



The  
University  
Of  
Sheffield.

**School of Education  
Department of Educational Studies**

**English-Language Learning at  
their Fingertips:  
Educational and Motivational  
Affordances of Tablet Apps in  
Children's EFL Learning**

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**A Thesis Submitted to the University of Sheffield for the Degree of  
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Volume I**



## DEDICATION

This thesis is dedicated to the living memory of my beloved father Abdullah, who passed away only months before the completion of the work, and who was so eager to witness its success. I dedicate this thesis to my dad, who has always been my shining example for hard work, wisdom, patience and persistence, and who instilled in me the love of learning and the inspiration to strive for my dreams.

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## ABSTRACT

Given the popularity of multi-touch tablets, especially among children, and the amount of educational applications (apps) currently available for their use, tablets offer mobile-assisted language learning opportunities rarely provided by more traditional English as a foreign language (EFL) teaching methods. Tablets are increasingly finding their way into classrooms, as their unique affordances give them educational advantages over other mobile technologies. To date, however, insufficient research has been conducted on the educational applications and motivational potential of this digital tool, particularly with reference to foreign-language acquisition by young beginner learners. The aim of this research was to explore the educational and motivational affordances of tablets and tablet apps in supporting young EFL beginner learners, and the factors affecting students' self-determination to use tablets to learn English.

To fulfil this aim, I designed and conducted a case study in a fourth-grade class in a state primary school in Riyadh City in Saudi Arabia. I used an exploratory qualitative case study design to gain an in-depth understanding of the topic. My approach was social-constructivist, supported by a framework of self-determination theory. I collected the data via participant observation, focus groups, semi-structured interviews and blogging. The sample consisted of 22 female students between 9 and 10 years old. I used inductive and deductive thematic analysis to examine the data.

The findings indicate that the technological affordances of tablets, their capacity to mediate and encourage social interaction and collaborative learning, and the overall positive experience of tablet-based EFL learning powerfully motivate children to use tablets to learn English both in classroom settings and beyond. These influential factors were found to elicit, enhance and sustain the intrinsic motivation (IM) and self-regulation of the young EFL participants. The children were highly intrinsically motivated and positively self-regulated by the use of tablet apps to learn English both in the classroom and outside the school setting. Self-determination types such as IM accomplishment, IM knowledge, IM stimulation and identified regulation of external motivation were observed in the data. These findings suggest that the experience of learning via apps was both enjoyable and personally meaningful. However, the students' self-determination appeared to be affected by certain factors related to the use of tablets (digital and social factors) and apps (app features) that reduced their motivation to deploy these learning tools.

The findings of this thesis provide language instructors and researchers, policy-makers and app developers with insights into the educational and motivational tools afforded by tablets and tablet apps for English-language learning, and the factors that enhance or reduce young EFL students' self-determination to use these tools for learning. In addition, recommendations are made for future research in this area.

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## ACRONYMS

|                  |  |
|------------------|--|
| <b>SDT</b>       | <b>Self-determination Theory</b>               |
| <b>LL</b>        | <b>Language Learning</b>                       |
| <b>EFL</b>       | <b>English as a Foreign Language</b>           |
| <b>ELL</b>       | <b>English Language Learning</b>               |
| <b>FL</b>        | <b>Foreign Language</b>                        |
| <b>SL</b>        | <b>Second Language</b>                         |
| <b>L2</b>        | <b>Foreign and Second Language Acquisition</b> |
| <b>mLearning</b> | <b>Mobile Learning</b>                         |
| <b>MALL</b>      | <b>Mobile-assisted-language Learning</b>       |
| <b>IM</b>        | <b>Intrinsic Motivation</b>                    |
| <b>EX</b>        | <b>Extrinsic Motivation</b>                    |
| <b>PS FG</b>     | <b>Post-study Focus Group</b>                  |
| <b>PL FG</b>     | <b>Post-lesson Focus Group</b>                 |

# CHAPTER ONE

## Introduction

### 1.1 Introduction

The utilisation of technology has a long history in education. Teachers and educators have used technology of one sort or another in their classrooms for decades. However, the rapid global innovation and development of advanced mobile technologies, and their increasing intersection with our lives, have drawn further attention to the concept of mobile learning (mLearning: utilisation of mobile devices for educational purposes), which has gained increasing popularity in the last few decades in various domains of learning and teaching.

Much research has been conducted to explore and examine the potential affordances of mobile devices in education. The findings reported in the mLearning literature highlight the unique characteristics of mobile devices, specifically their small size and thus portability, instant connectivity and multi-functionality (Cheon, Lee, Crooks & Song, 2012; Klopfer & Squire, 2008; Pea & Maldonado, 2006), which encourage and facilitate “anytime, anywhere” education (Huang & Huang, 2015; O’Bannon & Thomas; 2015; Traxler, 2013). However, limitations of mLearning have been noted in connection with the technical and physical features of mobile devices, particularly their limited screen size, which may affect their usefulness in supporting learning (Kukulska-Hulme, 2007; Lu, 2008; Park, 2011).

Nevertheless, the evolution of multi-touch tablets with larger screens has resolved many technical issues that previously limited the educational benefits of smaller

mobile devices. For example, iPad tablets, with their larger screens and built-in keyboards, higher-resolution displays, innovative hardware and interactive content, highlight by contrast the limitations of earlier generations of mobile handheld devices, and offer a new vehicle for mLearning that has the potential to enhance and support education.

Since their first appearance on the technology market, multi-touch tablets have enjoyed substantial popularity. iPad tablets, for instance, introduced in 2010, are believed to have the highest adoption rate of any technological device in history (Bakke, 2012). Although tablets are popular among users of various ages, children are especially fascinated by the devices. Research indicates that tablets and their applications (apps) enter children's lives and digital environments at an early age (Marsh et al., 2015; Merchant, 2015a). Features of tablets that children find particularly attractive include their easy-to-navigate, appealing and intuitive interfaces; their interactivity, easy control and immediate feedback; their touch screens, which satisfy children's desire to touch; and the access they provide to a variety of apps offering games and multimedia.

The unique and powerful features of tablets, and the widespread adoption of these devices, have recently encouraged researchers and educators to investigate their potential as educational tools (Merchant, 2015a). Recent research on the use of tablets has highlighted their provision of a practical and enjoyable learning experience that increases students' engagement and motivation to learn (Dundar & Akcayır, 2014; Ward, Finley, Keil & Clay, 2013). The large screens, portability, provision of innumerable applications, versatility and tactile nature of tablets have been identified as key factors supportive of learning (Butcher, 2014; Fisher, Lucas & Galstyan, 2013; Merchant, 2015a; Pellerin, 2014); specifically collaborative, engaged, purposeful, self-

directed and active forms of learning (Butcher, 2014; Falloon & Khoo, 2014; Fisher et al., 2013; Kucirkova, Messer, Sheehy & Fernández Panadero, 2014; Sullivan, 2013).

The implementation of multi-touch tablets in education is a fairly new phenomenon. A growing number of researchers have explored the use of tablet applications by children with disabilities or other special needs (Flower, 2014; Miller, Krockover & Doughty, 2013; Xin & Leonard, 2014). A number of studies have examined the effectiveness of tablets' use in supporting primary-school curricula, and their influence on children's behaviour and achievements (Gasparini & Culen, 2012; Henderson & Yeow, 2012; Hutchison, Beschorner & Schmidt-Crawfor, 2012; Lynch & Redpath, 2012). Additionally, many studies have been published on the usage of tablets in higher education (see the review conducted by Nguyen, Barton & Nguyen, 2014). These studies have helped to increase our knowledge of the potential of using tablets as an educational tool. However, many studies investigating the educational uses of tablets have focused on first-language learning by children or adult learning in different domains. Compared with the experiences documented online by individuals and institutions via social media and blogs, little research has been published on the impact of the educational use of tablets and their applications for language learning (LL) by children at beginner level. This indicates the need to explore and understand the uses of tablets and tablet apps in children's LL, the effects of the devices' integration with learning, and the factors that enhance or injure their positive influence on learning.

This topic is of particular importance given the immense support provided for LL by mobile technologies, as demonstrated in research on mobile-assisted LL (MALL). MALL, an extended form of mLearning, benefits from the potential of mobile devices to offer "bite-size" (Chinnery, 2006; Kukulska-Hulme, 2015), interactive (Benson,

2015; Gass & Mackey, 2007; Homer et al., 2014; Sykes & Reinhardt, 2013; Wong, Hsu, Sun & Boticki, 2013), collaborative (Beatty, 2013; Burston, 2015; Kukulska-Hulme, Norris & Donohue, 2015), flexible and extended LL (Beatty, 2013; Burston, 2015; Kukulska-Hulme, 2012; 2015; Traxler, 2013). All of these qualities are necessary for effective LL. Much of the existing research has highlighted the learning possibilities offered by MALL (for a review of research on the integration of MALL between 1994 and 2012, see Burston, 2013). Nevertheless, most research on MALL has been concerned with mobile technologies such as mobile phones and personal digital assistants (PDAs), and most scholars working in this field have focused on adult learners (e.g., Burston, 2015; Duman, Orhon & Gedik, 2015; Shih, Lee & Cheng, 2015).

Although some recent studies have investigated the use of tablets in MALL environments (e.g., Chen, 2013; Lys, 2013), researchers usually focus on adults learning English as a second language (ESL) (Pellerin, 2014) or adults informally learning English (Chen, 2013). As highlighted by Pellerin (2014), far too little attention has been paid to the use of tablets by young language learners, especially in the primary language classroom. Apart from Pellerin's (2014) recent study – a collaborative action research project in which a task-based approach is used to investigate the use of mobile technologies (iPods and tablets) by young Canadian learners in Early French Immersion classrooms – there is a general lack of research on the potential uses of tablets and their apps to support children's LL in beginner-level English as a foreign language (EFL) contexts, as well as the effects of their use and the factors that enhance or injure their positive influence on learning.

The difficulties and challenges specifically faced by children learning English in EFL contexts, and the widespread use and popularity of tablets among children, have led

me to investigate the potential of tablets to support primary-school children learning EFL at beginner level.

Second-language researchers and theorists agree that “comprehensible input” (Krashen, 1982) of the target language is a prerequisite for the effective and successful learning of a language (Mitchell & Myles, 2004). According to Met and Rhodes (1990), “both research and experiential data suggest that the amount of time spent on LL and the intensity of the experience has significant effects on the acquisition of significant levels of foreign language proficiency” (p. 438). However, the required duration and intensity of learning are not always possible in national LL contexts in which the foreign language is only minimally used. Typically, English language learners as beginners in monolingual contexts learn and access English in formal English classes, as non-educational settings in which they can practise LL are limited. This limited exposure to the English language can affect learners’ successful acquisition of English. Moreover, as school English lessons are subject to time constraints and problems relating to a lack of authenticity, it is necessary to create purposeful and meaningful activities to augment English learning beyond the limitations of the formal English syllabus (Foss, Carney, McDonald, & Rooks, 2007). There is also a need “to bridge the gap between language study and language use” (Fried-Booth, 2002, p. 7) to promote real-life practice of the language (Pearson, 2004).

Tablets, a type of mobile technology, offer interactive applications and activities that may support English learners’ learning. However, activities that promote both student-centred learning and authentic learning are largely absent from the EFL learning environments addressed in this study. In the following section, to clarify the context of the study, I describe EFL learning and the adoption of mLearning and MALL in Saudi Arabia, the setting of this study.

## **1.2 Context of Study**

My own interest in MALL, and more precisely my interest in exploring and examining the uses of tablets as educational tools by young beginner-level EFL learners, was stimulated by my personal experience and understanding of the difficulties and challenges faced by EFL students, and my awareness of Saudi children's widespread use of tablets for entertainment purposes. As a substantial body of work had already been produced on both mLearning and MALL, I wished to pursue further exploration of the concept of MALL, and specifically children's use of tablets, in a context satisfying my preference for research that might eventually be of practical value. Although MALL research on the use of different mobile technologies for LL has increased over the last twenty years, few studies specifically address the potential of tablets and their apps as an educational tool, or their influence on children learning EFL at beginner level. My literature review also revealed that despite widespread recognition of tablets as a powerful motivator of students of all ages (Falloon, 2013), no previous studies had specifically investigated the motivational affordances of tablets and their apps for ELL by young EFL students with reference to second language (L2) (second or foreign language acquisition) self-determination theory (SDT) (Noels, Clement & Pelletier, 1999; Noels, Pelletier, Clément & Vallerand, 2000). In light of all of these findings, it seemed to me that an investigation of the influence of tablets and their apps on young EFL students' self-determination might be of some value.

Two main areas of the literature are touched on here to provide initial insights into the potential significance of tablets as a tool for EFL learning by children in Saudi Arabia. First, I provide an outline of EFL learning and teaching in Saudi Arabia. Second, I

offer a brief overview of the integration of mobile technologies in Saudi educational contexts.

### **1.2.1 EFL Learning and Teaching in Saudi Arabia**

EFL was introduced to Saudi public schools as a mandatory subject in 1927. EFL learning and teaching began in middle school (i.e. at the age of 13 to 15) and continues throughout secondary school (age 16 to 18). However, English teaching at a primary level is a new venture in Saudi Arabia. EFL teaching was introduced to 6<sup>th</sup>-grade classes in primary schools in 2011, and then extended to the fourth year of schooling in 2013. Two 45-minute EFL sessions are held per week. EFL learners in Saudi primary schools, especially beginners, experience challenges and difficulties that may affect their motivation to learn the English language. Numerous researchers have discussed issues associated with EFL learning in Saudi contexts (Alharbi, 2015; Alnofai, 2010; Assalahi, 2013; Wedell & Alshumaimeri, 2014).

In a study investigating the challenges of EFL teaching and learning in the Arab world, Fareh (2010) outlines several factors responsible for young EFL learners' failure to acquire the expected proficiency in English.

First, learning by rote and memorisation is prevalent in Saudi English classrooms due to teachers' inadequate teaching methods or insufficient training in English (Alharbi, 2015). This learning style adversely affects students' development of creativity, critical-thinking skills and problem-solving skills. Due to time constraints, teachers tend to use Arabic as the language of instruction, reducing students' overall exposure to English.

Second, English is essentially taught as a subject rather than a mode of communication. English classes thus tend to be teacher-centred: teachers talk for most of the time, leaving few opportunities for student interaction. Differences in students' proficiency levels, interests and skills are mostly ignored in such classes. Consequently, learners are passive receivers of teachers' input, and thus become bored and less motivated to learn.

Third, EFL syllabuses and textbooks address unrelated topics and set deductive tasks (Assalahi, 2013) rather than helping students to develop integrated skills. This further decreases students' communicative competence. Textbooks are usually very long, with content pitched higher than most students' proficiency level, which is likely to frustrate and demotivate the students.

