**Benefits identified in the study**	**Results**
Frohberg, Goth & Schwabe (2009)	Mobile phone	Constructivist	Students became ubiquitous and collaborative learners	Positive
Shih & Mills (2010)	Mobile phone, MP3,Tablet PCs	Behaviourist and constructivist	Output, application, experiments, creative problem-solving	Positive
	PDAs and mobile phones	Constructivist	Used for teachers for attendance and grade reporting	Positive
Corbeil & Valdes-Corbeil (2007)	Podcast, iPod, Smartphones PDA	Behaviourist (reinforcing concepts and output) and constructivism.	Information and Communication	Positive

Ally (2004)	m-learning devices	Constructivist (interpret, observe, process, personalise to personal meaning) cognitive (memory, motivation, thinking, reflection	Information rich, greater use of visuals, instant assembly of learning materials, just in time learning and training	Positive
Squire & Dikkers (2012)	Iphone, Kindle ipad	Constructivism	Participate more fully in the world	Positive
Barseghian (2012)	Mobile cellphone, IPads	Cognitive, digital media, learning	Deconstruct and redesign classroom, reach students meaningfully	Positive
Sutton, B. (2008)	Mobile cellphones, MP3	Digital media, cognitive, constructivist	Ease of use, innovation, best practices	Positive

Table 2: Research on student learning and social media via mobile learning devices

Table 2 presents results of research on student learning and social media via mobile learning. Current as well as few older theories or frameworks as they relate to the way people learn are provided. These major categories are Behaviourism, Constructivism and Cognitivism. The table also provides a list of authors or researchers, kinds of mobile devices used in the studies, the benefits identified in the study for students, and the results of the studies as the tasks impacted students.

2.6 ENGLISH LANGUAGE STUDENT EDUCATORS AT UNIVERSITY OF LIMPOPO (UL)

English language student educators are students that have enrolled for a four years degree in Bachelor of Education. Most of these students are from an underprivileged background, having attended less resourced rural or peri-urban high schools. The majority of them enter the University without any knowledge of how to operate a computer or a laptop, but having handheld mobile devices.

EFAL second level students are those who have registered for English for Educators and Method of English modules. In English for educators, students are taught English content, such as literature and language. In literature, they are taught poems, short stories and drama whereas in language, lecturers use extracts from books, articles and so forth to teach language (grammar) in context (University of Limpopo Calendar, 2016).

Furthermore, in the Method of English module, students are taught Steps in Lesson Planning, Learning Outcomes and Assessment Standards in Grade 7-9 Curriculum, as well as The Introduction to the Teaching of Poetry, Short story and Language (grammar) (University of Limpopo Calendar, 2016).

This study explores whether EFAL student educators have access to mobile handheld devices that can connect to the internet or not. Only those who have mobile handheld devices will be allowed to partake in the study. From the anticipated participants, those students who had access to the handheld mobile devices were able to take part. These participants should be registered for English for Educators module in the Languages, Social Sciences and Management Sciences Department at the School of Education, Faculty of Humanities. They should be registered for a Bachelor of Education majoring in English, and either History, Life Orientation, Geography, Tshivenḓa or Xitsonga (see Results - Table 6).

2.7 THE RATIONALE FOR INTEGRATING ACTIVITY THEORY AND CONSTRUCTIVISM

In line with the theoretical framework of this study, the first generation Activity Theory model and Social Constructivism are integrated as a combination of various points of

views, artifacts and interaction needed to construct meaningful learning. Therefore, to construct meaningful learning by means of activities, a mediator or tool is required. In this research the tool is the mobile handheld device.

In order to achieve the objective of constructing learning and knowledge by means of activities and interactions among the students and lecturer, the device is used as a tool. Transformation takes place in the context of the natural learning environment such as the classroom, a place of residence, on or off campus. All of this should be understood in the context of the paradigm of social constructivism, which posits that students construct their learning and knowledge by means of activities and their interactions with one another and with the lecturer (Engeström, 2009: 56).

2.7.1 Activity theory

Activity Theory originated as a cultural, historical psychology postulated by Vygotsky in 1978 and was further developed by Leont'ev in 1981 to focus on understanding human activity and work practices. The activity theory framework made momentous contribution to the field of education when Engestrom expanded Vygotsky's original framework in 1987, to incorporate the concept of Leont'ev. Sharples, Corlett, Bull, Chan and Rudman (2005: 141) offer an initial framework for theorising about mobile learning, to complement existing theories of the classroom, workplace and informal learning. In the tradition of activity theory, learning is analysed as a cultural-historical activity system mediated by tools that support learners in the goals of transforming knowledge and skills (Vavoula, *et al*., 2001: 1).

Engestrom framework consists of seven elements as shown in Figure 1 below. These are 'Tools' for mediating the activity (anything physical), that is, computers, PDAs or mobile phones, 'subjects' in the activity (people that are engaged in the activity), 'object' or objective of the activity (goals and intentions), 'rules' and regulations (rules that delineate the activity), 'community' (individuals that are directly or indirectly involved in tasks), 'division of labour' (actions undertaken by individuals within the community and 'outcomes' (the results and final products of the defined objectives) (Zurita & Nussbaum, 2007: 215).