Fourth, exposure to English and opportunities to practise English are very limited due to teachers' inadequate training and reliance on traditional pedagogical practices. Together, the large size of EFL classes, teachers' central role, the frequent use of Arabic and the focus on memorisation and rote learning prevent students from gaining the exposure and language practice necessary for effective LL. Saudi English learners also lack motivation because the opportunities to develop conversational skills outside class are very limited (Al-Nafisah, 2001).

Although the Saudi Ministry of Education aims to encourage communicative LL and the adoption of more student-centred learning approaches, as reflected in its recent reform of the English syllabus in line with global pedagogical developments, these goals are rarely realised due to the large-scale lack of appropriate teacher training.

The integration of technology has been proposed as a potential means of overcoming the limitations of EFL learning and teaching in Saudi Arabia (Al-shwiah, 2010). More

specifically, mLearning approaches have been recommended to increase EFL students' motivation to learn (Ahmed, 2012).

### **1.2.2 Adoption of MALL in Saudi Arabia**

Interest in mLearning in Saudi Arabia has increased significantly within the last few years due to the rapid development of and innovation in mobile technologies and wireless networks, promoting the widespread use of mobile devices in Saudi society. According to a 2012 report, Saudi Arabia has the largest percentage of mobile-phone users worldwide (Seliaman & Al-Turky, 2012). This finding was confirmed in a recent study by Fodah and Alajlan (2015) of the use of mobile devices by 10,943 university students in Saudi Arabia. The authors found that 99.57% of the respondents owned a mobile phone, of whom 34.41% had more than one mobile phone. Social-media apps were most frequently used by the students for learning purposes and to communicate with their teachers.

The literature shows that universities in Saudi Arabia were early adopters of mLearning, and remain the main consumers of educational mobile technologies (Al-Fahad, 2009; Almarwani, 2011; Al-Shehri, 2012; Altameem, 2011). Similar findings have been obtained regarding the adoption of MALL in Saudi universities (Al-Jarf, 2012; Al-Shehri, 2011; Thabit & Dehlawi, 2012).

Again, however, research on MALL in Saudi Arabia is exclusively concerned with adult EFL learners and the use of portable devices such as mobile phones and MP3 or MP4 players. Although tablets are widely owned and used on an almost daily basis, especially by Saudi children, their use and influence in EFL learning contexts have not yet been investigated. In 2013, the Saudi Ministry of Education announced the first

phase of the integration of tablets into schools, which involved designing e-textbooks for all subjects, accessible via IOS and Android tablets, with the ultimate aim of implementing tablets on a national scale in public and private learning (Alwatan, 2013). Many Saudi private schools have already implemented ‘digital school-bags’ by ‘tabletising’ textbooks and activity sheets. However, tablets have not yet been introduced to public primary-school education. In some schools, including the school surveyed in this research, students are only permitted to use tablets as an entertainment tool during open days.

### **1.3 Research Aims, Questions and Overview**

The aims of this thesis were to explore the educational uses of tablets and tablet apps by 4<sup>th</sup>-grade primary school EFL students in Saudi Arabia, and to assess the potential of tablets and apps to motivate Saudi children to study the English language, both during and outside their English classes. To fulfil these aims, the following sets of research questions were proposed.

- 1. What are the motivational affordances of tablets for ELL by Saudi children learning EFL as beginners?**
- 2. What are the motivational factors of the most popular apps used for ELL by Saudi children learning EFL as beginners?**

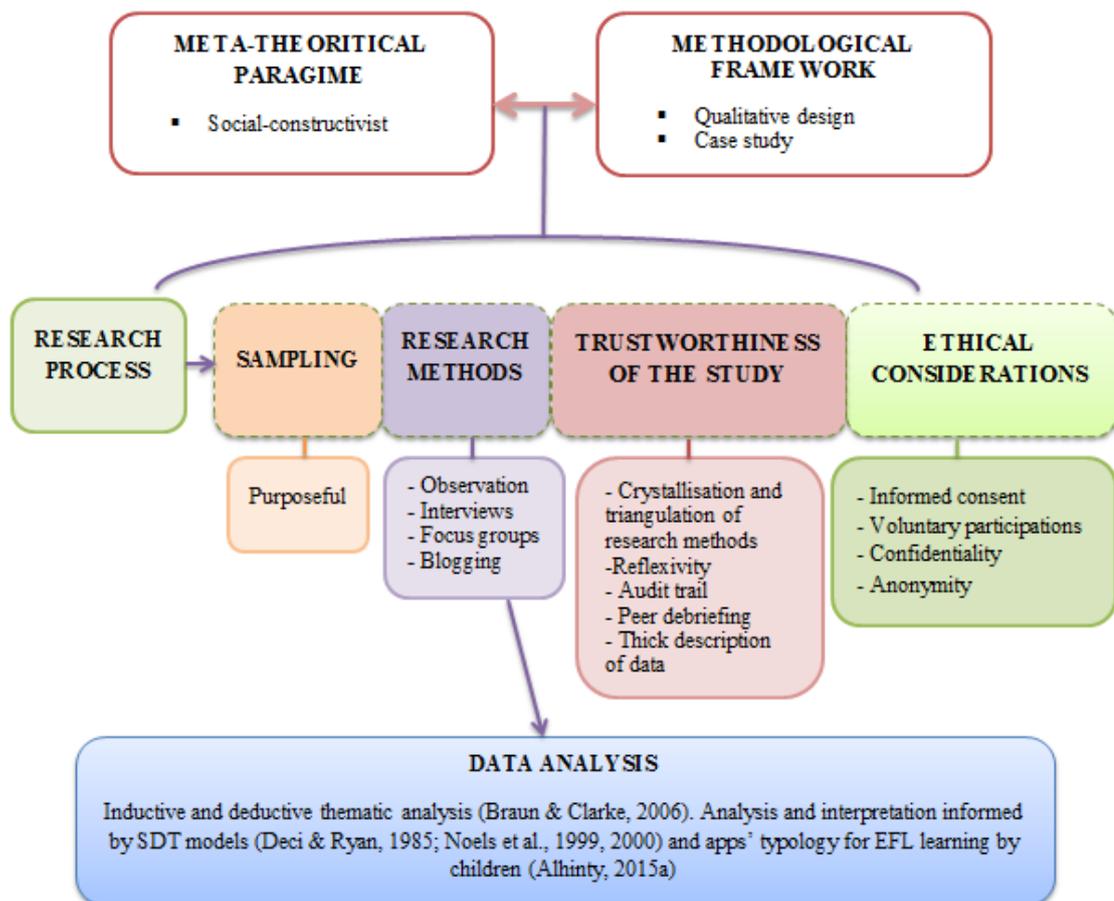
To answer these questions, I designed a case study in a 4<sup>th</sup>-grade English classroom in a Saudi primary school, during which the students were provided with iPad tablets. The study spanned sixteen lessons (two 45-minute classes per week). Before the study, I developed a typology of tablet apps suitable for use by young beginner-level EFL

students in both classroom and non-educational contexts (Alhinty, 2015a). This framework was used both as a guide for designing app-based English lessons and subsequently to analyse the motivational affordances of the apps as perceived by the young language learners.

To gain a clearer understanding of the educational uses of tablets and their apps by young EFL students, it was important to examine the students' real-life experiences both in and outside the classroom. As reality is socially constructed within specified social and cultural contexts, individuals' responses to the same phenomenon can vary according to the meaning they give to the phenomenon (Creswell, 2007). I thus interpreted the students' perceptions from a social-constructivist standpoint. To ensure that trustworthy data were collected on the motivational aspects of tablets and apps as experienced and perceived by young EFL students, I adopted an exploratory case study research design and used multiple qualitative methods of data collection, including participant observation, interviews, focus groups and reflective blogging. I selected these methods not only to obtain a more in-depth and crystallised understanding of the topic but also to enable the children to voice their own views and opinions as active constructors of knowledge. My analysis of the findings was informed by self-determination theory (SDT) (Deci & Ryan, 1985; Noels et al., 1999, 2000). This theoretical framework enabled me to closely examine the factors and conditions (both social and digital) that can elicit, foster, maintain or diminish young EFL students' intrinsic motivation and self-regulation when using tablets and apps for ELL. The research methodology, data collection, data presentation and analysis are outlined in Figure 1.1. As the research described in this thesis was a case study, its findings cannot be generalised to other cases. Along with limitations on time and

personal capacity, this drawback suggests useful directions for future research on this topic.

The findings of the thesis provide language instructors and teachers with insight into the potential of tablets and their apps to motivate ELL, and encourage the further use of tablets and tablet apps to meet young EFL learners' needs for competence, autonomy and relatedness. The study also contributes to discussion of the capacity of mobile technologies, particularly tablets, to motivate and support young EFL learners in learning English both in and beyond the classroom. In addition, the study suggests an innovative means of educating young EFL students in the 21<sup>st</sup> century. Finally, the findings of the thesis offer insights and recommendations for app developers and policy makers.



**Figure 1.1 Summary of research methodology and process**

## **1.4 Structure and Outline of Chapters**

### **Chapter One:** Introduction

In this chapter, the significance, context and aims of the study are explained, and the research questions and methodology are outlined.

### **Chapter Two:** Literature review

In this chapter, the existing literature on mLearning and MALL – their history, definitions, educational affordances and limitations – is reviewed. I discuss studies of the use of tablets in education and their implications for LL, as well as research on their design characteristics and affordances, and the concerns and drawbacks associated with their integration in education. Various categories of and frameworks for the use of mobile technologies in education are reviewed and analysed. Next, a detailed typology of the uses of tablet apps for English LL by young beginner-level EFL learners is developed.

### **Chapter Three:** Theoretical framework

This chapter addresses Self-determination Theory (SDT), a framework developed by Deci and Ryan (1985), and the model of L2 SDT proposed by Noels et al. (1999, 2000) which explain the types and extent of motivation and self-regulation in terms of the underlying reasons for behaviour (Ryan & Deci, 2000). This theory provides a framework guiding the current study. SDT is also discussed in this chapter in relation to mLearning and MALL.

### **Chapter Four:** Meta-theoretical and methodological frameworks

This chapter offers an outline and justification of the chosen meta-theoretical and methodological paradigms, the case study research design, and the sampling, data-collection and data-analysis procedures.

**Chapter Five:** Findings: first research question

The chapter presents and discusses data obtained in the study in relation to the first research question, the chosen theoretical framework and the findings of previous research.

**Chapter Six:** Findings: second research question

The chapter presents and discusses data from the study in relation to the second research question, the chosen theoretical framework and the findings of previous research.

**Chapter Seven:** Conclusion and recommendations

The concluding chapter of the study presents a summary of the key findings and outlines the contribution, limitations, implications and recommendations of the study.

**1.5 Chapter Summary**

In the last few years, new and advanced mobile technologies have emerged, and their use has become widespread. Given the vast number of educational apps currently available for children, and the immense popularity and prevalence of mobile devices, including tablets, among students, tablets clearly offer opportunities for LL (Godwin-Jones, 2015) that cannot be provided by more traditional EFL teaching methods. To date, however, insufficient research in the field of MALL has been conducted on the

educational uses of tablets and tablet apps for ELL by children learning EFL at beginner level. In the following chapter, I discuss the key theoretical arguments and findings of other studies to identify the novel contribution made by my study.

## **CHAPTER TWO**

### **Literature Review**

#### **1.1 Introduction**

It was vital to review relevant theories and studies to identify gaps in the literature to be addressed in this research, ensuring that the study is both pertinent and original. Therefore, this chapter provides an overview of existing theories and research relating to the topic of the thesis. I review literature on the history, definitions, educational affordances and limitations of mLearning and MALL. This is followed by a presentation and discussion of studies of the use of tablets in education and their implications for LL, with attention to their design features and affordances as well as concerns and issues associated with their implementation in educational settings. In the last section of this chapter, I will present and discuss in detail a novel typology of the uses of tablet apps which I have created for EFL learning by children at the beginner level.

#### **2.1 Mobile Learning (mLearning)**

##### **2.1.1 An Overview of Mobile Learning**

###### **2.1.1.1 A Brief History of the Evolution of Mobile Learning**

The evolution of informatics technologies during the twenty-first century has had a significant impact on the field of education. The ‘chalk and talk’ method is no longer the only dominant approach, as new, rapidly progressing technologies are adopted by educators and integrated into education. Such rapid development has led to the rise of

the e-learning phenomenon, with the purpose of enriching the learning-teaching process in the classroom and extending education beyond the classroom (distance learning). The progress, spread and popularity of portable technologies, together with the demand for their extended usage in education, have paved the way for the new concept of mLearning. As a result, mLearning is regarded by many researchers as a natural extension and evolution of e-learning (Korucu & Alkan 2011). However, mLearning adds more advantages to the already acknowledged benefits of e-learning. It offers users an increased flexibility and scope in their access to the educational content of e-learning, as e-learning is rendered independent of time and space (Cavus & Al-Momani, 2011; Korucu & Alkan, 2011).

The inception of mLearning dates back to 1972, when Alan Kay introduced his visionary Dynabook concept in a paper entitled “*A Personal Computer for Children of All Ages*”, which described a small, light and portable personal interactive device. One of the forms taken by the Dynabook was a book-like device resembling the Apple iPad. The proposed device was intended as a learning tool for children, providing them with access to global knowledge at anytime and anywhere, and accompanied by tools to build, edit and download digital content. Although the technology was not in place in the early 1970s to build a working Dynabook, Kay’s theory may have inspired others’ production of portable devices such as the iPad, which has many characteristics similar to Kay’s imaginary device (Edible Apple, 2010). The first practical steps towards mLearning using handheld devices (including the Microwriter and the Psion computer) in schools took place in the 1980s, as traced by Kukulska-Hulme, Sharples, Milard, Arnedillo-Sánchez and Vavoula (2009). Then, in the 1990s, other handheld devices were created and used for learning, such as the interactive portable wireless device named the HandLeR (Handheld Learning Resource)

(Kukulska-Hulme et al., 2009). The HandLeR was a wireless personal learning tool with integrated camera, pen input technology to capture notes, and a phone link. It was designed to help students on field trips by allowing them to take notes using multimedia and organise concept maps (Sharples, Corlett & Westmancott, 2002). However, the HandLeR system encountered significant technical problems which provided insight into the features of mLearning necessary to support contextual life-long learning (Kukulska-Hulme et al., 2009). Other educational applications of mLearning also emerged during the 1990s, including the 'Wireless Coyote' project (Grant, 2011), and Palm Pilot PDAs that provided multi-purpose personal learning tools. However, it was not until 2001 that the field of mLearning began the most important phase of its development. In this year, the European Commission began to fund the MOBIlearn and m-Learning research projects, both of which contributed significantly to the growth of mLearning. MOBIlearn (which ran from January 2002 to March 2005) was a world-wide European-led project aiming to identify "context-sensitive approaches to informal, problem-based and workplace learning by using key advances in mobile technologies" (Ally, 2007, p.2). The project established key mLearning theories, and shifted the focus of attention from the mobility of the device to the mobility of the learner (Kukulska-Hulme et al., 2009). The m-Learning project (from 2001 to 2003) concentrated on applications of mLearning for the benefit of young students who had failed in the traditional education system (M-learning, 2005). This project drew attention to the significance of mLearning in blended learning, and its capacity to enhance learning through creativity, collaboration and communication (Kukulska-Hulme et al., 2009). These early applications of mLearning confirmed its role as an emerging tool for education systems.

The last decade has witnessed the integration of mLearning into both formal and informal educational settings, due to the rapid worldwide increase in the use of mobile handheld devices. The popularity of mobile handheld devices derives chiefly from their embedded technological features, including wireless connectivity, web browsers, built-in cameras, games, personal organisers and many other combined applications designed to meet the needs of their users. Equipped with operating systems with a computational power similar to that of personal computers but independent of fixed location, mobile handheld devices provide a rich personal tool that has had a significant impact on social, business, gaming and entertainment platforms. The increasing popularity of mobile devices has thus afforded more opportunities for these devices to be integrated into educational contexts, where they offer an important new approach to learning.

### **2.1.2 Definitions of Mobile Learning**

A number of scholars have sought to explain the term mLearning or mobile learning; however, there is still no consensus as to its definition. This is due in part to the developing status of this research area. MLearning remains a comparatively new field, and one which is closely connected to, and affected by, the growth and progress of technology. It develops in tandem with technological growth, making it resistant to a fixed and precise definition. Another reason is the ambiguity of the ‘m’ in mLearning: it is unclear whether this letter signifies the mobility of learners, the mobility of technological devices, or even the mobility of content (Kukulska-Hulme, 2009). These interrelated elements of mLearning are also highlighted by Pegrum (2014). Such difficulty in defining mLearning is also noted by Hockly (2013) who states that “the

concept of mobility itself is problematic within any definition of mobile learning” (p.2). This section will show how some definitions of mLearning present a general overview of the term, while others focus on explaining certain aspects and characteristics of the concept, or directions in which it has been taken by researchers.

Broadly speaking, mLearning is understood as “any form of learning that happens when mediated through a mobile device” (Herrington & Herrington, 2007, p. 3). Another capacious definition conceives mLearning as the process of acquiring knowledge using mobile devices (Naismith, Lonsdale, Vavoula, & Sharples, 2004; Yuen & Yuen, 2008). Keegan (2005) and Alexander (2004) define mLearning as learning using portable handheld devices such as personal digital assistants (PDAs), tablet computers, smartphones, wireless laptop computers, handheld gaming devices, personal digital audio players, digital cameras, digital video cameras, e-book readers, and so on. It has also been described as a method of learning that legitimises mobile learners (Alexander, 2004). Meanwhile, Muyinda (2007) understands mLearning as a method of ‘giving and receiving feedback’ that is ‘location-independent and situation-independent’ (Nyíri, 2002). Additionally, this approach is defined as providing “every time, everywhere” learning using wireless portable devices (Harris, 2001, cited in Korucu & Alkan, 2011).

Some scholars describe mLearning as a new and independent approach that is affected by the characteristics of today's ubiquitous communication systems (De-Marcos, et al., 2010). The popularity and rapid evolution of mobile devices, and their clear potential for use in learning systems, have encouraged researchers to define mLearning as a “new paradigm” in education (Leung & Chan, 2003). Uluyol and Agca (2012) describe mLearning as “emerging as a new concept alongside the mobile workforce and the connected society” (p. 1194).

Many definitions of mLearning are techno-centric (Traxler, 2009); that is, concerned primarily with the technological features of mobile devices that serve to support learning. Such definitions concentrate on “the use of wireless-enabled mobile digital devices” (Cochrane, 2010, p.134). However, this emphasis is questioned by Laouris and Eteokleous (2005), who instead make the following recommendations:

Not only should we not constrain our definition of mobile learning to learning through mobiles, but we must shift focus from device to human. We suggest taking a broader view that accounts for a learner freely moving in his physical environment. (p. 6)

Such claims lead to definitions that seek to connect mLearning with the mobility of learners. Kukulska-Hulme (2005), for instance, states that mLearning is “concerned with learner mobility, in the sense that learner should be able to engage in educational activities without the constraints of having to do so in a tightly delimited physical location” (p. 1). Sharples, Taylor, and Vavoula (2005) also state that “it is the learner that is mobile, rather than the technology” (p. 4). Nevertheless, further research has worked to establish a link between these two components of mLearning: mobile technology and learners. For instance, O’Malley, Vavoula, Glew, Taylor, Sharples and Lefrere (2003) define mLearning as a type of learning that occurs when educational opportunities are offered via portable devices; learners are able to learn on the move as they carry their own mobile devices. Barbosa and Geyer (2005) also believe that mLearning occurs as learners move from place to place, carrying their learning environment physically with them (cited by Laouris & Eteokleous, 2005). Similarly, Sharples, Taylor and Vavoula (2007) define mLearning as “the process of coming to know through conversations across multiple contexts among people and personal interactive technologies” (p. 231).

The available definitions of mLearning can be summarised according to several key aspects of the technology. First, its mobility, which encourages learning to take place independently of time or location. Second, the necessary use of wireless portable handheld devices of some sort (De-Marcos et al., 2010). Third, mLearning can be blended with conventional educational techniques and/or e-learning; and fourth, mLearning can be both formal and informal.

Although mLearning has been the focus of many critical, theoretical and empirical studies in recent years, its definitions are relatively immature, and further research is needed to explore both the fundamental experience of the learner and what distinguishes mLearning from other kinds of education (Traxler, 2007).

Having illustrated the definitions of mLearning wherein the learner and the technological handheld device(s) are strongly connected, it is essential to highlight the concept of affordances through which this connection is made.

### **2.1.3 Pedagogical Affordances of mLearning**

Providing an in-depth analysis of the affordances and limitations of mLearning was crucial, as the affordances of tablets for ELL constituted the focus of this research. Therefore, some of the most significant issues in this area were considered as a background for the ensuing research.

Affordances is a key concept used in this thesis. According to Norman (1988), affordances are “the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used” (p.

9). Affordances for learning has been now used generally as a term to talk about the ways in which things might be facilitated or restricted.

“Despite its positivistic origin, unclear usage and logical inconsistencies, affordance is both a prevalent and persistent term in the literature on mobile learning” (Wright & Parchoma, 2011, p. 249). This is confirmed by the work of writers such as Cochrane (2010), Cochrane and Bateman (2010), Herrington and Herrington (2007), Koole (2009), Sharples, Milrad, Arnedillo Sanchez and Vavoula (2009), and Traxler (2010).

“Affordances for learning” is a notion used when considering mobile devices as “technologies for learning” (Wright & Parchoma, 2011). The assumption that mobile devices are utilised in situations and working environments that make their use preferable to that of other forms of learning is prevalent throughout the discussion of the affordances of mLearning.

#### **2.1.3.1. What are the Pedagogical Affordances of mLearning?**

MLearning may provide unique technological advantages which can result in positive pedagogical affordances. A variety of researchers have applied the concept of ‘affordance’ to their discussion of technical features: “mobile-specific affordances, such as GPS tagging, and built-in cameras” (Cochrane, 2010, p. 134), and “the affordances of mobile Web 2.0 technologies [e.g., blogs, Wikis, Twitter, YouTube]: connectivity, mobility, geolocation, social networking [such as Facebook and MySpace], personal podcasting and vodcasting, etc.” (Cochrane & Bateman, 2010, p. 4). Easily accessible forms of mobile technology such as PDAs, media players, tablets, mobile phones with integrated cameras, microphones and third-party software may offer a significant resource for information, and could provide means of performing

calculations and measurements and thereby increasing productivity, as well as facilitating access to social networking (Johnson, Levine, & Smith, 2009).

Pea and Maldonado (2006) provide a summary of the characteristics of handheld devices used within learning and other contexts: “portability, small screen size, computing power (immediate starting-up), diverse communication networks, a broad range of applications, data synchronisation across computers, and stylus input device” (p. 428). Klopfer and Squire (2008) point out that the affordances of mLearning most frequently mentioned are “portability, social interactivity, context, and individuality” (p. 95). In particular, portability is the characteristic which sets handheld devices apart from other emerging technologies. It is this feature which allows for the functioning of other technological attributes, such as individuality and interactivity. Similarly, Cheon et al. (2012) assert that there are three main features of mobile devices: (1) portability – mobile devices can be transported between locations; (2) instant connectivity – a wide range of information can be accessed by mobile devices at any point in time from a wide range of locations; and (3) context sensitivity – mobile devices can locate and retrieve real or simulated data (Churchill & Churchill, 2008; Pachler, Bachmair & Cook, 2010). These three unique characteristics of mLearning are building-blocks for a distinctive way of learning (Traxler, 2010; Wang & Higgins, 2006). Furthermore, the technologically advanced hardware boasted by mobile devices, such as built-in cameras and highly developed software (including applications), provides much functionality in terms of managing, manipulating and retrieving information for teaching and learning purposes (So, Seow, & Looi, 2009; Keskin & Metcalf, 2011).

Additionally, Orr (2010) suggests that “the primary affordance of mobile learning is that since the devices are small they can be carried anywhere, learning is available to the user in a ubiquitous fashion” (p. 108). Moreover, mobile phones “are particularly

useful computers that fit in [a student's] pocket, are always with [the student], and are nearly always on" (Prensky, 2005, p.2). The portability and immediacy of mobile devices provide students with the opportunity to choose when and where to learn. However, these criteria for affordance are also met by laptops, and arguably even desktop computers (Koole, 2009).

The most frequent claim for mLearning is that it allows for "educational content anytime, anywhere, on any device" (Smyth, 2005, p. 1). This generalised notion of learning "anytime, anywhere" is described by a number of different authors (Demouy & Kukulska-Hulme, 2010; Huang & Huang, 2015; Kukulska-Hulme & Shield, 2008; O'Bannon & Thomas; 2015; Pak, Lau & Ho, 2012; Traxler, 2013).

MLearning also opens up possibilities for the use of a broad range of pedagogical methods. Advantages include enabling teachers and students to send/receive course-related text messages (Thomas & Orthober, 2011); enabling the use of quizzes and providing students with opportunities to take part in polls, pose anonymous answers, and participate in anonymous discussions (Gikas & Grant, 2013); allowing access to and store of class learning materials (Cochrane, Ako & Oldfield, 2013); completing assignments (Fayed, Yacoub & Hussein, 2013); enabling lectures to be viewed on mobile devices (Pak et al., 2012); and providing communicative learning opportunities (O'Bannon & Thomas, 2015). Enabling face-to-face communication when students use the relevant devices in the classroom is another distinctive feature of mobile technology. A contrast can be made between situations in which several students use a single desktop computer, and those in which a variety of mobile devices are in use. In the latter situation, crowding around a single device need not occur (Crowe, 2007; Pea & Maldonado, 2006).

Possibly the most important affordances noted by advocates of mLearning are what Ryu and Parsons (2009) describe as the three pillars of education: individual, collaborative and situated learning. Individual learning using mobile devices is described as providing students with personalised learning opportunities (O'Bannon & Thomas, 2015; Park, 2011) that can enhance constructive learning (Naismith et al., 2004; Ryu & Parsons, 2009) and can encourage self-directed learning (Park, 2011). It also allows different environments to become locations of learning (Ryu & Parsons, 2009). Access to learning may be improved; not just in terms of location and time, but also for groups, since the technology is more affordable (Park, 2011)). MLearning also provides the opportunity for inquiry-directed and situated learning in the form of real-life activities which use technology to blur the distinction between formal and informal learning (Ryu & Parsons, 2009), in addition to providing further opportunities for informal, lifelong learning (Naismith et al., 2004). The ability to perform authentic learning activities are considered to be one of the significant pedagogical opportunities offered through using mobile devices that encourage their implementation in mLearning scenarios (Kearney, Burden & Rai, 2015).

Finally, commentators from both academia and industry have noted the benefits associated with the low cost of these devices (Crowe, 2007; Pea & Maldonado, 2006; Shin, Norris, & Soloway, 2007). During the current period of ongoing economic recession and funding shortages, the provision of inexpensive and accessible technology which assists students' motivation and learning is a requirement for teachers and learning administrators (Rinehart, 2012).

#### **2.1.4 Limitations of mLearning, and Other Considerations**

As previously highlighted, mLearning is favoured by many researchers who encourage its integration into educational systems on the grounds of numerous pedagogical affordances that may enhance the education process. Nonetheless, the use of technological handheld devices in education is not without its limitations. More broadly, the use of mobile technology in education has received some opposition and resistance from academics and educational institutes (Merchant, 2012a). Campbell (2006) claims that mobile devices may be misused and even abused in the classroom if students receive insufficient care and supervision. He calls for further research regarding the best ways to integrate mobile devices into classrooms. Mobile devices are believed by some to disturb students' concentration (Baker, Lusk & Neuhauser, 2012; Park, 2011; Wang, Wu & Wang, 2009). Texting during class, sending emails, and checking social networks are reported as disruptive features of mLearning (McCoy, 2013; O'Bannon & Thomas, 2015; Van Praag & Sanchez, 2015). On similar lines, some educators claim that the use of these "disruptive" mobile technologies (Herrington & Herrington, 2007, p. 3), especially those with texting features (Bouchard, 2011), should be banned in classrooms for their potential to distract students from learning. Indeed, many schools have made a stand against the use of mobile devices, prohibiting their use in classroom settings (Grant, Tamim, Sweeney & Ferguson, 2015; O'Bannon & Thomas, 2015).

Issues related to learners' privacy and security may also contribute to the decision taken by some schools to prohibit mobile devices. These include children's exposure to non-filtered web content; control of students' data access; the ability to take photos and the issues of bullying that may result; and devices' potential loss or theft. Finally, another source of opposition to the use of mobile devices in classrooms lies in certain

newspaper reports which claim that students may be using the devices to cheat in examinations (Williams, 2010). The problems of cheating (O'Bannon & Thomas, 2015; Tindell & Bohlander, 2012) cyber-bullying and accessing inappropriate content have been identified in mLearning research (O'Bannon & Thomas, 2015).

The limitations associated with the use of mobile handheld devices to advance education have been amply discussed in the literature, accompanied by suggestions for solutions to these problems. One of the limitations of mLearning to have received much discussion concerns the technical and physical features of mobile devices that may affect their efficacy in assisting learning (Kukulska-Hulme, 2007; Lowenthal, 2010; Park, 2011; Wang & Higgins, 2006; Wang et al., 2009). Their small screen size is claimed to affect the presentation of information (Churchill & Hedberg, 2008), and to cause difficulty when users attempt to read large portions of text (Lu, 2008). Low-resolution display, limited memory, slow network speeds, and short battery life present other technical hindrances to the use of mobile devices in education (Kukulska-Hulme, 2007).