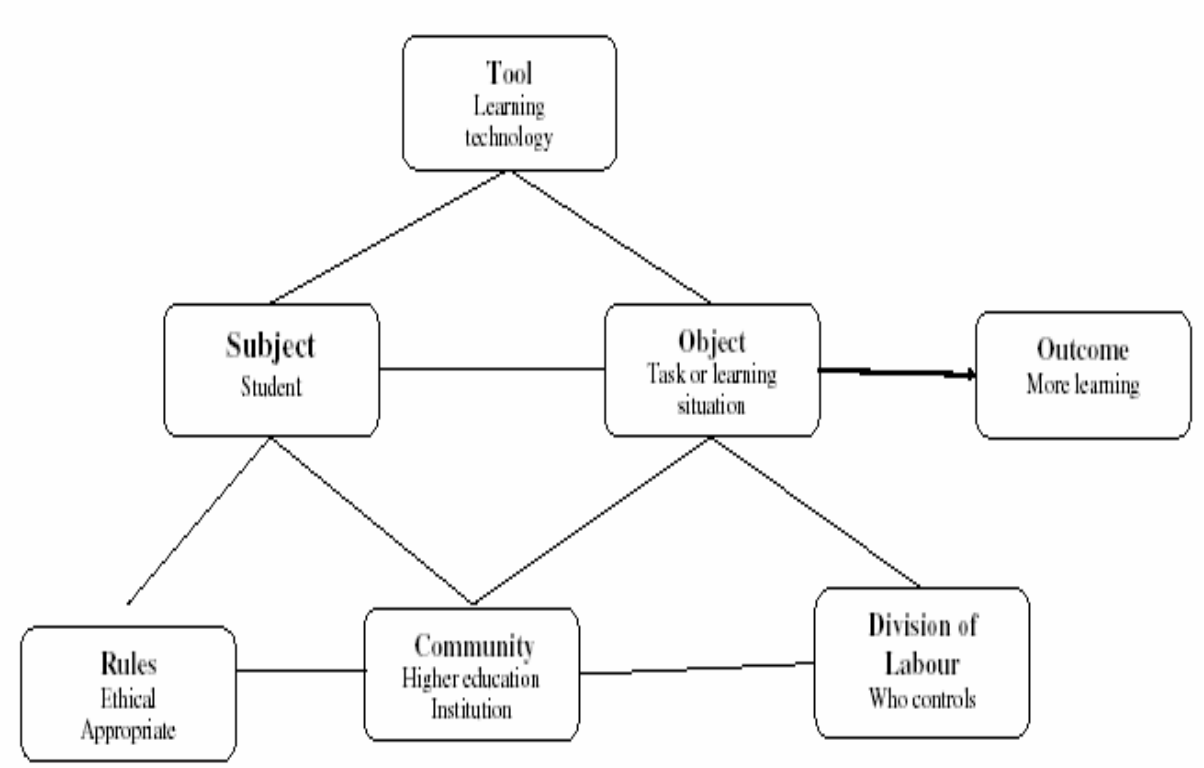

Figure 1: The use of technology in higher education

In the representation above, the object moves from an initial state to a meaningful object and then to a potentially shared object constructed by the activity system. Thus, the object of the activity is a moving object that is not bound to short-term goals and can grow over a period of time (Engeström, 2009: 56).

2.7.2 Social Constructivism

Social constructivist learning is based on Vygotsky's developmental theory (Vygotsky, 1978). According to Vygotsky, students' learning is first mediated by tools and signs within their contexts. Thus, learning activities and materials should be contextualized; that is, they should be relevant to their daily lives. Secondly, their learning develops through social interaction and dialogue, in which students gradually absorb others' knowledge and co-construct new knowledge. Key approaches in this concept include collaborative learning and discussion (Bonk & Cunningham, 1998: 38). Thirdly, students need assistance from experts (that is, the teachers) to reach higher levels of learning. Accordingly, social learning plays a major role in enhancing individual learning (Salomon & Perkins, 1998: 58).

Moreover, social constructivism also implies that what students experience and what they know best will best feed their knowledge and enrich it. This means, in effect, that when a student does something practical to increase their knowledge, the learning that they thereby acquire in the process will be more successful, more authentic and more radically suited to the temperament of the students themselves and the circumstances in which they find themselves, in their society. It follows, therefore, that when lecturers create opportunities for student participation, they are maximising the kind of learning which the students would be able to acquire and optimising the effects of such learning upon the students themselves. It is, therefore, beneficial for lecturers to make use of blogs, wikis and forums to create such opportunities for students to participate in the construction of their own learning (Goodrich, 2011: 6).

2.8 USES OF HANDHELD MOBILE DEVICES

Mobile devices such as smartphones and tablet pcs can be used for various purposes. They can be used to take notes in class, keep track of class schedules, assignments and grades, to look up meanings of words and make presentations. Students are able to communicate with one another about class related matters outside of class. They may also look up information while in class. Library resources can as well be easily accessed (AlShareef, 2015: 79).

There are other reasons students might wish to make use of mobile devices in their learning and teaching. According to Savill-Smith and Kent (2003), there are five main reasons why mobile devices can be valuable in a learning context. Firstly, mobile devices are relatively inexpensive when compared to desktop devices. Secondly, they are particularly useful for ‘anywhere, anytime’ computing. Thirdly, their versatility also contributes to the information literacy of those who use them. Fourthly, mobile devices have the potential to help create, maintain and enhance collaborative learning projects. Fifthly, they support and underwrite independent learning. Thus, handheld mobile devices would foster independent learning among EFAL student educators.

Kadirire (2007: 12) views mobile learning as a viable means to provide a variety of academic benefits. These include access to academic and library information, and extend engagement with course content. In line with this, student educators need access to academic and library information more.

Martin (2012: 3) further asserts that there are many practical uses of the mobile handheld devices in the classroom. Some of the uses are notetaking such as typing documents, creating spreadsheets from tablets and phones and uploading features. Taking pictures of assignments, diagrams using modern smartphones and feature phones which have cameras. Setting reminders for important dates by projecting due dates and any other important dates from pictures that are sent to google calendars. Recording lectures using voice recording apps. These recordings can also be transferred from the phone to a computer to listen to the lecture.

2.9 ADVANTAGES AND DISADVANTAGES OF USING HANDHELD MOBILE DEVICES

According to Woodill (2011: 94), handheld mobile devices have numerous advantages related to the field of teaching and learning such as portability and ease to carry, social interaction, strengthening cooperation between the learners, individuality, development of active learning experiences, computer literacy, effectiveness and modernity, time-saving and costs.

Mobile technologies offer opportunities to provide new and exciting ways of teaching and learning such as easy access to information at anytime they need it, and can also encourage and motivate adult learners to succeed (Dawson, 2007: 1). The idea behind this is that people can learn and teach effectively using personal technologies at any time and in any place (Kukulska-Hulme, 2012: 4). So can UL EFAL student educators be motivated and encouraged to learn.

Kukulska-Hulme (2005: 50) offers additional reasons why mobile devices can be valuable in an educational context which include the use of mobile devices to increase student motivation and promote personal responsibility. Mobile devices are also

valuable for the following reasons: they serve to reinforce organisational skills, they can be used as reference tools, they can be used to track the progress of students and they can be used as instruments in assessment processes (Kukulska-Hulme, 2005: 50).

Researchers such as Soloway, Norris, Blumenfeld, Fishman and Marx, (2001: 64) believe that such devices have the potential to revolutionise learning, allowing students to undertake learning activities wherever they happen to be. Since mobile handheld devices are personal and portable, they may incite in students, a sense of personal ownership over learning tasks and the technologies used to support learning (Hennessy, 2000: 74). Teaching and learning at UL can also be revolutionised as most student educators own handheld mobile devices.

Mobile learning is optimal for students who are constantly moving around because it enables such students to gain access to content at any time and in any place. Mobile learning has a special appeal to students, who like to work with technology. López, *et al*. (2009: 2674) state that mobile learning can, for example, support different learning styles and therefore make personalised learning possible. It is also effective in reducing barriers between faculty members and students.

Furthermore, Kim, *et al*. (2006: 93) note that because mobile learning increases the speed of teaching and learning, it supports one-to-one learning styles. Jones *et al*. (2006: 392) point out that mobile learning encourages the participation of all students in the learning process, and that it does not favour dominant students in the way that conventional classroom does. López, *et al*. (2009: 2674) note that mobile learning provides a number of relatively simple self-study options from which students can choose the one that most suits their needs.

Among the disadvantages of mobile learning, it could be argued that it is easier to be dishonest when using mobile learning. In addition to this, students who are familiar with the technology that is being used have an advantage over those who are less skilful. When mobile learning is the main model in a particular learning situation, those students who are unable to participate in the use of the technology would obviously feel isolated and alienated from their studies.

Researchers such as Kim, Mims and Holmes (2006: 96) further state that the security problems that beset most servers, mobile phones and other computer devices can be a disadvantage because of the potential for creating chaos on the part of ill-intentioned hackers and the omnipresence of viruses and malware on the Internet. Pownell and Bailey (2001: 266), have pointed out that because computer technology is inherently interesting to most users, it can also serve as the means of distracting students from their work.