Additional limitations to the use of mobile handheld devices in education include issues of content and problems with software applications. These include the

difficulty of adding applications, challenges in learning how to work with a mobile device, and differences between applications and circumstances of use; network speed and reliability; and physical environment issues such as problems with using the device outdoors, excessive screen brightness, concerns about personal security, possible radiation exposure from frequencies, the need for rain covers in rainy or humid conditions, and so on.

(Kukulska-Hulme, 2007, cited in Park, 2011, p. 83)

Furthermore, the pedagogical affordances of “anywhere, anytime” mLearning were investigated and found wanting in a practical sense by Wright and Parchoma (2011), who tried to access, read and retrieve peer-reviewed literature from a university library database using their own mobile devices (respectively, an iPhone and an HTC Desire). The researchers describe the results as follows:

While we found it possible, on numerous attempts access failed. Often a network was dropped, authentication failed, a document failed to download completely, the device lost power (challenging the notion of any time), remote Internet access was not available, the screen limited legibility and readability, or it was impossible to read in bright sunlight (challenging the assertion of anywhere). (p. 253)

This observation is supported by Grant and Barbour (2013), who report that students may not be able to make use of learning at any time and anywhere when specific times and locations are established for their course tasks. In addition, the pedagogical preferences of learners have been discussed (Park, 2011; Wang et al., 2009). Students prefer using mobile devices to play audio and video clips, to text and chat with friends, and to access social networks, rather than for learning and instructional purposes (Park, 2011; Wang et al., 2009). Finally, the lack of ownership presents another challenge to the use of mobile devices in educational settings (Sharples et al., 2005).

Awareness of these limitations has urged further research to provide design recommendations and other advice for mLearning developers (Gu, Gu, & Laffey, 2011; Hwang & Chang, 2011; Sharples, 2000; Shih & Mills, 2007) in terms of overcoming technical limitations. In order to overcome the challenge of limited screen size, for instance, instructional content should be designed and modified to suit the

small size of the screen (Lowenthal, 2010). Furthermore, the content to be used in mLearning should be presented in small chunks. For example, Shieh (2009) and Gu et al. (2011) designed a model of a micro lecture with reduced content and duration between one and five minutes. Moreover, when mLearning content includes audio files, the design should take account of the environment in which the mobile device will be used (Cheon et al., 2012), since “it is possible that some of the audio components of mLearning curriculum will not be available to the learners in noisy environments” (Wang & Shen, 2012, p. 570).

Nevertheless, with the continuous and rapid advancement and improvement of mobile handheld devices whose successive generations each boast more new and innovative features, the “technical limitations of mobile devices may be a temporary concern” (Park, 2011, p.83). The evolution of tablets with larger screens, for instance, has resolved many technical issues that were limiting the educational benefits of smaller mobile devices. For example, iPad tablets, with their larger screens and keyboards, higher-resolution displays, innovative hardware and interactive content, highlight by contrast the limitations of earlier generations of mobile handheld devices, and offer a new vehicle for mLearning that has the potential to enhance and support education in both formal and informal settings.

In this introductory section of the literature review, I have provided a brief overview of the historical origin, development and definitions of mLearning. In the following section, I discuss the specific uses of mobile devices in LL contexts and provide a detailed account of mobile-assisted LL (MALL), including its relation to mLearning, and the educational advantages and limitations of mobile technologies in LL contexts.

## **2.2 Mobile-Assisted-Language-Learning (MALL)**

### **2.2.1 Brief Overview of MALL**

The utilisation of mobile handheld devices as educational tools to enhance and support learning has been expanded to cover LL and teaching. The necessity of providing learning tools at ‘anytime and anywhere’ for distant language learners has resulted in the emergence of MALL, whereby language courses and instructional materials are delivered to distant learners via mobile devices (Green, Collier & Evans, 2001). However, the use of MALL is not limited to distance learning; rather, it has been extended to support other language-learning environments such as classrooms and online courses. MALL is a subdivision of computer-assisted language learning (CALL), as it also entails the use of technologies to aid LL. However, ‘MALL differs from CALL in its use of personal, portable devices that enable new ways of learning, emphasising continuity or spontaneity of access and interaction across different contexts of use’ (Kukulska-Hulme & Shield, 2008, p.273). Similarly, Ballance (2012) states that:

In the last decade, CALL literature has begun to address the potentials of MALL: mobile-assisted language learning, or M-learning (Godwin-Jones, 2008; 2011). MALL has opened new directions in CALL, as the flexibility offered to users has the potential to greatly exceed that of non- mobile CALL. However, the pace of technological innovation can have the effect of making research into MALL appear outdated as technology seems to be developing faster than researchers can publish. (p. 21)

MALL is also a subdivision of mLearning, as it is likewise interested in the integration of mobile technologies in education; however, the former is specifically concerned with the use of mobile devices to teach and learn languages “especially in situations

where device portability offers specific advantages” (Kukulska-Hulme, 2013a, p. 3701). The aim of MALL is to support language learners by taking advantage of the increased popularity and ownership of advanced mobile technologies such as mobile phones, portable media players, tablets and electronic dictionaries. Although the affordances of MALL are similar to those of mLearning, and the two share such features as portability, flexibility and ease of access, the use of mobile devices in LL may afford more significant learning opportunities than those provided by learning methods such as eLearning and classroom learning. These opportunities will be discussed in the following section.

### **2.2.2 Educational Benefits of Mobile Technologies for LL**

LL is considered one of the major disciplines to benefit from mLearning (Kukulska-Hulme, 2015). Much of the existing research has highlighted the learning opportunities that may result from the integration of mobile devices in LL (Ballance, 2012; Gromik, 2012; Godwin-Jones, 2011; Stockwell, 2013; Stockwell & Hubbard, 2013). One of the reasons for implementing this approach in LL is “the nature of language learning content which largely lends itself to being divided up into portions that are suitable for access on mobile devices, the relative ease with which audio-visual media may be utilised to create a portable, flexible learning experience” (Kukulska-Hulme, 2015, p. 282). Language learners can take advantage of their own portable devices to access and make use of manageable chunks of LL materials (Chinnery, 2006) thus undertaking continuous learning suited to their time and place.

Additionally, with constraints such as limited class time and thus limited exposure to the target language, learners in formal classroom settings often struggle to master their

desired language. However, incorporating MALL with language-learning courses may encourage increased, continuous, and flexible exposure to LL materials, as mobile technologies allow learners to carry their personal learning on the move (Beatty, 2013; Kukulska-Hulme, 2012; Elias, 2011; Roschelle, Sharples & Chan 2005; Traxler, 2013). According to Kukulska-Hulme (2012), “language learning can escape the traditional constraints of time and place that partly determine existing curricula, which focus largely on what can be achieved and tested at home or in the classroom” (p. 7). This is stressed by Beatty (2013):

Audio translation apps, augmented reality, and just-in-time learning approaches are providing alternatives to those with neither access nor time to learn a language.” Consequently, “learners are turning to new mobile learning opportunities to supplant traditional teaching as virtual extensions of earlier self-help books, phrase books, and audio-based language learning programs. (p. 2)

Mobile technologies therefore have the potential to bridge formal and informal LL as they can deliver and extend formal LL by enabling supplementary, out-of-class practice and translation support (Kukulska-Hulme, 2015; Traxler, 2013). With respect to informal LL, the use of mobile devices is indicated to be useful for language learners in exploring the target language and directing their “own development through immediacy of encounter and challenge within a social setting” (Kukulska-Hulme, 2015, p. 282). MALL is suggested to improve LL by increasing time spent on LL out of class, by taking advantage of mobile multimedia features to perform required tasks (Burston, 2015).

In addition to the bite-size LL chunks, and flexible extended LL afforded by MALL, facilitating interactive LL is suggested to be one of the affordances of the use of

mobile technologies in LL. Interaction is crucial to the LL process, as it has the potential to bring together the constituents of effective LL: high-quality content, feedback, and practice (Gass & Mackey, 2007). According to Benson (2015) “the idea that learning is allied to interaction is central to a range of perspectives on LL, which have variously been termed constructivist, sociocultural, learner-centred, communicative, collaborative, cooperative, and dialogic” (p. 88). Mobile technologies, with such innovative features as online connectivity and multimedia, may facilitate interaction in learning by enabling access to language-learning materials via e-books, the Internet, multimedia recordings, and online dictionaries (Patten, Arnedillo Sánchez & Tangney, 2006). They also allow learners to undertake interactive learning activities such as games (Homer et al., 2014; Sykes & Reinhardt, 2013; Wong et al., 2013). Additionally, the pen-pal method, one of the earliest tools for language practice and intercultural learning, has developed today into the form of email exchange (Jones, 2005). MALL thus has the potential facilitate interaction and collaborative learning (Beatty, 2013; Burston, 2015) by establishing novel dynamics for collaborative learning wherein learners can participate in the LL process in small synchronous groups (Nah, White & Sussex, 2008) as in the case of Skype, Moodle and live online courses or asynchronously as in podcasts and blogs (Eaton, 2010). This is supported by Kukulska-Hulme et al. (2015), who point out that the affordances of mobile devices enable multimodal communication, collaboration and language practice in everyday and professional contexts.

Besides these pedagogical affordances of MALL, integrating mobile devices in LL has the potential to encourage active LL in which learners take responsibility for their own learning in a way that were previously impossible as the powerful tools and features integrated in mobile devices allow language learners to:

create and share multimodal texts, communicate spontaneously with people anywhere in the world, capture language use outside the classroom, analyse their own language production and learning needs, construct artefacts and share them with others, provide evidence of progress gathered across a range of settings, in a variety of media. (Kukulska-Hulme et al., 2015, p. 7)

This is highlighted by Beatty (2013), who points out that students consider these devices as an “enabling force in the classroom, allowing them to gather information, study, work, and communicate with both their teachers and their peers effectively” (p. 6). For example, the built-in camera can be used to record notes or images on board or lectures and PowerPoint presentations to be viewed later at the students’ own pace (Beatty, 2013; Kukulska-Hulme et al., 2015; Van Praag & Sanchez, 2015). The Internet can be used as a research tool to access LL content (Kukulska-Hulme et al., 2015; Van Praag & Sanchez, 2015). Mobile access to LL online course-related material can be through open webpages that include vocabulary flashcards, audio recordings or short pieces of text, or off-line language resources through saved e-books (Godwin-Jones, 2015). Students in language classes may also use either online or built-in bilingual dictionaries on their mobile devices to search for the meaning of a word, and built-in cameras or voice recorders to record and save a lecture to be re-watched later. In addition to delivering LL content, mobile technologies can be used to provide language learners with assignments, assessment and feedback to assist them in their development of language proficiency.

Research on MALL has indicated its potential to enrich and support various other kinds of learning, such as contingent learning, situated learning, authentic learning, context-aware learning, augmented reality mLearning, personalised learning,

collaborative learning, and game-based learning (Traxler, 2013). This is supported by practical research on MALL that identifies personalisation, collaboration and authenticity as beneficial affordances of mobile technologies in L2 learning environments (Viberg & Gronlund, 2013).

A significant number of MALL studies are concerned with exploring and investigating the uses of mobile devices (such as mobile phones, PDAs, multimedia players and tablets) to teach language skills such as speaking, listening, reading and writing, as well as language elements such as vocabulary, pronunciation and grammar. Vocabulary learning has been reported to be the most popular use of mobile devices for LL, specifically mobile phones and PDAs (Burston, 2015; Duman et al., 2015), suggesting that vocabulary-related apps have a positive effect on learning (Burston, 2015; Ya, Ching & Chih, 2013). The use of Short Messaging Service (SMS) and Multimedia Messaging Service (MMS) applications to teach simple L1/L2 word pairings or L2 definitions, accompanied by model sentences, constitutes the most popular use of these devices to teach and learn L2 vocabulary (Burston, 2015). Empirical evidence has been provided for the effectiveness of mobile devices as a tool for learning English vocabulary in natural settings, due to their convenience, accessibility and provision of technological functions that facilitate learning, assessment and practice (Wong & Looi, 2010; Wu, 2015).

In addition to improving vocabulary acquisition, mobile devices (e.g. PDAs) have been found to enhance L2 reading competency by providing language learners with location-appropriate L2 English texts to read alongside translations, assisting with pronunciation and vocabulary, explaining sentences, paragraphs and whole articles,

and improving the pre-reading word construction ability of young language learners via mobile PDA programs (Burston, 2015).

In terms of SL/FL writing skills, the use of an app-based spelling programme by adult EFL students has been shown to have significant positive learning outcomes, including the acquisition and development of English-spelling ability, improved mood and increased confidence in learning spelling (Shih et al., 2015). In other MALL writing-enhancement projects, mobile devices have been integrated with situated learning to encourage L2 children to create L2 English sentences. In one study, the learners benefited from the vocabulary, phrase and sentence patterns provided as part of a designed mobile system, which enhanced their sentence creation, reasoning, communication and organisation (Hwang, Chen & Chen, 2011).

In terms of SL/FL listening and speaking skills, MALL researchers have reported positive findings regarding the use of voice-recording tools integrated with mobile devices to record students' oral answers in response to recorded questions. The use of podcasts has also been found to improve adult students' L2 English listening and oral skills; the students listened to passages with model pronunciation on iPods and then recorded their own (Burston, 2015). Podcasting has been integrated to a remarkable degree with LL, and has been found to greatly assist learners in developing listening, vocabulary and pronunciation skills and enhance their motivation to learn a second language (Chan, Chi, Chin, & Lin, 2011; Chi & Chan, 2011). Additionally, the voice-/speech-recognition feature integrated with mobile devices has been used in MALL contexts to enhance speaking skills (Ya et al., 2013).

The benefits of MALL in the above respects indicate its potential as an effective educational platform that facilitates language learners' access to and practice of the target language.

### **2.2.3 Limitations and Considerations of MALL**

The use of MALL, like that of mLearning, poses some challenges related to the technical features of portable technologies, such as a small screen and keyboard, limited memory/storage, reduced audio-visual quality, and weakness or lack of internet coverage, lack of standardised software, and limited web pages compatible with mobile devices (Kukulska-Hulme, 2007; Kukulska-Hulme et al., 2015; Lowenthal, 2010; Park, 2011; Wang & Higgins, 2006; Wang et al., 2009; Van Praag & Sanchez, 2015). However, Van Praag and Sanchez (2015) argue that many of these technical limitations are being overcome with the rapid progress of technological innovation.

Kukulska-Hulme et al. (2015) suggest some important considerations that need to be examined in relation to the use of mobile devices for LL. These include issues of personal ownership and variety of mobile devices; students' willingness to use their personal mobile devices as part of their LL in or out of class; students' privacy when publishing online; teachers' and students' knowledge of how their devices work for LL and teaching; and the perceived view that mobile devices are interfering with the quality of human interaction, communication, classroom dynamics.

One of the drawbacks of MALL noted by researchers relates to the cost of mobile technologies. For instance, some studies have found students unwilling to answer questions via their mobile phones due to the cost of text messages (Lee, 2006). This

problem, however, has been overcome by funded projects that provide students with devices and cover the costs of sending text or multimedia messages. Such projects include a study carried out by City College, Southampton in the UK (JISC, 2005), McCarty's (2005) study in Japan, and Belanger's (2005) study in the USA. With limited funding available to educational institutions, Gilgen (2004) argues that mLearning is most effectively implemented by designing mobile labs. Kukulska-Hulme and Shield (2008) draw attention to the differences between formal and informal MALL learners' attitudes towards the cost of mobile technologies for educational use:

In the formal contexts, learners often seem to require that their studies be subsidised in order to provide the motivation to use mobile devices to support their learning, while learners in informal contexts appear to be less concerned about cost, accessing learning materials at their own convenience and to suit their own needs. (p. 281-282)

Furthermore, although some MALL studies conducted in informal contexts have sought to encourage language learners to produce and tailor their own learning content such as audio and video recordings and share these materials via their mobile devices, this does not necessarily further oral interaction (Petersen & Divitin, 2004, cited in Kukulska-Hulme & Shield, 2008). Others such as Colpaert (2004) believes that the advancement of mobile technology is shifting learners' output from verbal to visual modes, which may affect the quality of LL. However, each generation of mobile technology boasts new, innovative features with the potential to overcome such limitations and provide more opportunities for effective LL. For instance, app stores offer for download a vast number of educational applications, many of which have the potential to advance oral skills and collaborative learning.

Additionally, the ‘anytime, anywhere’ principle specifically afforded by mLearning (in comparison with e-learning) seems often to be disregarded and/or not fully utilised in MALL activities (Kukulska-Hulme & Shield, 2008; Van Praag & Sanchez, 2015). For example, instead of accessing language content at times convenient to them, students may receive SMS messages at fixed times and on specific days (Stander, 2011). In addition, the difficulty of fulfilling the ‘anytime, anywhere’ objective in synchronous MALL contexts such as speaking and listening has been discussed in connection to practical issues such as scheduling. This is also acknowledged to be problematic in the context of computer-mediated communication programs for LL (Kukulska-Hulme & Shield, 2008). Finally, similar to mLearning, the ‘anytime, anywhere’ LL is affected by the reliability of the student’s mobile network coverage specifically when internet is needed (Van Praag & Sanchez, 2015).

As MALL is a relatively new field, it is extremely important to design appropriate environments for its application (Laurillard, 2012). As Chinnery (2006) claimed, “the effective use of any tool in LL requires the thoughtful application of second language pedagogy” (p. 9). It is thus crucial to explore the educational applications of a given mobile device before that device is fully adopted in a language-learning environment. Therefore, the next section of this thesis provides an overview of multi-touch tablets (using Apple’s iPad as a representative example), with reference to their key features, design characteristics, and limitations. Familiarity with the design and applications of tablets is crucial to understanding how best to use them for educational purposes. This is important because iPad tablets and the apps that run on them are viewed as artefacts that support learning and literacy (Merchant, 2015a). In this study, specific reference is made to the use of multi-touch tablets to teach English to children learning English

as a Foreign Language (EFL) at beginner level. This section has previously been published (Alhinty, 2015a).

## **2.3 The Use of Tablets in Education**

Before attempting to fully integrate the iPad or other tablets into the school setting, a suitable IT infrastructure should be prepared, and teachers and staff should be trained to plan its usage in a way that exploits its affordances and fits the curriculum. The extent to which tablets can be utilised to support children's learning in primary schools and elsewhere relies mainly on the understanding of the affordances of these devices. The concept of affordances can be employed to shed light on the ways in which children "engage with technology in their practice[s], including actual uses as well as uses that emerge in practice" (Churchill, Fox & King., 2012, p. 252). This section therefore examines in detail the affordances of tablets for ELL by young EFL students as beginners, along with the potential problems generated by their integration in educational settings.

### **2.3.1 Features and Design Characteristics of Tablets**

Since their first appearance on the technology market, multi-touch tablets such as the iPad followed by Android, Windows and other touch tablet style technologies have enjoyed considerable popularity. Their large multi-touch screens, mobility, accessibility, powerful functionality, expansive, secure and organised ecosystem of applications, long battery life and wireless connectivity have often been described as the most significant features capable of supporting learning (Butcher, 2014; Fisher et al., 2013; Linder, Ameringer, Erickson, Macpherson, Stegenga & Linder, 2013;

Pellerin, 2014). A decreased need for technical maintenance (Jennings, Anderson, Dorset & Mitchell, 2011), and fewer security problems such as viruses and malware (Meurant, 2010) are other significant features of tablets. Furthermore, tablets offer the capacity for instant transition between pages and applications (Churchill et al., 2012; Pak et al., 2012), which makes it easy to use. This technology is also eco-friendly, as content is displayed on the screen without requiring the use of paper.

In comparison with previous generations of mobile technologies, new multi-touch tablets have larger screens that provide a wider viewing angle, and thus encourage shared and collaborative usage by multiple students (Henderson & Yeow, 2012; Fisher et al., 2013). The technological affordances, accessibility, and open-design apps provided by tablets may facilitate collaborative learning and social interaction, which have been highlighted in the literature as significant advantages of using tablets in educational contexts and beyond (Falloon & Khoo, 2014; Fisher et al. 2013; Kucirkova et al., 2014; Sullivan, 2013). In addition, researchers have indicated that the use of tablet technologies in learning environments is practical and enjoyable, and thus increases students' engagement and motivation (Dundar & Akcayır, 2014; Ward et al., 2013). The portability of tablets has been claimed to encourage flexible learning, as it is not necessary for students to visit ICT labs to use them; tablets can be used anywhere in the school (Brand & Kinash, 2010). In addition to increasing students' opportunities to learn at any time and anywhere, the portability of tablets has been indicated to encourage more engaged, purposeful and active learning, leading to a significant shift in students' learning style (Butcher, 2014).

In addition to their use as a media-consumption tool, tablets have been reported to offer productive means of creating, representing, and analysing data (Preciado-Babb, 2012) and thus encouraging immersive learning and enhancing students' understanding of core concepts (Ward et al., 2013). Researchers have reported various uses of tablets for the latter purposes. For example, tablets may be used as “a tool to access course resource and library databases, a note-taking tool, a communication tool, a presentation/projection device and as a device for online assessment” (Nguyen et al., 2014, p. 2). These functions are enhanced by their built-in capabilities, such as cameras, audio- and video-recording equipment, and the provision of multiple applications. The latter is considered one of the most significant characteristics of tablets. The increasing number of apps hosted by the Apple and Google Play stores (Godwin-Jones, 2015) enable teachers and students to select educational apps that suit specific learning objectives (Dickens & Churches, 2011). Tablet apps, especially open-ended apps, have been indicated to enhance children's engagement and exploratory discussion (Falloon & Khoo, 2014; Kucirkova et al., 2014).

The adoption of multi-touch tablets in education is not limited to a specific brand of tablet technology. The educational use of tablets with various operating systems (e.g., IOS and Android) has been reported. However, most studies to date including this thesis have focused on the Apple iPad, due to its widespread popularity and acceptance among students and academics (Nguyen et al., 2014) and its status as the first multi-touch tablet with multi-purpose functionality (Filho, Lima & Lennon, 2014).

The above-reported examples of the use of tablets in education perhaps provide what Selwyn (2010) described as “‘best case’ examples of educational technology” (p. 66). Some researchers have reported even more positive experiences with tablets, praising

their educational affordances and capacity to transform learning spaces (Fisher et al., 2013), and describing them as “ideal tools for creating an interactive, collaborative, and ubiquitous environment for language learning” (Chen, 2013. p. 20). However, researchers investigating educational technologies are advised not only to look for instances in which such technologies “work,” or to focus solely on examples of best practice, but to examine the problems or limitations associated with implementing the technologies in educational contexts (Selwyn, 2011. p. 717). This is especially important when researching the integration of tablets and tablet apps with education, as this field is relatively new and requires more realistic investigation and expectations.

### **2.3.2 Limitations of Using Tablets in Education**

Some concerns have been reported in the literature regarding the use of tablets in mLearning contexts. One of the limitations of tablets and tablet applications is their high cost (Rossing, Miller, Cecil & Stampe, 2012; Sloan, 2012) in comparison to other devices such as notebooks. However, the collaborative nature of the tablets has been reported to overcome this problem by allowing multiple students to share their usage (Henderson & Yeow, 2012). There is also the possibility of damage to the device, especially when used by young students, which in turn entails the additional costs associated with repair or replacement (Henderson & Yeow, 2012). However, this danger can be overcome by providing the devices with protective covers that keep them safe from serious damage.

Tablets may also be perceived as a source of distraction. Some researchers have found that the non-educational affordances of tablets (such as access to social media and other non-educational websites) distract students from learning in the classroom

(Hoffman, 2013; Kinash, Brand & Mathew, 2012). Butcher (2014) reports adult students' complaints about other students' using the tablets to access social media or play music, games and videos.

Others have reported that tablets reduce students' inclination to socialise with friends during breaks (Dundar & Akcayır, 2014). Additionally, teachers' lack of control over students' activities on tablets has been identified as an issue of concern (Henderson & Yeow, 2012), and has led some teachers to prohibit the use of tablets in the classroom (Dundar & Akcayır, 2014). It may be easy for some children inadvertently to access inappropriate content, to be distracted by social media and websites, and/or to run apps that interrupt their learning. Therefore, certain rules should be established to control the usage of the iPad and reduce the likelihood of its misuse. For example, teachers are advised to instruct their students as to the proper usage of the device, and take appropriate action in response to misuse, such as temporarily depriving students of access to the device (Henderson & Yeow, 2012).

Other researchers have reported technical limitations, such as the inability to access Java-/ Flash-based Web educational content on tablets (specifically iPads), as well as administrative limitations such as Internet-security issues that prevent students from connecting their tablets to school wireless Internet networks, and thus restrict their use of Internet-dependent apps and some tablet features (Ward et al., 2013). Other technical problems include weakness or loss of wireless Internet connection (Isabwe, 2012), over-sensitive touchscreens causing unintentional engagements in other functions in the screen and difficulties with resizing pictures and text in some apps (Hutchison et al., 2012). Others have reported some technical issues with tablets' apps

that result in students' frustration such as app sudden shutdown before saving their work (Butcher, 2014) and technical challenges such as unstable apps (Rossing et al., 2012).

In their review of the literature on the integration of tablets (iPads) in higher education, Nguyen et al. (2014) show that although researchers are increasingly positive about the implementation of iPads and iPad apps in learning contexts, their use does not "necessarily lead to better learning outcomes." Several challenges are reported in the review, such as educators' confusion about their role due to the lack of a well-defined pedagogical approach to implementing tablets in academic programmes, and the need for a technological support system. The latter issue was also reported by Dundar and Akcayir (2014), who described teachers' difficulties in using and preparing learning content on tablets, and the need for more systematic training on the educational uses of tablets. This is highlighted by Isabwe (2012) who describes the unpreparedness of an institution to support such technologies, and by Hutchison et al. (2012) who indicates the need for the teacher to adapt to new methods of receiving, assessing and storing students' work.

The results of a recent study by Larabee, Burns and McComas (2014) on the relative influence of iPad applications and traditional materials on students' decoding performance and task engagement indicated that task engagement increased in both situations, but the use of iPads "had a small, positive effect on decoding performance when compared to the standard materials" (p. 464). Other scholars have described students' mixed attitudes towards the use of tablets and their learning applications. For example, the students involved in Sloan's (2012) study regarded the iPad as an

enjoyable and easy-to-use device, and found a course-specific app similarly useful, but expressed neutral attitudes towards the use of these tools for learning. They preferred to use physical textbooks in combination with the app. Comparably, Hoffman (2013) described students' preference for traditional means of writing, which they perceived to be more effective for learning than touch-input writing on tablets. Again the 'anytime, anywhere' functionality of tablets may not be fully exploited. Allowing students to use the tablets only during lessons, while in the classroom as well as sharing the device prevent the students from using it whenever they choose (Henderson & Yeow, 2012). The findings of previous studies suggest that to make the most of the educational potential of tablets and tablet apps, students should be provided with the necessary skills and capabilities (Falloon & Khoo, 2014), along with guidance, support, and access to the devices in question (Chen, 2013).

The adoption of multi-touch tablets for use in education is a relatively new phenomenon. However, more and more individuals, schools, universities, and other educational institutions are experimenting with the integration of this technology. Several researchers have explored the use of tablet applications by children with disabilities or other special needs (Flower, 2014; Miller et al., 2013; Xin & Leonard, 2014). A number of studies have investigated the usefulness of tablets in supporting primary-school curricula, and their influence on children's behaviour and achievements (Gasparini & Culen, 2012; Henderson & Yeow, 2012; Hutchison et al., 2012; Lynch & Redpath, 2012). Additionally, many studies have been published on the usage of tablets in higher education (see the review conducted by Nguyen et al., 2014). These studies have helped to expand our understanding of the possibilities of using tablets as an educational tool. However, many studies investigating the

educational uses of multi-touch tablets have focused on first-LL by children or adult learning in different domains. Compared with the experiences recorded online by individuals and institutions via social media and blogs, little research has been published on the educational use of tablets for LL by children at beginner level. In addition to the limited research on the educational potential of tablets for LL by young learners, very little is known about the educational uses of applications of tablets for LL by children at beginner level. Therefore, it was useful to develop a typology of tablet apps to analyse their educational uses and motivational aspects in MALL contexts. Accordingly, I developed a typology of the applications of tablets for beginner-level English LL by children that is relevant to both classroom contexts and non-educational environments (Alhinty, 2015a). I applied this typology in the study I carried out both as a guide for designing the English app lessons and during the analysis phase along with the SDT model (Deci & Ryan, 1985; Noels et al., 1999; 2000). This typology is also expected to provide language instructors and teachers with insight into the potential of these apps to assist LL, and to encourage further utilisation of their affordances by young learners. In the next section, I briefly outline a number of key frameworks for the implications of handheld mobile technologies in education which I made use of during the process of developing the typology, followed by a typology of apps developed for ELL by children as beginners.