2.10 HANDHELD MOBILE DEVICES AND COMMUNICATION

The advent of wireless devices and the mobile phone in particular, has revolutionised the way in which people communicate with one another. Communication can take place at any time and in any place provided that one is able to receive and send the high-frequency signals upon which mobile phones depend for their functionality. Mobile phones offer a variety of communication methods. These include the SMS, the MMS, phone calls and the kind of communications that are enabled by social media such as WhatsApp, Facebook and Twitter (Van Wyk, 2012: 36).

2.10.1 Short message service

The short message service (SMS), enables the user to transmit short text messages to and from a mobile phone and to receive similar messages in return. The SMS, one of the mostly widely used wireless applications, is extensively used in conjunction with mobile phones to support teaching and learning programmes (Kim, *et al*., 2006: 86). The popularity of SMSs has been demonstrated by studies undertaken among students in Europe, for example. These studies have shown that over 80% of students in Europe send and receive SMSs every day (Divitini, *et al*., 2002: 24). There are three main reasons why the SMS is so popular: it is a cheap form of communication; it enables students to reply in their own time; it can be used quietly and without attracting undue attention (Mitchell, 2002: 76).

Most young people possess a mobile device such as the mobile phone, researchers such as Rau, *et al*. (2008: 4) forecast that the SMS is becoming a bridge between formal and informal learning approaches to education. This prediction is supported by the fact that students enjoy communicating by means of SMSs for the reasons mentioned in the previous paragraph and also because they are more immediate than email communication (Motiwalla, 2007: 584). For example, at the University of Pretoria in South Africa, SMSs were used to provide administrative support for distance learning students (Viljoen, du Preez & Cook, 2005). The students of the University of Manchester in the United Kingdom also sent essential information by means of SMS. At the Universiti Sains Malaysia in Malaysia, SMS were used to send students messages that would help them in their self-study programmes (Idrus & Ismail, 2010: 2768). In this study, the mobile phone and its SMS facility can be used to improve the extent and quality of communication between students and the lecturer.

2.10.2 Social media

With the rise of social networking that facilitates young people's use of slang, clipped words, informal grammar usage, text-messaging, text-speak, varied acronyms, Twitter, Facebook, YouTube, blogs, a study on the use of social media in the classroom could be feasible and cutting edge one (Pollara, 2011; Savage, 2007).

There are large numbers of applications that foster and encourage social interactions between people all over the world. These applications are so important that they have become the major method that individuals choose to communicate with other like-minded people throughout the world (Parameswaran & Whinston, 2007: 762). The use of blogs (online journals), wikis (collaborative writing), peer-to-peer networks, social bookmarking, photo and video sharing communities, online business networks, and open source communities, are some of the examples mentioned by these researchers. The ubiquity of social interactions of this kind has been enabled by more powerful personal computers and the availability of broadband connectivity (Parameswaran & Whinston, 2007: 763). Such applications can be used to enrich and sustain social interactions among English language lecturers and student educators.

In addition, WhatsApp application is regarded as synonymous with South African students especially in tertiary institutions. It is also viewed as an important platform for communication among students. Church and Oliviera (2013: 352) mention that since WhatsApp is a relatively new phenomenon, only a few researches could be found about the WhatsApp usage as a communication platform between students and teachers. An examination of the use of WhatsApp in a South African university class registered positive feedback from students who claimed that it was an easier way to communicate with their teachers and the rest of the class, that it was productive of fruitful discourse on relevant issues in an informal environment where students could learn intimately and authentically, and that it was also fun (Bere, 2013: 546). This is also the case with the UL student educators who use the WhatsApp application to communicate with each other. As most of their assessments involve group work, their means of communication is usually through WhatsApp.

Social computing allows computer users to communicate socially and intellectually with other users and to share content. Since these social media create environments in which a large variety of data are constantly being collected about the identity and activities of participants, the data that is thus collected could be of enormous importance for researchers who are interested in online behaviour in natural or controlled situations (Parameswaran & Whinston, 2007: 763).

Moreover, social computing is characterised by its dynamic nature and an accelerated distribution of information. Parameswaran and Whinston (2007: 767-768) present a summary of how traditional computing systems compare with social computing in a table as follows:

Traditional computing	Social computing
Emphasises on quality and reliance on standardised procedures and protocols	Has created channels for the reception of feedback and regular reviews of quality
Structured in terms of a fixed top-down structure	Takes place within the framework of a bottom-up structure.
Built around a rigid structure	Possesses a free form and a flexible structure that is determined by the preferences of users. This results in continuous and numerous changes to the system itself.
Deals with systems that are enormous and consistent in their operations	All systems are hyperlinked to create interconnected communities.
User interactions take place between businesses and consumers within the limitations of organizational boundaries	The organisational boundaries of are much more fluid because they are distributed over different communities.

Table 3: Traditional computing in comparison to social computing

2.11 CONCLUSION

The use of mobile devices as instruments for the enrichment and extension of the conventional learning experience that takes place inside and outside of the classroom was put into practice by second level student educators. The mobile devices market is rapidly expanding in South Africa and because the price of these devices is becoming more and more affordable, it is highly likely that there would be a proliferation of mobile devices usage among students.

Given the favourable factors mentioned above, the current use of mobile devices in education is likely to become more widespread even as they become more effective in their application. It was noted in this chapter that the kind of learning that is possible through the medium of mobile devices would become even richer and more varied as the technology improves and as the prices of mobile devices such as smart phones

becomes even more affordable - even to students on limited budgets (Kukulska-Hulme, 2005: 52).

Availability of handheld mobile devices would put student educators in good stead for the use of the gadgets in English learning and teaching. Further, it would even be more enriching if the students could be found to be owning different types of devices. To some extent, sanctioning the use of the devices in class is in tandem with a learner-centred approach. Students tend to benefit more from the anytime and anywhere use.

The envisaged use of the devices should inculcate learning which is an essential component among student educators as they will be gaining a foothold in an academic community.

In the next chapter, the researcher discusses the research methodology.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the research methodology that guided this study.

3.2 RESEARCH DESIGN

The research design in this study is exploratory. An exploratory design is a two-phase sequential model which is investigated quanti-qualitatively to see whether it is generalisable. This design is useful in research in that new instruments will be developed and tested in order to generalise results to different groups (Richards, Bower, Pagel, Weaver & Vasilakis, 2012: 308).

The use of handheld mobile devices by EFAL student educators was explored; EFAL student educators first filled in a pertinent questionnaire and then wrote a test on the use of handheld devices.

3.3 SAMPLING

Sampling is used to identify the objects or people that are best suited for the research (White, 2005: 114). The sample for this study was made up of two groups of second level EFAL student educators who responded to a questionnaire and sat for a 45 minutes test on the use of handheld mobile devices.

3.4 DATA COLLECTION

A mixed-method approach consisting of two research instruments was employed. A qualitative open-ended questionnaire was used to collect data from EFAL student educators. The questionnaire as an instrument enabled responses to be gathered from large numbers relatively quickly, and cost effectively. Thus, an open-ended questionnaire was regarded as an appropriate tool for enabling students to explain in their words how the use of handheld devices is influential or beneficial in their learning of EFAL.

In addition, a quantitative Criterion-referenced Test was designed to test the use of mobile handheld devices among second year EFAL educators. The researcher developed a marking guide and invigilated the 45 minutes test.