#### **2.4 Categories of and Frameworks for Mobile-technology Uses in Education**

The educational uses of multi-touch tablets for English LL by young beginners have received little attention in comparison with students' uses of mobile technologies in a range of learning contexts. The latter have been explored by a number of researchers,

resulting in a series of proposed frameworks and categorisations for the applications of mobile devices (Cheung & Hew, 2009; Churchill & Churchill, 2008; Churchill et al., 2012; Clough, 2005; Clough et al., 2009; Liaw, Hatala & Huang, 2010; Patten et al., 2006) presented in Figure 2.1. The uses and implications of portable technologies in education vary according to the type of mobile device used (whether a PDA, smartphone or tablet, for example), the relevant learning context (formal or informal), and the choice of learning philosophy (collaborative, situated, contextual, constructivist, social-constructivist, or behaviourist) (Uluyol & Agca, 2012). In a review of the existing literature on mobile technologies, Naismith et al. (2004) identified a number of theory-based approaches to mobile educational activities, such as behaviourist, constructivist, situated, collaborative, informal and lifelong learning. Comas-Quinn, Mardomingo, and Valentine (2009) used constructivism, learner-centeredness, situated learning, and informal learning to design a MALL course and related activities. Together with these educational theories, sociocultural approaches have been used to inform the use of mobile technologies in learning.

I thoroughly synthesized and discussed the different mLearning frameworks presented in Figure 2.1. However, due to space limitation I could not include this discussion in the thesis (for more details of the frameworks see Alhinty, 2015a).

# Frameworks of Educational Uses of Mobile Technologies



Figure 2.1: Educational uses of mobile technologies

The frameworks and categories presented in Figure 2.1 demonstrate the potential usefulness of mobile technologies in education. However, none of them has addressed the uses of such technologies by children; all focus on adults. Furthermore, most of these classifications are concerned with students' use of mobile technologies such as PDAs, palmtops, and mobile phones. Only one framework includes the educational affordances of tablets and tablet apps, and this framework is based on the limited and preliminary findings of an ongoing study with adult participants. As explained earlier, the use of apps in MALL, especially with children, has not been explored by frameworks; it is thus necessary to develop a typology of the applications of tablets for learning English by children. This is especially important given the potential affordances of these apps, and children's widespread acceptance of and preference for tablets. Such a typology will provide teachers, researchers, and policy makers with insights into the educational affordances of tablets in supporting children's English-language acquisition, and offer guidance for those who wish to use tablets in real-life language-learning contexts with children.

## **2.5 Typology of Tablet Apps for English-language Learning (ELL) by Children**

The typology displayed in Figure 2.2 comprises the following categories: communicative applications, content-access applications, productivity applications, interactive applications, and storage applications. Each category includes one or more use(s) of tablet apps for learning English by young EFL students, along with examples of apps in that category. These categories were developed deductively from the previously presented classification frameworks, and tailored to learner age group (children), the subject to be learned (English), level of target-language proficiency (beginner), learning contexts (both in and outside classroom settings), and, where

appropriate, learning theories. A series of educational apps were analysed, tested, and refined in relation to the guidelines and uses in each category. The apps under study are predominantly iPad apps, due to the widespread popularity and use of iPads in educational contexts and the context of this study, compared with other tablets. However, it is very important to emphasise that these apps are presented here as a guide; their uses are not restricted to iPad tablets, as many are cross-platform apps that can work in IOS, Android, and even online. It should also be noted that app stores (regardless of their operating systems) offer huge numbers of apps that can be used for educational purposes.

In the following section, I consider each of these categories outlined in Figure 2.2.

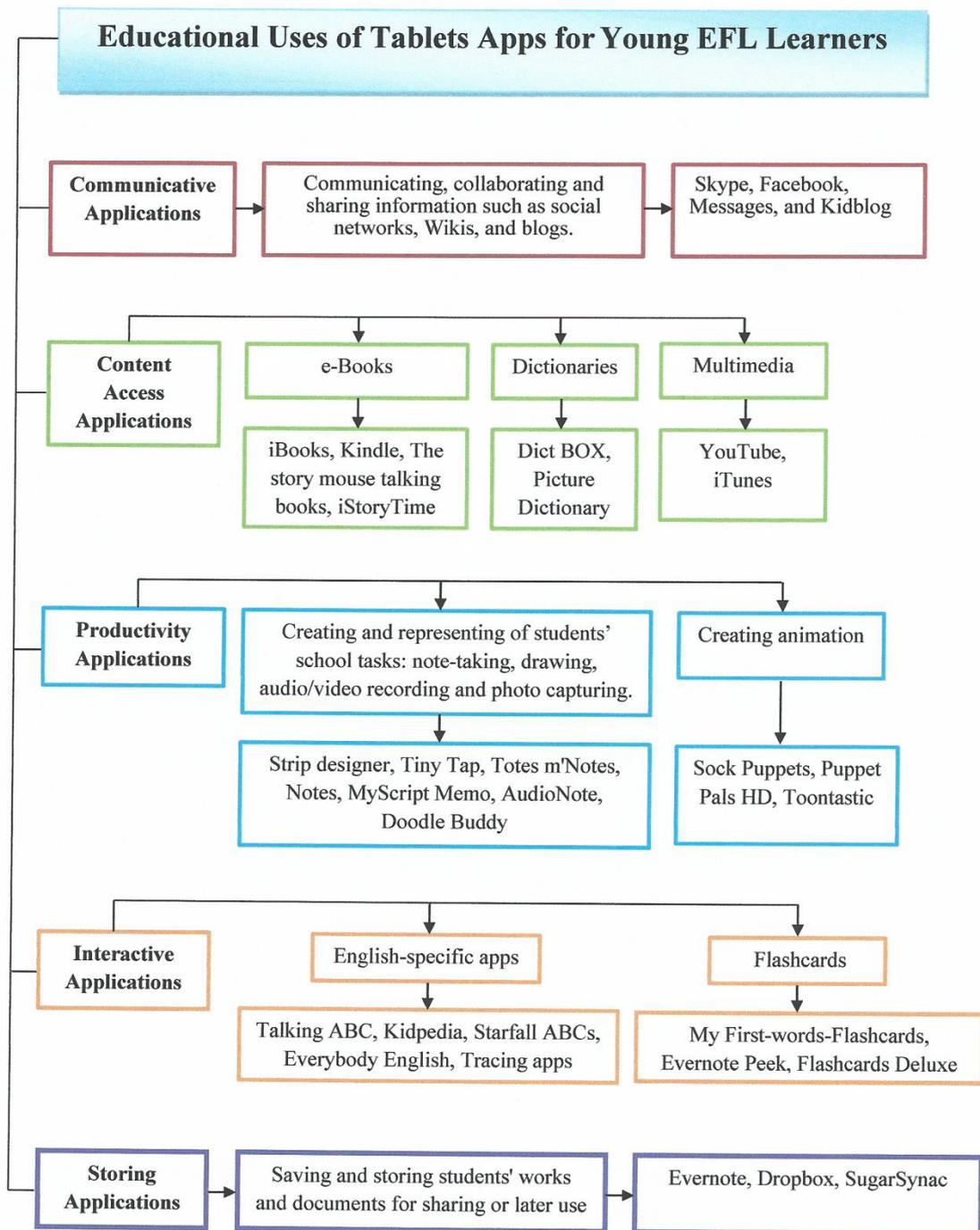


Figure 2.2 Educational uses of iPad apps for young EFL students (Alhinty, 2015a)

### **2.5.1 Communicative Applications**

Applications in this category allow young English-language learners to communicate, collaborate, and share information via social networks, wikis, and blogs. Collaboration has been recognised as one of the most significant characteristics of mLearning (Kearney, Schuck, Burden & Aubusson, 2012), especially when the use of mobile devices is combined with Web-2.0 applications (Ertmer & Ottenbreit-Leftwich, 2013). During mobile blogging (moblogging), for instance, the flexibility and convenience of mobile technologies (which permit various modes of communication – audio-based, image-based, video-based, textual, etc.) have been shown to motivate learners and encourage them to collaborate and interact (Shih & Mills, 2007). Blogs can provide students with an online space in which to meet virtually, share experiences, exchange opinions, and communicate with their teachers. Skype has also been described as a useful tool for collaboration, as it enables students to receive instant and personalised feedback (Butcher, 2014), while FaceTime provides similar functionality but specifically for IOS. Furthermore, the portability of tablets and other mobile devices has been reported to encourage LL, as it enables communication to take place at any time and anywhere via such apps as Twitter (Fayed et al., 2013).

Fayed et al., (2013) suggested that iPads and other mobile devices have various capabilities that make them a potential platform for promoting and supporting interaction and collaboration in learning, such as quizzes, e-dictation, mobile games, media sharing and mini-whiteboards. For example, children can use tablet apps designed specifically for them, such as Kidblog, to communicate and share information on blogs in a safe and secure environment. Children can practise their newly learned language skills and demonstrate their LL when writing and posting artefacts and pictures on their blogs and sharing reviews of new and useful apps. The

use of Twitter has also been indicated to encourage continuous interactivity and collaboration between students in discussing learning materials and connecting with up-to-date research (Gikas & Grant, 2013).

Some apps may support specific LL skills. Applications such as Twitter or Facebook are regarded as “popular tools for engaging students in language learning” (Beatty, 2013. p. 6). For instance, writing in the new language on Twitter and Facebook and in wikis and blogs may support writing skills. Video calling tools like Skype primarily support speaking and listening skills, but also enable learners to practise writing in the new language if a texting feature is provided. Teachers can encourage learners to use these applications informally outside classroom settings to promote learner-learner communicative MALL activities in which the teacher participates only as a facilitator. In a study investigating the impact of iPad use on the oral proficiency of advanced language learners, Lys (2013) reported that applications such as FaceTime encourage real-time video interaction between students, and between students and their instructors, which positively affects their oral proficiency. Blogging applications such as Kidblog provide learning environments that can facilitate and increase language learners’ interaction with their peer groups.

### **2.5.2 Content-Access Applications**

Applications in this category benefit from the mobility of tablets, which facilitate flexible and instant access to information and educational resources. These applications support some elements of constructivist and social-constructivist learning theories; for instance, students may participate actively in learning as individuals or in groups by searching for multimedia or information on their mobile devices (Ozdamli,

2012), choosing suitable e-books and sharing their reading with others. This category of tablet usage has three sub-categories: e-books, dictionaries and multimedia applications.

### **2.5.2.1 E-Books Applications**

One of the most significant affordances of the multi-touch tablet is the availability and accessibility of thousands of free or purchased electronic books. Readers can choose from a wide selection of e-books or textbooks made available for students by many educational institutions. For example, students can use the iBook app either individually or in pairs to read novels as part of their daily reading requirements, or study a subject in PDF format (Henderson & Yeow, 2012). The availability and accessibility of many e-books on one device have been argued to make tablets more convenient and less expensive for learners than heavy printed books (Churchill et al., 2012; Fayed et al., 2013). Reading e-books has been shown to be very popular, particularly in informal learning activities (Pettit & Kukulska-Hulme, 2007). The multimodal nature of many e-book apps is perceived as attractive (Godwin-Jones, 2011), and their interactive and flexible designs have been shown to make them engaging and popular, as children enjoy following their animated stories and turning virtual pages (Lynch & Redpath, 2012).

Young EFL learners are able to download e-books in a range of genres and on a variety of subjects suitable to their age and proficiency level to help them practise reading either in school or at home. Tablets' large screens may provide a book-like experience of reading, thereby overcoming the key limitation of small screen mobile devices. In addition, many apps have built-in features that enable readers to customise

book styles, highlight, bookmark and search for text, add annotations and sticky notes, and obtain definitions of unknown words. According to Hutchison et al., (2012), the multi-touch tablet provides effective support for literacy learning by enabling students to download and read digital interactive books. Students are supported in their reading by advanced features such as audio recording, the ability to follow the text word by word, image animation, and the opportunity to learn word definitions or pronunciations simply by touching the relevant words on the screen (Hutchison et al., 2012, pp. 16-17). Additionally, these kinds of books may promote interactivity and creativity by allowing students to make audio recordings of text and play them back, as well as adding annotations, symbols and stamps and uploading pictures (Hutchison et al., 2012, p.17). For example, the use of the iBook app has been claimed to promote children's digital communication by enabling readers to add sticky notes to e-books to be read by other students (Hutchison et al., 2012). According to Kukulska-Hulme et al., (2009), '[the] most innovative use [of e-books] is in book-marking areas of interest and creating context annotations that can trigger and support follow-up learning' (p. 13). For younger learners, interactivity is highly enjoyable and engaging; for instance, the ability to highlight the words of a song sung by a real person enables learners to follow the words with their fingers or read along with the app. The Toy Story app is one example (Falloon, 2013). iBooks, Kindle, Perfect Reader, Ebook Reader, iTunesU and PlayTales Gold are all examples of this use of apps.

### **2.5.2.2 Dictionaries Applications**

Using a dictionary or translator is essential when learning a second/foreign language, whether in or outside the classroom setting. Dictionary apps have been reported to

constitute the main use of mobile devices for LL among adult learners (Li & Hegelheimer, 2013). As they enable users to look up vocabulary at any time and anywhere, their convenience and accessibility motivate language learners to use dictionary apps to fit vocabulary learning into their everyday lives (Deng & Shao, 2011; Steel, 2012). Furthermore, dictionary apps provide instant search functionality, which is perceived as highly time-efficient in comparison with dictionaries in book form (Steel, 2012). In addition to dual-language searches, these apps incorporate other features that can be helpful to language learners, such as offering words in context, providing grammatical forms and enabling handwriting on the screen (Steel, 2012). Tablets offer many bilingual-dictionary apps that can be used by young language learners to identify the meaning of an English word in their first language, or vice versa. Some apps provide pictorial dictionaries, which are particularly suitable for young learners. Most dictionary apps allow users to access spoken pronunciations of vocabulary, and some enable learners to make lists of their favourite words. Examples of this type of tablets apps are Dict BOX, and Picture Dictionary.

### **2.5.2.3 Multimedia Applications**

It has been suggested that mobile technologies offer valuable opportunities for accessing authentic multimedia learning resources (De Jong, Specht & Koper, 2010. p. 110). YouTube, for instance, is considered one of the most popular social-media and multimedia-access tools (Fayed et al., 2013); it provides a rich resource for teaching various language skills (especially receptive skills) and a potential platform for incidental learning. Accessing YouTube via mobile devices has been found to be exciting and convenient for mobile language learners (Kim, Rueckert, Kim, & Seo,

2013), as “YouTube offers fast and fun access to language and culture-based videos and instruction from all over the globe [and] provide[s] students with an opportunity to engage meaningfully in the target language” (Terantino, 2011, p. 110). According to Watkins and Wilkins (2011), the main advantages of using YouTube are the “exposure to authentic English” and “the promotion of a learning style that is more autonomous and student-centered” (p. 113).