Lin and Gronlund (2000: 42) define Criterion-referenced Tests as tests or other type of assessment designed to provide a measure of performance that is interpretable in terms of a clearly defined and delimited domain of learning tasks. Criterion-referenced tests include items that are directly relevant to the learning outcomes to be measured, without regard to whether or not the items can be used to discriminate among learners. There is no attempt made to eliminate easy items or alter their difficulty. The goal of the criterion-referenced test is to obtain a description of the specific knowledge and skills each learner can demonstrate.

3.5 DATA ANALYSIS

The questionnaire on handheld mobile devices was analysed first. The Criterion-referenced test was marked out of 30, the scores recorded and analysed with a view to building on the qualitative data in line with the first phase (see Research Design). Both sets of data collected for this study were analysed thematically (see Chapter 4).

The combined use of a variety of analysis techniques is considered conducive to providing richer information about research and enables the researcher to have a clearer picture about the phenomenon of interest. Therefore, it contributes to obtaining more accurate and reliable results, and reduces the possibility of biased findings due to the use of a single form of statistical analysis. Data analysis is the vehicle used to generate and validate interpretations, formulate inferences, and draw conclusions (Scherman, 2007: 147).

3.6 QUALITY CRITERIA

Every study, this one inclusive, needs to adhere to certain standards in order for it to be valid and have value. This is crucial in that it gives the study credibility and also ensures that all the work done is shielded from any element that could compromise and jeopardise its credibility and value.

Qualitative and quantitative quality criteria were discussed; the qualitative ones followed by the quantitative ones respectively. Confirmability, credibility, transferability and trustworthiness, validity, reliability and objectivity comprise quality criteria.

3.6.1 Conformability

This study adapted to conformability to reduce the bias on the study, and acknowledge the method which was used within the findings of the research report. According to Loh (2013: 5), conformability is used to audit and examine the product to prove that the findings, interpretation and recommendations are supported by data. This confirms that interpretations of findings are resulting from the data collected.

3.6.2 Credibility

Credibility is defined as the confidence that can be placed in the truth of the research findings (Macnee & McCabe, 2008: 74). Credibility establishes whether or not the research findings represent plausible information drawn from the participants' original data and is a correct interpretation of the participants' original views. To consider credibility, the researcher ensured that the participants were identified and described accurately (Graneheim & Lundman, 2004: 107).

3.6.3 Transferability

Transferability refers to the degree to which the results of qualitative research can be transferred to other contexts with other respondents - it is the interpretive equivalent of generalisability (Bitsch, 2005: 85). The researcher facilitates the transferability judgment by a potential user through 'thick description' and purposeful sampling. Transferability provides the reader with a description of the study setting. The researcher accommodated the transferability by detailing the mixed methodology to justify the study to the readers, so that the readers should be able to relate the findings to other studies (Bitsch, 2005: 85).

3.6.4 Trustworthiness

For this study, an element of trust and credibility was required and was established between the participants and the researcher. Trust is crucial because in order for individuals to take part in the study they have to trust the researched phenomenon and the researcher (Rasila, 2007: 4).

3.6.5 Validity

Validity can be seen as the core of any form of assessment that is trustworthy and accurate (Bond, 2003: 179). For this study, validity was ensured by using, two types of instruments to collect data. Firstly, participants filled in a questionnaire, then wrote a test. The comparison of data gathered enhanced validity.

3.6.6 Reliability

Consistent results have been obtained in identical situations but different circumstances by using different data instruments. Reliability means the likelihood of obtaining the same results when the researcher measures the same variable more than once, or when more than one person measures the same variable (Brink, 2000: 157). Reliability therefore relates to the measurement accuracy of the data collection instrument. An instrument can be said to be reliable if its measurement accurately reflects the true scores of the attribute under investigation (Polit & Beck, 2004: 416).

3.6.7 Objectivity

The process of collecting data using different instruments reduced the risk that conclusions would reflect biases. The researcher only provided information produced by the participants (Polit & Beck, 2004: 319).

3.7 SIGNIFICANCE OF THE STUDY

The significance of this study was to determine the value of technology in teaching and learning of EFAL. Students may benefit because they will be exposed to the benefits and significance of using handheld mobile devices in the questionnaire and research test. Student educators would be better prepared for the beckoning digital world upon qualifying as educators. This might even encourage other student educators to use the devices in their other modules at UL.

3.8 ETHICAL CONSIDERATIONS

In the research, only EFAL student educators were requested to participate. The boundaries of the above mentioned individuals were not overstepped; no respondents were forced to participate in this research or to answer questions if they felt uncomfortable with answering them. Information in this research was kept confidential from all people other than the researcher.

While permission to conduct research was sought from the UL School of Education, ethical clearance was also sought from the Turfloop Research Ethics Committee (TREC).

CHAPTER 4

ANALYSIS OF RESULTS

4.1 INTRODUCTION

In this section, data was analysed and results presented. Responses to the questions are grouped thematically and the findings derived are discussed.

Responses to the questionnaire and test results constitute data collected and analysed for this study. These were merged in line with the mixed quanti-qualitative approach.

4.2 ANALYSIS OF THE QUESTIONNAIRE DATA

Questionnaire data was analysed in terms of biographical details, the type of device, and the usage.

4.2.1 Biographical data

Biographical data is made up of language choices per gender, Grade 12 level scores and other major courses students had registered for. This information is presented in 3 tables as follows:

Grade	NCS Language options	No. of male students	%	No. of female students	%	Total students	%
Grade 12 English passed	EFAL	31	94	34	87	65	90
	HL	02	6	05	13	7	10

Table 4: Language choices per gender at NCS level

From the total number of respondents that filled in the questionnaire, 46% were male while 54% were female students. However, 94% of male students sat for an EFAL examination, in Grade 12 and 6% registered for English Home Language (EHL). From

the remaining 54% female students, 87% wrote EFAL whereas 13% sat for an EHL exam.

Grade 12 level scores	No. of male Students		No. of female students		Total no. of students	%
	EFAL	EHL	EFAL	HL		
Level 7	04	01	05	03	13	18
Level 6	26	-	22	03	51	71
Level 5	02	-	04	-	06	8
Level 4	01	-	01	-	02	3

Table 5: Grade 12 level scores

Seventy one (71%) of the participants attained a level 6 score, followed by 18% that passed with level seven. Eight (8%) obtained level five while 3% a level four. A few students (3%) were at level 4 and they were followed by the 8% who attained level 5. The remaining respondents (18%) scored level 7 which was much lower than those who scored level 6 (71%).

	Course	No. of male students	No. of female students	Total students	%
Other major(s)	Geography	03	13	16	22
	History	09	05	14	19
	Life Orientation	07	10	17	24
	Sepedi	07	06	13	18
	Xitsonga	06	02	08	11
	Tshivenḓa	02	02	04	06
	Total	34	38	72	100

Table 6: Other major courses students registered for

As for the other students' major subjects, the males and females combined, 24% in Life Orientation, 22% majored in Geography, 19% in History,18% in Sepedi, 11% in Xitsonga and 6% in Tshivenḓa.

Geography (33%) among females was the most popular subject, followed by Life Orientation (26%) while Sepedi (15%) and History (13%) were almost equally popular. Equal percentages of students studied Xitsonga (5%) and Tshivenḓa (5%). However, History (27%) was the most popular subject among male students and this was followed equally by Life Orientation (21%) and Sepedi (21%) respectively. Geography was the most popular which was followed by Life Orientation.