Children learning English may use the YouTube app to access English-learning videos, or the iTunes app to access fictional and nonfictional films and animated videos in English. Applications in this category provide English learners with authentic language content that can enhance their acquisition of the target language if chosen carefully to suit students’ proficiency levels, needs and required learning topics. Furthermore, the multimodality of many YouTube video clips – sound, text, and image – may greatly motivate users, especially children, to learn from their content. Multimedia tools such as YouTube and the technological functionalities of tablets can provide students with learning anywhere and at any time, as well as “just-for-me,” “just-enough,” and “just-in time” learning (Traxler, 2013), by facilitating access to the language resources and materials they need.

### **2.5.3 Productivity Applications**

Applications in the “productivity” category are open apps that support constructivist and social-constructivist principles of learning. According to these principles, new knowledge should be constructed by learners from their existing knowledge (Bruner, 1966). Constructivist and social-constructivist learning activities promote students’ active learning by encouraging them to engage proactively in authentic and

meaningful tasks that support their personal understanding of learning content. Accordingly, these approaches emphasise student-centred learning in which students actively participate rather than acting as passive recipients of knowledge. Students are encouraged to create their own representations of new concepts or knowledge, whether individually or collectively. The social-constructivist perspective on learning (Vygotsky, 1978) stresses the importance of students' social interaction as a means of learning.

With their multi-functional affordances, mobile technologies have the potential to support social-constructivist learning (Cochrane et al., 2013; Lan, Sung & Chang, 2013). The apps in this category allow students to create tasks and represent their own knowledge. Children can use the apps available from tablet stores to produce their own language-learning tasks in the classroom in a fun and creative way. Sandvik, Smørdal and Østerud (2012) pointed out that the multimodality of tablet apps can support children's LL by enabling immersive experiences and encouraging learners to construct their own meanings. This category of apps has two sub-categories: note-taking, drawing, audio/video recording and photo-capturing applications; and multimedia- and animation-creation applications.

### **2.5.3 .1 Note-taking, Presentation, Drawing, Audio/Video Recording and Photo-Capturing Applications**

Tablets offer a massive collection of apps that enable users to draw, write and take notes. Apps in this sub-category range from simple finger-writing/ painting apps to more complex and sophisticated apps that encourage more creative output. Hutchison et al. (2012) experimented with the use of a painting app called Doodle Buddy to

enhance the reading-comprehension strategy of visualisation. Small groups of children were each assigned a sentence or a short paragraph of an unseen text and asked to use the app to design a visual representation of that sentence or paragraph. The children used their fingers to draw, paint and write with the virtual colours, stamps, glitter, and stencils provided by the app. After completing the task, the teacher arranged the story in sequence and displayed its complete form to the students. Using this app helped to develop the students' digital skills by enabling them to create a picture that best reflected the meaning of a given textual fragment, thereby assisting their visual representation and understanding of the text and encouraging their collaboration and interaction. The children applied their experience of other digital literacy tools to the new device, and thus adjusted quickly to its operation. Comparably, Henderson and Yeow (2012) asked children (9-12 years old) to use apps such as Pages to take notes, and then to use the KeyNote app to present their work. The findings of the study were very positive; the device's easy-to-use design, effective search tools, appealing applications and portability enhanced the accessibility and productivity of the participants' learning. Moreover, such apps help to improve children's engagement and collaboration by encouraging groups (normally comprising 5 or 6 students) to carry out research and create and share content collaboratively.

In the context of LL, children can use these apps in and outside the classroom to practise writing their new language and create painted and written projects that represent their LL. Examples of these apps include Totes m'Notes, Notes, MyScript Memo, ArtStudio, Topnotes, Doceri, My Blackboard, Penultimate, Sketchbook Express, Doodle Buddy, Explain Everything, Strip Designer and Haiku Deck.

Audio-/video-recording and photo-capturing applications enable students to gather audio, video and photographic data. Such apps include Camera, Voice Memos,

AudioNote, SonicPics, Pic College, ScreenChomp, Doceri, Educreations, Drawp and ShowMe. This affordance of the tablet may provide authentic language-learning opportunities for children by allowing them to contextualise their LL in real-life settings. Whether in the classroom or at home, children can use the built-in camera and voice recorder to take photos, create videos and record audio clips that illustrate newly learned items. An example of this affordance was provided by Wong and Looi (2010), who asked learners to take photos or videos on mobile devices to reflect the correct usage of second-language vocabulary in real-life settings. Similarly, this type of tablet usage was described by Lynch and Redpath (2012), who asked children to use a voice-recorder app to create audio-visual alphabet books. This category overlaps with other categories of tablets' affordances such as the communication category, as students may find it helpful to share their findings with their peers. Finally, storage applications may be used to save the audio, video or photographic data obtained.

### **2.5.3.2 Multimedia and Animation Creation Applications**

Many apps that were originally developed for entertainment purposes have helpful educational elements. For instance, the use of multimedia and animation apps to support children's storytelling learning as part of the curriculum was described by Gasparini and Culen (2012). The children involved in this study were encouraged to tell stories using two applications (iPad apps): Puppet Pals (ready-made characters) and Animation HD (hand-drawn characters). The children found Puppet Pals to be a more engaging and exciting method of creating a story than Animation HD.

Young language learners can use these applications to practise their language skills, particularly their oral skills, by creating their own learning content; not only during

English classes but in their free time at home. Sandvik et al. (2012) pointed out that language learners' existing competence levels and the need to build their higher-level skills such as narration, negotiation, problem-solving and reasoning should be taken into account by language teachers. To this end, apps such as Puppet Pals may be very useful. In addition to improving oral skills, the use of animation and other multimedia-creation apps has been reported to encourage young children to construct authentic and meaningful language-learning activities, and to increase their engagement with independent and self-directed learning (Pellerin, 2014). Other uses of tablet apps may fall into this sub-category, such as applications for storing, capturing and communicating information. Examples of such apps include Sock Puppets, Puppet Pals HD, Puppet Pals 2, Animation HD, Animation Creator HD, Toontastic and iMove.

#### **2.5.4 Interactive Applications**

This category consists of English-language specific apps that offer interactive educational activities for English-language beginner learners. The apps in this group have a behaviouristic “drill and practice” structure designed to engage children through “response and instant feedback,” and thereby help them to memorise information (Patten et al., 2006). Young language learners can benefit from the use of these apps to learn basic English such as the alphabet, numbers and basic vocabulary. This set of applications has two sub-categories: interactive English-language games, and flashcards.

#### **2.5.4 .1 Interactive English- Learning Applications**

Among the most popular apps available for tablets are interactive apps and games developed for entertainment and/or educational purposes. A large number of interactive educational apps have been developed for LL, especially ELL for beginners. Most of these apps address native English pre-schoolers, but may also support English language acquisition by ESL/EFL children. This type of app tends to offer various digital features such as songs, authentic videos, pictures, sounds and gamified exercises designed to stimulate younger learners' interest and motivate them to learn. Moreover, many of these apps invite children to record their voices to practise their speaking skills, write using their fingers, and choose the right answers to questions asked about spoken or written information. A large number of apps in this category also provide scaffolding for learning by guiding, aiding and rewarding children as they learn. The large multi-touch screen of a tablet can be beneficial, as it may enable children to engage and interact easily with the learning content.

Lynch and Redpath (2012) used the gaming app Pocket Phonics, which teaches phonics and handwriting, to support literacy learning. The findings of their study indicate that students are very excited by and enthusiastic about the use of Pocket Phonics in the classroom, and that this app motivates them to use tablet applications for learning. Examples of apps in this sub-category are Interactive Alphabet ABCs, Endless Alphabet, Starfall ABCs, Little Writer for Kids, I Love ABC, and Everybody English.

#### **2.5.4.2 Flashcards Applications**

Numerous apps offer either pre-existing flashcards or flashcards that can be created and customised. They range from basic image-free flashcards to those including images, pictures, voices and sounds. Although some language learners regard flashcards as a dull and boring method of learning, others consider mobile flashcards to be very useful. Research by Başoğlu and Akdemir (2010) indicates that the use of a mobile flashcard application to acquire L2 English vocabulary is more effective and entertaining than the use of physical flashcards. In addition, Steel (2012) reports that undergraduate language learners expressed positive opinions of the use of mobile apps such as flashcard apps for vocabulary acquisition. The ability to personalise flashcards encourages students to connect their use of apps to the learning input or method used in the classroom. The affordance constituted by the customisability of mobile flashcards motivates language learners to create their own flashcards and learn and revise vocabulary in a more fun and flexible way, both in and outside the classroom. As well as personalising the content of flashcards, language learners can customise features such as repetition pace, images, fonts, audio recordings of vocabulary, colour themes and backgrounds. Other flashcard apps offer additional functions such as deck and individual-card editing, an ‘auto-define’ feature that shows vocabulary definitions added by others (Godwin-Jones, 2011), and text-to-speech functionality. Examples of these apps include My First Words – Flashcards, Evernote Peek and Flashcards Deluxe.

### **2.5.5 Storage Applications**

Applications in this category enable students to save and store their own work and pre-existing documents to share with teachers or peers, or for individual use at a later point. Most apps provide the additional functionality of storage for created items, but some apps are dedicated to saving and storing. Such apps can be used to save English-language textbooks or assignments, or simply to store the pictures, paintings, videos and papers created by learners. Furthermore, the stored content can be accessed from other computers or mobile devices. Examples of these apps include Dropbox, Evernote, SugarSynac, File Manager and iFile for iPad.

The typology presented above offers insight into the possible uses of tablet apps for English-LL, and has implications for both research on education and the practical adoption of these ready-to-hand tablets by young language learners in the classroom and beyond. Furthermore, this typology can be adapted for application to the acquisition of non-English languages and the study of other subjects, which increases its usefulness. This typology suggests the ways in which tablet apps can be used to teach English to young EFL children at beginner level. A literature review reveals that most existing educational-technology studies focus on how educational technologies can or should be used; few researchers have reported on how and why digital devices are used (or not used) in real-world educational environments (Selwyn, 2010, 2011). This section therefore focuses on the educational use of tablet apps, as this relatively new field of research has received little attention from scholars to date, especially with reference to young language learners. To fill this gap in the literature, I developed and presented a typology of apps with the goal of offering language teachers and researchers insights into the possible uses of tablet apps for ELL by children. Also I utilised this typology in my research by using it as a guide for designing and preparing

the English app lessons which I carried out in the study and as an analytical lens along with SDT (Deci & Ryan, 1985; Noels., 1999; 2000).

## **2.6 Chapter Summary**

In this chapter, I presented and discussed the research findings reported in books and articles on mLearning and MALL. The history, definitions, educational affordances and limitations of these learning approaches were outlined and discussed. The majority of the chapter addressed studies of the educational uses of tablets and their implications for LL. Attention was paid to tablets' design characteristics and affordances, and the concerns and drawbacks associated with their integration with education. Different categories of and frameworks for the uses of mobile technologies in education were outlined and reviewed. Finally, a detailed typology of the uses of tablet apps for ELL by young beginner-level EFL students was developed to inform the present study. My study contributes to the gap in the literature around the educational uses of tablets and their apps for ELL by young beginner-level EFL students.

In the following chapter, I present and discuss the theoretical framework that underpinned my conceptualisation and analysis of the data obtained during the study. As my aim was to determine how different aspects and affordances of tablets and their apps affect young learners' attitudes towards using them to learn English in MALL contexts both in and outside school, I based my research on Self-determination Theory (SDT) (a cognitive theory of motivation), which explains stimulation and intention in relation to basic determinants of human actions (Ryan & Deci 2000). SDT will be outlined and discussed in the next chapter.

## **CHAPTER THREE**

### **Theoretical Framework**

#### **Positioning the Study in Relation to Self-determination Theory (SDT)**

##### **3.1 Introduction**

In the previous chapter, I discussed prior conceptual and empirical studies of the educational uses of mobile technologies. In this chapter of the study, I present, discuss and rationalise the theoretical framework underlying my conceptualisation of the study. In the first section of this chapter, I address the concept of motivation, which is foundational to the thesis. I then discuss motivation in the LL field. Next, I explain SDT, the model of motivation used in this study to explore the influence of the affordances of tablets and their apps on young EFL students' attitudes towards using such devices in MALL contexts. In the last section of this chapter, I present a comprehensive and detailed discussion of the application of SDT (Deci & Ryan, 1985; Noels et al., 1999, 2000) in mLearning and MALL, with a particular focus on basic human needs (specifically for autonomy, competence and relatedness).

##### **3.2 Choice of Theoretical Framework**

The major question that I sought to answer initially concerned the uses and affordances of tablets and their apps for ELL as experienced and voiced by EFL young students. During my initial inductive thematic analysis of the data, I identified 'motivation' as the key theme, along with other themes such as social interaction, independent/autonomous learning and empowerment. Subsequently, I reviewed the

literature for theories relevant to these preliminary themes. After a lengthy review of the literature on motivation theories potentially relevant to MALL, I found SDT (Deci & Ryan, 1985) and its extension to L2 learning (Noels et al., 1999, 2000) to be most appropriate. I considered various theories of motivation, along with other theories, and although some had elements relevant to my purposes, the related models did not fully capture the open nature of my inquiry. My pursuit of in-depth understanding brought me to SDT, which I found to be the theory most valuable to my efforts to make sense of the data and arrive at both specific and general findings. As the theory offers an interpretation of human actions in relation to their basic need for autonomy, competence and relatedness, I found it to be most relevant and applicable to the themes I identified in the initial analysis and the issues I sought to examine in this study. The SDT model was also chosen due to its inclusion of various types of motivation and levels of self-regulation, which are explained in terms of the reasons underlying actions (Ryan & Deci, 2000). This enabled me to examine the different aspects and affordances of apps that may encourage different kinds of motivation and levels of self-regulation.

Finally, I found this theory relevant because it helped me to fulfil my ontological, epistemological and methodological aims. I based my study on the assumption that the social and lived experiences of the children under study would enlighten and deepen our knowledge of the potential uses and motivational affordances of tablets and their apps in MALL contexts and influence their implementation by teachers and policy makers. I thus sought to encourage the children to speak out and offer them opportunities to practise their choice and self-determination to understand their multiple interpretations of how their personal and shared use of tablets and their apps affect their ELL. Therefore, my study was premised on the social-constructivist

epistemological paradigm of knowledge generation, which postulates that human action is constituted by meanings that are socially constructed (Denzin & Lincoln, 2005). In addition, whereas motivation theories tend to emphasise the quantity of motivation necessary to generate positive learning results, SDT is concerned more with the quality of motivation required to encourage better learning outcomes, and the conditions needed to enhance learners' self-motivation and self-determination (Deci & Ryan, 2000). SDT was thus a suitable framework for my methodology, as I used a qualitative case study to gain an in-depth understanding of the motivational affordances of tablets and their apps for ELL.