4.2.2 Type of handheld device used

Some of the questions in the questionnaire will be repeated for easy reference

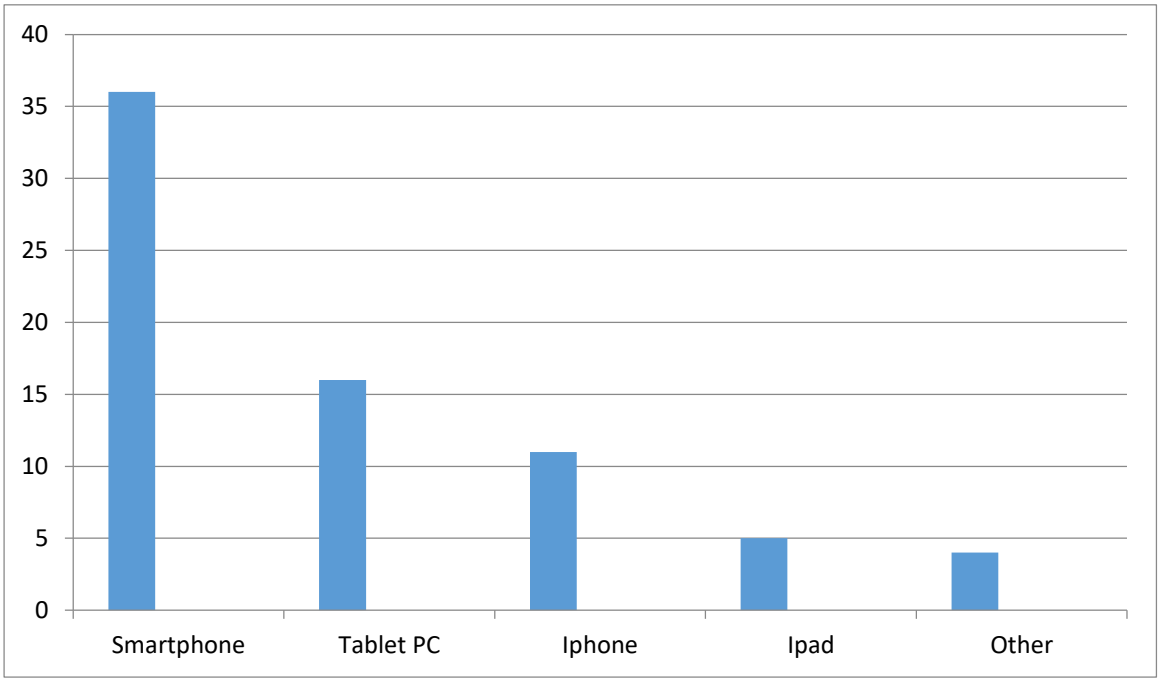

Figure 2: Types of handheld mobile devices

Fifty percent (50%) of the students used smartphones, 22% used Tablet PCs, 15% used IPhone, 7% used the iPad and the rest (6%) used different handheld devices that were not mentioned on the questionnaire. This indicates that the types of mobile devices that the participants used were capable of accessing information from the Internet.

Why did you choose this kind of device?

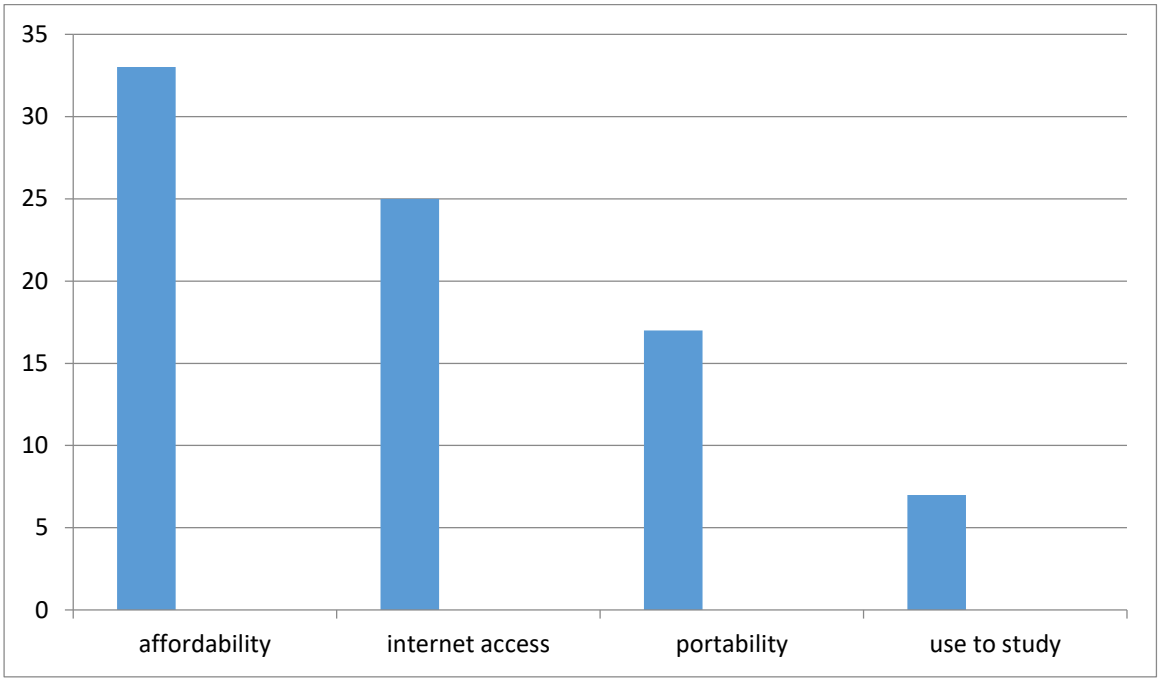

Figure 3: Reasons students chose the device

Reasons students chose devices are presented in Figure 3 above. Participants chose the devices for various reasons. Most of the students chose a device because of its affordability, easy access to the internet, its portability, and because it was useful for study purposes. Forty percent (40%) stated that they chose the device because it was affordable, 32% that it was able to access the internet, 20% that it was portable and 8% that because it was useful when they study. However, they further stated that they used the handheld device because they were of great help when doing assignments.

Do you use your device to study English?

All (100%) participants used the device to study English.

Have you downloaded any English-learning App on your device? If yes give an example.

Forty percent (40%) of the participants downloaded the dictionary, (6%) downloaded their prescribed texts, and 1% the plagiarism checker. Fifteen percent (15%) stated that, they did not download any App and 38% participants did not indicate whether they downloaded the App or not.

How often do you use the device when learning?

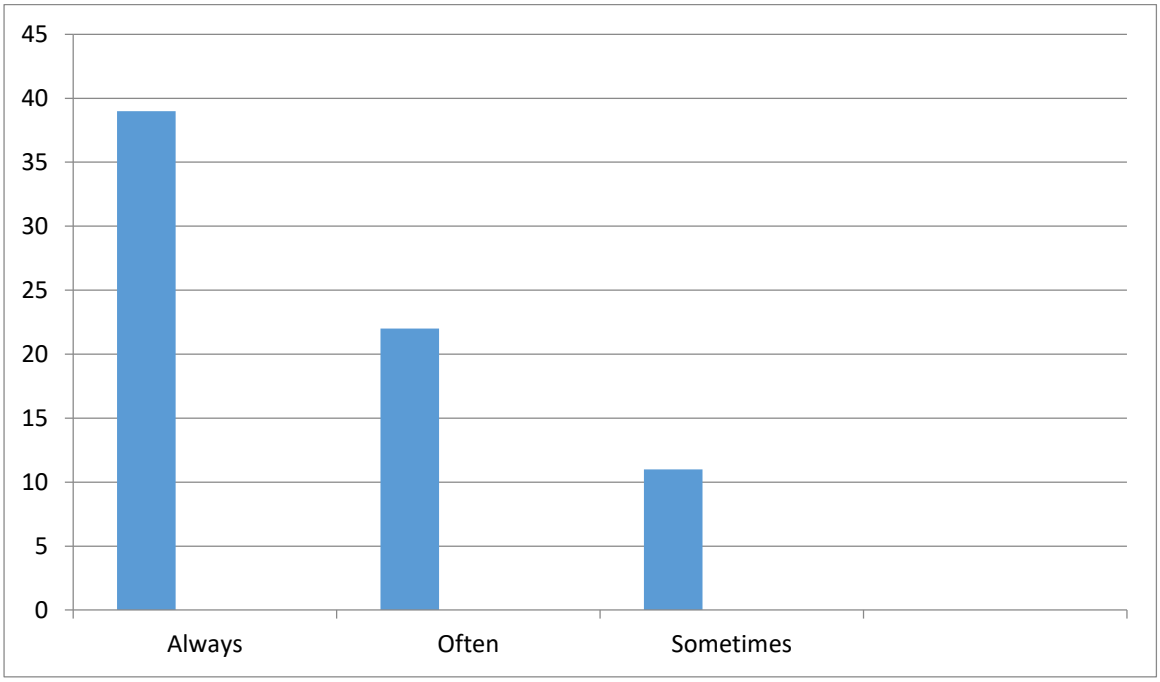

Figure 4: Frequency of use

Fifty four percent (54%) always used the device, 34% used them often while 12% used their devices sometimes.

Do you sometimes use it to look up information while in class?

Forty eight (48%) of the participants used their handheld mobile device to look up information while in class whereas 42% did not use the device. The rest (10%) did respond to the question.

Do you use it to communicate with other students about class-related matters outside of class?

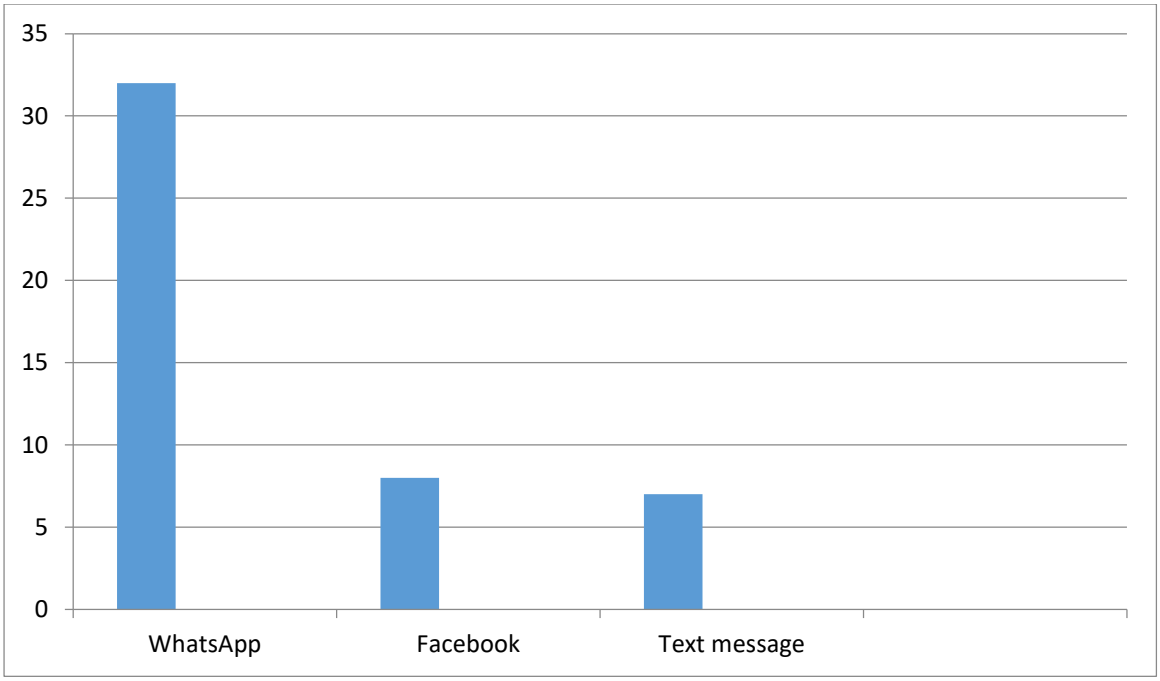

Figure 5: Communication with other students

Most of the participants used the handheld device to communicate with other students outside of the class as depicted in Figure 5. For example, (94%) of the participants used the device to communicate, and only 6% did not. From the 94% participants, 67% used group WhatsApp, 14% used Facebook and 13% used text messages.

How do you keep track of your class schedule?

Only 51% used their devices to keep track of their class schedules. Eleven percent (11%) of the participants stated that they downloaded the general time table from the examination section and also kept track of the class schedule. Forty percent (40%) of the participants mentioned that they drew their personal time table and took a picture of it with their devices. They stored the pictures in their mobile handheld devices to keep track of the class schedule.

Do you use the device to look for information anywhere?

All the participants (100%) used the device to look for information.

Do you use the device to look for information anytime?

Only one percent (1%) did not use the device to look for information anytime. Thus, the rest, which is 99%, used the device to look for information anytime.

On a scale of 1-5, 1 being the least useful and 5 the most useful, how would you rate the usefulness of the device in your learning?

Fifty eight percent (58%) rated the device as useful in their learning while 42% rated it most useful.

Do you sometimes record your English class lectures?

Sixty nine percent (69%) used the mobile handheld device to record their English class lectures while 28% did not. Only three percent (3%) did not mention whether they used the device to record or not.

Do you sometimes record in-class activities?

Forty six percent (46%) of the participants recorded in-class activities while 54% did not. Examples of the lessons recorded are that 70% recorded class presentations whereas 33% recorded the lecturer while presenting lessons.

Do you use the device to make notes in class?

Of the 72% that used the device for notetaking, 39% used word document to take notes, 29% took pictures of the slides presented by the lecturer and only 4% recorded the lecturer presenting the lesson. The rest, which is 28% did not use the device to make notes in class.

Do you use the device to search for information while in class?

Forty three percent (43%) used the device to search for information while in class and 57% did not. For example, thirty five percent (35%) used Google to search for information and 3% used dictionaries in their mobile handheld devices to look for information.

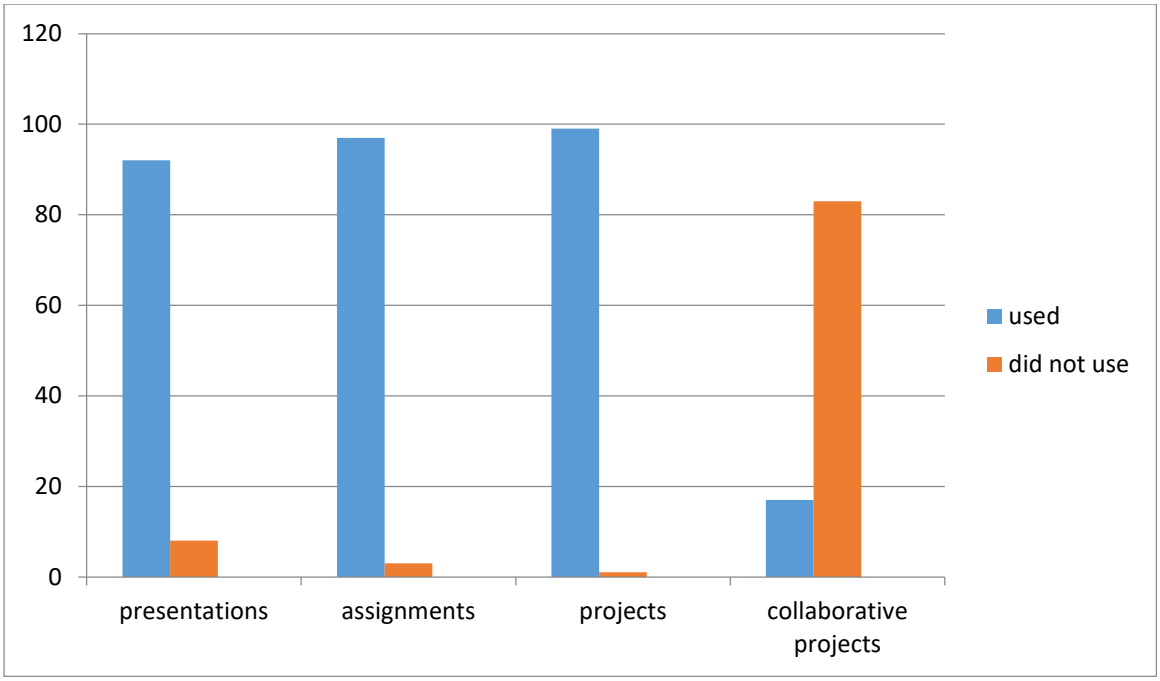

Figure 6: Other uses of devices

Do you use the device for class presentations?

Do you use the device for assignments?

Do you use the device for projects?

Do you use them for collaborative projects?

In Figure 6, 92% used the device for class presentations; 97% used the device for assignments and 99% of the participants did not use the device for projects. An example of the project was class presentation.

In addition, 17% of the students used the device for collaborative projects while 83% did not. The 17% mentioned used WhatsApp to update each other about their group meetings and to share information.

Does your device have access to library resources?

Only 7% of the participants' devices had access to the library. For example, 6% used the device to check location of books and 1% checked library updates from the device.

Do you feel motivated to learn when you use the device?

All (100%) participants felt motivated to learn when using the device. Some of the reasons advanced were that the device made learning easier, especially when

searching for information. They could also refer to the documents downloaded from the devices when studying. Since handheld mobile devices are portable, students did not have to carry many books around.

The device could easily access any information needed at any given time, providing an immediate solution. It also provided learning efficiency from any location. There was no need to go to the computer laboratories or the library when being far from the university.

Mention any additional information on the use of handheld mobile devices in EFAL

The participants also used handheld mobile devices to store English related Apps in case they could not access the library. There are various English tutor videos, quizzes that can be downloaded to learn the language. The mobile handheld devises have almost all vital information pertaining to EFAL.

There are English learning applications such as audio-books and Beelingo.com, and useful for grammar skills as they have automatic grammar correction setup. Students could also download dictionaries and their prescribed English texts such as short stories, novels and plays.

4.3 ANALYSIS OF TEST ON THE USE OF HANDHELD MOBILE DEVICES

Test questions will also be repeated for easy reference (see Appendix B)

1. Definition of words

Definition	Students provided correct meaning	Students provided Irrelevant meaning
Mobile	87%	13%
Device	81%	19%

Table 7: Definition of words

Mobile

Eighty seven percent (87%) of the participants responded to the question that had the literal meaning of the test question whereas 13% gave answers that were not relevant for the study. An example of an irrelevant answer is, ‘mobile is a decorative structure that is suspended so as to turn freely in the air’.

Device

Eighty one percent (81%) gave similar correct answers and 19% had a different definition.

2. Convert the underlined words in a given paragraph from American spelling to the British one (see Appendix B).

   All the participants (100%) answered the questions in this section correctly.

3. Write down the pronunciation of each of the following words in phonetic transcript

Question number	Pass%	Fail %
A	100	0
B	100	0
C	19	81

Table 8: Writing words in phonetic transcript

All the participants (100%) got questions ‘a’ and ‘b’ correct. However,19% got ‘c’ right, while 81% did not respond to the question.

4. Give the number of syllables in each of the words:

All the participants gave the correct number of syllables for ‘successful’, ‘activities’ and ‘labour’.

5. Give parts of speech (word classes) of underlined words:

Question no.	Correct answer %	Incorrect answer %
A	77	23
B	83	17
C	87	13
D	92	8
E	100	0
F	88	12
G	100	0
H	85	15

Table 9: Performance of students in Question 5

In this question, 77% of the participants got the first question correct and 23 percent gave incorrect answers. Eighty three (83%) got ‘b’ right and another 87% got ‘c’ correct. In question ‘d’, only 8% got the answer incorrect. In questions ‘e’ and ‘f’, all the participants (100%) got the answers right. Only 15% got ‘h’ wrong.

7. Google types of literary genres and mention four of them.

All the participants’ (100%) gave correct literary genres and mentioned the correct four genres which were drama, poetry, fiction and non-fiction.

8. Give the location of the University of Limpopo and its distance from Polokwane city.

All the participants (100%) got the location of the University of Limpopo and its distance from Polokwane correct.

No of students	Test score	%
1	35	100
3	34	97
20	33	94
8	32	91
8	31	89
9	30	86
2	29	83
1	24	67

Table 10: Overall performance of students in the test

Test scores ranged from 67 % to 100%. When combing the overall performance of the students, 2% of students scored a 100% pass, followed by a 6% that obtained a 97% pass, and 39%, which was the largest number which obtained a 94% pass. This was followed by 17% of the students who obtained 86%. Further, 15% of the participants obtained 91% and another 15% obtained 89% pass. Four percent (4%) obtained 83% and lastly 2% obtained 67% which was the lowest mark of them all. All the participants, that is, a 100% passed the test.

4.4 CONCLUSION

The findings of the study confirm that most of the participants possess handheld mobile devices, and the majority of them own smartphones. This augers well for the use of handheld mobile devices in the learning and teaching of EFAL at UL and elsewhere.

It was also noted that the handheld devices provided an extremely convenient means of obtaining essential information, and that this gives students the advantage of making information accessible anywhere, at all times. This, therefore, confirms that the students are ready to use handheld devices for learning the English language.

If students need information, it can be accessed through the devices whenever the need arises. This was demonstrated and corroborated by students who responded to the questionnaire and sat for the test on the use of handheld mobile devices.

The next chapter concludes the study and makes recommendations for further research.

CHAPTER 5

CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH

5.1 INTRODUCTION

The aim of this chapter is to conclude the study and make recommendations for further research. Conclusions drawn and recommendation made will be based on the findings of the study.

5.2 CONCLUSIONS OF THE STUDY

Handheld mobile devices have increased in functionality within lecture halls and are used as teaching and learning tools. Hence the purpose of this study which was to explore the use of handheld mobile devices by University of Limpopo EFAL student educators.

UL students are constantly on the move and their handheld mobile devices make it possible for them to access information anywhere and at any time. It has been found that handheld mobile devices enable the students to learn on their own and in their own time; they can also do this in situations where they are all assembled in one place for the purpose of learning. This is therefore, in line with asynchronous- and synchronous learning. Just-in-time information can also be provided by means of handheld mobile devices. Since these students are always on the move, their mode of learning should be adapted to their mobility.

Although the participants in this study mostly originated in previously disadvantaged ethnic groupings, they do possess handheld mobile devices with which they could access the Internet. This conveniently creates valuable opportunities for teaching and learning using handheld mobile devices. They were thus able to access information using their handheld mobile devices rather than immobile computers.

Ninety-four percent (94%) of the participants used the handheld mobile devices to communicate with other students outside of the classroom. This means that it is possible to use this tool as a means of teaching and learning communication between lectures and their students. Interestingly, 100% of them used the device to look for information anywhere. As a result of what was observed from this study, it would be possible for

students to browse the Internet to obtain essential and useful information, and be able to use various applications of social media making use of their handheld mobile devices.

Universities should encourage newly enrolled students to access and browse the internet using their handheld mobile devices instead of standing long queues in overcrowded computer laboratories awaiting their turn to use the computers. The UL may consider setting Wi-Fi everywhere around campus so that students are able to access the internet at no cost to avoid overcrowding in the computer laboratories. This would be in line with the principle of accessing information anywhere and anytime to expedite teaching and learning.

This study would benefit lecturers in higher learning environments - especially those students from previously disadvantaged backgrounds where access to personal computers, or the Internet, remains a challenge.

The findings of this study will spur practitioners into activity about using the tool that students already have to alleviate a learning constraint regarding computer laboratories.

5.3 RECOMMENDATIONS FOR FUTURE RESEARCH

Student educators, especially those from disadvantaged background should be encouraged to utilise their handheld mobile devices for learning purposes.

Since this study focused on second level English student educators, all student educators at UL could be tested and be requested to fill in a questionnaire on the use of handheld mobile devices.

In addition, all English language students at UL could be tested and be requested to fill in a questionnaire on the use of handheld mobile devices.

English language lecturers who teach the student educators at UL could be interviewed about the use of handheld mobile devices.

Furthermore, English language lecturers could be tested on the use of handheld mobile devices.

A campus-wide UL student survey on access of information based on types of gadgets they own could be conducted.

Most importantly, UL lecturers, who teach languages in general, and English language in particular, could first be tested and then interviewed on the significance of using handheld devices in teaching and learning.

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APPENDIX A

Questionnaire for Student Educators

Kindly encircle appropriate responses and/or provide relevant information which best describes each aspect in the questionnaire.

1. Biographical Data

    1.1 Gender _____

    1.2 Grade 12 English passed (e.g. EFAL, EHL) _____

    1.3 Grade 12 English symbol/level: _____

    1.4 What is your other major subject?_____

2. Types of handheld devices

    2.1 Type of handheld device (encircle the one(s) you have)

        2.1.1 Smartphone

        2.1.2 Tablet PC

        2.1.3 Iphone

        2.1.4 Ipad

        2.1.5 Other (specify) _____

    2.2 Why did you choose this kind of device(s)?

        _____

        _____

        _____

3. General Use

    3.1 Do you use your device to study English?

        [Yes] [No]

3.2 Have you downloaded any English-learning App on your device? If yes, give an example.

_____
_____
_____

3.3 How often do you use the device when learning? Encircle the most appropriate answer.

[Sometimes] [Often] [Always]

3.4 Do you sometimes use it to look up information while in class?

[Yes] [No]

3.5 Do you use it to communicate with other students about class-related matters outside of class?

[Yes] [No]

If yes, how do you communicate?

_____
_____
_____

3.6 How do you keep track of your class schedule?

_____
_____
_____

3.7 Do you use the device to look for information anywhere?

[Yes] [No]

3.8 Do you use the device to look for information anytime?

[Yes] [No]

3.9 How would you rate the usefulness of the device in your learning? Encircle your most appropriate answer.

[Very useless] [Useless] [Neither useful] [useless] [Useful]

[Very useful]

4. Classroom Use

4.1 Do you sometimes record your English class lecture?

[Yes] [No]

4.2 Do you sometimes record in-class activities?

[Yes] [No]

Give examples of lessons recorded.

_____

_____

_____

4.3 Do you use the device to take notes in class?

[Yes] [No]

How do you use it?

_____

_____

_____

4.4 Do you use the device to search for information while in class?

[Yes] [No]

How do you use it?

_____

_____

_____

5. Other Uses

5.1 Do you use the device for class presentations?

[Yes] [No]

5.2 Do you use the device for assignments?

[Yes] [No]

5.3 Do you use the device for projects?

[Yes] [No]

Give examples of projects

_____

_____

_____

5.4 Do you also use it for collaborative projects? Yes or No

[Yes] [No]

How do you use it?

_____

_____

6. Library Resources

6.1 Does your device have access to library resources?

[Yes] [No]

Give examples of the resources.

_____

_____

_____

7. Motivation

7.1 Do you feel motivated to learn when you use the device?

[Yes] [No]

Give an explanation

_____

_____

_____

8. Mention any additional information on the use of handheld mobile devices in EFAL.

_____

_____

_____

Thank you.

APPENDIX B

Test on the use of handheld mobile devices

Duration **:** 45 minutes

Marks **:** 35

Instructions: Answer all questions.

---

1. Define the following concepts:

    a) Mobile (2)
    b) Device (2) [4]

2. Convert the following underlined words in the paragraph below which are in American spelling, to British spelling:

    The a) program started very early with the chairperson telling everyone to be b) organized. He told them hard c) labor was the d) centre to great success. They also e) practiced how to f) advertize their products so that they could be recognised. [6]

3. Write down the pronunciation of each of the following words in phonetic transcript:

    a) Enhance (2)
    b) Forage (2)
    c) Scourer (2) [6]

4. Give the number of syllables in each of the following words:

    a) Successful (2)
    b) Activities (2)
    c) Labor (1) [5]

5. Give parts of speech (word classes) for each of the following underlined words:

a) She enjoys <u>singing</u>.

b) More students were successful in their searches.

d) The <u>dearth</u> of leisure time activities may lead to juvenile crime.

e) Digital natives surely <u>benefit</u> from using handheld devices.

f) What type of noun is ‘Polokwane’ in 7 below?

g) What type of verb is ‘enjoys’ in a)?

h) What is the plural form of ‘crime’ in c)?

i) What part of speech is ‘the’ in c)? [8]

6. Google types of literary genres and mention 4 of them. [4]

7. Calculate the average temperature of Polokwane for this week. [2]

Total marks = 35