### **3.3 Overview of Motivation**

Motivation is regarded as one of the key determinants of individuals' actions; according to Dörnyei (1998), it is "responsible for determining human behaviour by energizing it and giving it direction" (p. 117). Motivation is considered an essential condition for learning to take place (Bruner, 1960; Schmitt, 2002), "because learning is an active process requiring conscious and deliberate effort" (Stipek, 1988, p. ix). Researchers studying motivation have traditionally addressed three interrelated features of human behaviour: the choice of a specific action, perseverance with that action and the effort made to undertake it (Dörnyei, 2000). When students are motivated to learn, they become more interested in learning, make more effort to learn and become more involved in the learning process; as a result, their learning is more effective.

This section provides an overview of motivation: its definitions; its importance to the field of LL; the key model of L2 motivation; and the choice of SDT as the main approach to motivation in this study.

### **3.3.1 Definitions of Motivation**

Motivation is often defined as comprising “the factors that determine a person’s desire to do something” (Richards, Platt & Platt, 1992, p. 238). However, this simple definition is unsatisfactory, as in Gardner’s (2006) words, “motivation is a very complex phenomenon with many facets [...]. Thus, it is not possible to give a simple definition” (p. 242). According to Javid, Al-Asmari and Farooq (2012), the source of this complexity lies in the various interpretations of motivation by different psychological schools. Behaviourist scholars, for instance, interpret motivation in terms of the expectation of reinforcement and reward (Brown, 2000). The cognitivist explanation of motivation emphasises the importance of individuals’ choices and inner decisions (Keller, 1983), which are also stressed by constructivist theorists with additional attention to social contexts as factors that affect motivation (Brown, 2000). Although these three psychological schools offer different interpretations of the concept of motivation, they all identify ‘needs’ as key factors (Javid et al., 2012), because “the fulfilment of needs is rewarding, requires choices, and in many cases must be interpreted in a social context” (Brown, 2000, p. 161). The complexity and variety of definitions of the construct of motivation is unsurprising if one understands that it is “intended to explain nothing less than the reasons for human behaviour” (Dörnyei, Csizer, & Nemeth, 2006). Similarly, Deci and Flaste (1996), in their book *Why We Do What We Do: Understanding Self-Motivation*, argue that to understand

motivation it is necessary not only to examine human actions but the reasons for these actions. On the same lines, Brophy (2010) notes that “motivation is rooted in students’ subjective experiences, especially those connected to their willingness to engage in learning activities and their reasons for doing so” (p. 3). Students’ reasons for engaging in certain learning activities thus offer crucial insight into the factors that enhance students’ motivation to learn.

### **3.3.2 Motivation in the Field of LL**

The significance of motivation to L2 (second or foreign language) acquisition and LL has attracted the attention of an increasing number of researchers over the last five decades. Its role in determining and predicting LL success is of particular interest (Gardner, 1985). Research has shown that motivation increases L2 achievement, which in turn leads to successful LL (Masgoret & Gardner, 2003). Furthermore, motivation is considered a major means of energising students to engage in learning (Ross, 2010). It also plays a key role in determining the quality and intensity of learners’ engagement in the process of LL, because it “directly influences how often students use L2 learning strategies [...] how well they do on curriculum-related achievement tests [...] and how long they persevere and maintain L2 skills after language study is over” (Oxford & Shearin, 1994, p. 12). Motivated language learners are believed to make more effort to learn a second or foreign language (Gardner, 1985; Cheng & Dörnyei, 2007; Ushioda, 2011), which results in successful LL outcomes in the classroom (Gardner, 1985) and lifelong LL beyond the classroom (Gardner, Lalonde, Moorcroft, & Evers, 1985). For these reasons, motivation is crucial to generating positive LL experiences; indeed, “without sufficient motivation, even the

brightest learners are unlikely to persist long enough to attain any really useful language” (Dörnyei, 2001a, p. 5).

Research in the field of L2 motivation began in the early 1960s with the highly influential work of two Canadian psychologists, Lambert and Gardner, whose findings dominated the field of LL motivation until the 1980s (Oxford, 1996). During this period, which has been dubbed the ‘social-psychological period’ (Dörnyei, 2001a), Gardner (1985) developed and introduced one of the most well-known L2 motivational models. Gardner’s socio-educational model classified motivation by orientation into two groups: integrative and instrumental (defined by Gardner, 1985, and Gardner and Tremblay, 1994, as groups of reasons that explain learners’ goals in studying an L2). The ‘integrative’ orientation of motivation describes interest in learning a target language that arises from positive attitudes towards the language community (Schmidt, Boraie, & Kassabgy, 1996); learners with this orientation wish “to interact with and even become similar to valued members of that community” (Dörnyei, 1994, p. 274). The ‘instrumental’ orientation refers to learners’ functional goals in learning a language, such as getting a better job or passing examinations (Gardner, 1985). Most of the research conducted with this framework emphasises the integrative orientation of motivation as a more significant predictor of L2-learning success than the instrumental type.

Although Gardner’s motivation theory is widely acknowledged as the classical model of L2 motivation, it has some limitations. Gardner’s claim that integrative motivation is the main determinant of LL success has been criticised by empirical researchers, as the findings of Gardner and his associates derive mainly from data on L2 learners in the SL context (Bagnole, 1993; Clément & Kruidnier, 1983; Crookes & Schmidt, 1991; Dörnyei, 1990; Oxford, 1993). In a comparative study of students in unicultural

and multicultural societies, Clément and Kruidnier (1983) found that “the integrative orientation appeared only in multicultural contexts among members of a clearly dominant group” (p. 72).

It is important to distinguish between SL and FL contexts, because learning in SL settings is characterised by direct exposure to and frequent contact with the community of the target language, whereas FL students have limited exposure to the target language and far fewer opportunities to interact with native speakers (Dörnyei, 1994). Therefore, FL learners may wish to learn English to interact with others (natives and non-natives) in the global context, rather than to become valued by and integrated within the native language community (i.e., integrative motivation) (Csizer & Kormos, 2008). This is especially likely given that the English language is considered to be an “international language which is not inseparably connected to any particular countries” (Shaw, 1981, p. 112). Therefore, instrumental orientation is claimed to be more evident than integrative motivation in FL settings (Dörnyei, 1990). Furthermore, the social-psychological model is criticised for its failure to include cognitive elements, which are important to the study of motivation in educational settings (Dörnyei, 1990, 1994) because they emphasise the more pragmatic value of L2 motivation (Oxford & Shearin, 1994). According to Gardner and MacIntyre (1991), the classifications provided by the socio-psychological model are “too static and restricted” (p. 62).

Increasing awareness of these limitations paved the way for the emergence of a ‘cognitively situated’ phase of L2-motivation research, during which researchers modified Gardner’s model by incorporating cognitive approaches to motivation in educational contexts. This shift was “not meant to replace the integrative-instrumental distinction, but rather to complement it” (Noels et al. 2000, p. 60), and also “to

broaden the scope of LL motivation and to increase the educational potential of the theory by focusing more on motivation as reflected in student's classroom learning behaviours" (Dörnyei, 1996, p. 71). From this perspective, motivation in LL is a dynamic construct situated within educational environments and subject to various internal and external factors that affect learning (Dörnyei, 2001b). Examining this dynamic process within learning settings, and investigating the educational and social factors that either enhance or inhibit it, "may yield implications directly relevant to classroom practice, in terms of practices that can develop and support students' motivation" (Guilloteaux, 2007, p. 58). One theory that takes into account both the dynamic nature of motivation and its applicability to the classroom is SDT (Vandergrift, 2005). Incorporating these two features as well as its appropriate application in FL contexts made SDT more relevant to the purpose of this study. Therefore, the following section will provide a comprehensive review of SDT and related concepts.

### **3.4 L2 Self-determination Theory (SDT)**

SDT is one of the most influential cognitive theories of motivation (Dörnyei, 2003). It was first applied to L2 learning by Noels and her colleagues (e.g. Noels, Clément & Pelletier, 1999; Noels, Pelletier, Clément & Vallerand, 2000), who based their empirical studies on the principles of self-determination proposed by Deci and Ryan (1985). They aim to examine how the "regulation of language learning becomes internalised into the learner's self-concept and how self-determined action brings about positive outcomes" (Comanaru & Noels, 2009, p. 143). Noels focuses on learners' perceptions in her investigation of the relationships between LL

environments, specifically teacher behaviour, and students' self-determination and enjoyment of LL (Guilloteaux, 2007). Her findings indicate that the enhancement of LL motivation is affected by the orientations in the SDT framework. Dörnyei (1998) highlights the potential utility of this model to research on language-learning motivation. For example, the model is comprehensive enough to incorporate many L2 learning constructs. It also offers a high level of validity when evaluating empirical data on language learners' motivation. Proponents of the SDT define motivation as the "energy, direction, persistence" and the "aspects of activation and intention" that are guided by the underlying determinants of human actions (Ryan & Deci 2000, p. 69). Central to SDT is "the degree to which people endorse their actions at the highest level of reflection and engage in the actions with a full sense of choice" (Ryan & Deci 2000, p. 68).

SDT distinguishes between various kinds of motivation, according to the "different reasons or goals that give rise to an action" (Ryan & Deci, 2000, p. 55). In essence, two general types of motivation are identified: intrinsic motivation and extrinsic motivation. This distinction is one of the most well-known in the history of motivation theories (Dörnyei, 1998).

**Intrinsic motivation (IM)** is defined as the enjoyment of an activity *per se*; that is, participating in an activity for the pleasure, challenge, and satisfaction it provides, rather than to achieve some functional outcome such as an external reward or the alleviation of pressure to participate (Ryan & Deci, 2000). Individuals who are intrinsically motivated seek actively to explore, learn or play even in the absence of encouragement. "To take interest in novelty, to actively assimilate, and to creatively apply our skills [...] is a significant feature of human nature" and a "critical element in cognitive, social, and physical development" (Ryan & Deci, 2000, p. 56). In the LL

context, intrinsically motivated students are those who perceive “the learning process as voluntary and approach it with imagination and creativity, curiosity and enthusiasm” (Comanaru & Noels, 2009, p. 143).

Based on existing research on IM, Noels et al. (2000) propose a taxonomy of three types of L2 intrinsic motivation (IM) based SDT (Deci & Ryan, 1985) and the empirical studies by Vallerand (1997). The first is **IM-Knowledge**, which describes the motivation to engage in an activity for the feelings of pleasure and satisfaction that arise from exploring and learning new things and developing one’s knowledge. For example, students with this orientation may read books in English for the satisfaction of learning new words and gaining a greater understanding of the language, not because it is a school requirement. The second type, **IM-Accomplishment**, comprises the pleasurable feelings associated with accomplishing something, feeling more competent or mastering a challenging task. Students with this orientation may engage in challenging language exercises to gain satisfaction and a sense of accomplishment from surpassing their previous results in a demanding activity. The third type, **IM-Stimulation**, describes the desire to perform a task to obtain sensory and aesthetic pleasure, or for fun and excitement. For example, students may be motivated to engage actively in English-language classes if the activities are fun and exciting.

**Extrinsic motivation (EM).** In contrast, extrinsically motivated behaviour involves the undertaking of activities not because they are interesting or enjoyable but to obtain instrumental outcomes such as gaining a degree, receiving a reward or escaping a punishment. The traditional distinction between intrinsic and extrinsic motivation presents these two kinds of motivation in opposition to each other; extrinsically motivated individuals are often perceived to lack self-determination when performing an action (Deci, Vallerand, Pelletie & Ryan, 1991; Noels et al., 2000). However, the

SDT categorises extrinsic motivation into different forms according to the extent of their internalisation into one's self-concept (Deci & Ryan, 1985; Vallerand, 1997). These types of extrinsic motivation vary in their degrees of *internalisation* and *integration*. According to Ryan and Deci (2000), internalisation is “the process of taking in a value or regulation”, and integration is “the process by which individuals more fully transform the regulation into their own so that it will originate from their sense of self” (p. 60). As not all classroom tasks and activities are considered interesting or enjoyable, students are not always intrinsically motivated to participate in learning. In such cases, teachers tend to offer students extrinsic motivations to learn, such as praise or rewards. Within the SDT framework, internalisation is a motivated process that facilitates students' internal regulation of such uninteresting activities and motivates them to value these activities without the need for external pressure. The concept of internalisation is presented as a continuum on which motivational behaviour varies from “passive compliance, to active personal commitment. With increasing internalisation (sense of personal commitment) come greater persistence, more positive self-perceptions, and better quality of engagement” (Ryan & Deci, 2000, p. 60). As this continuum is not developmental, the desired forms of behaviour may start at any point, without the need for progression (Ryan & Deci, 2000). In the area of education, three stages of EM have been identified (Noels, 2001; Noels et al., 2000; Vallerand, 1997). Beginning with the least self-determined form of EM, the stages are as follows.

**External regulation** refers to activities that are carried out in reaction to external regulators, such as the provision of rewards or tangible benefits or the need to avoid constraints. When students' behaviour is externally regulated, they perceive their actions as controlled. A language learner, for example, may learn a language only

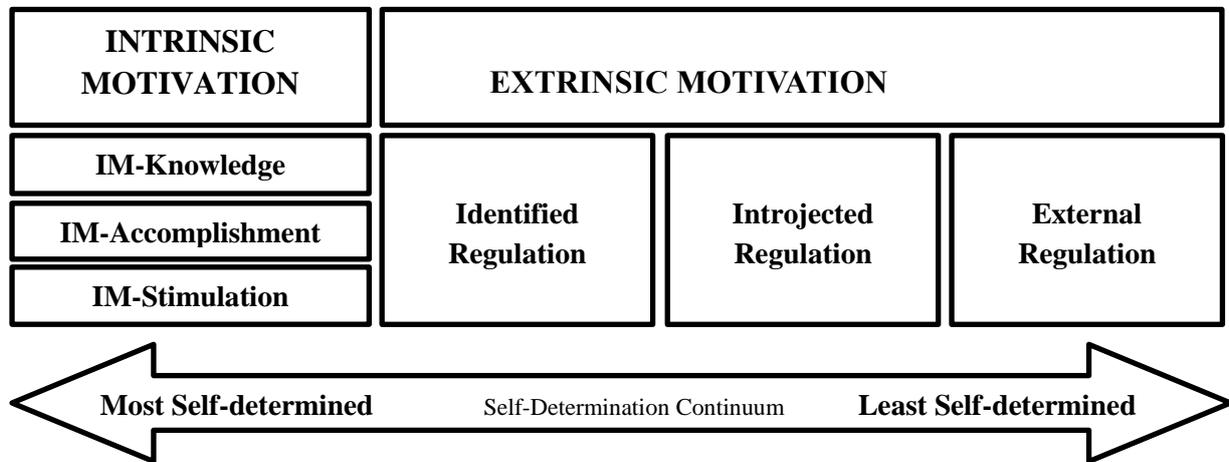
because it is a course requirement, and give up learning the language once this reason is taken away (Noels et al., 2000).

**Introjected regulation** describes a process of regulating activities that is more internal to the individual; however, the individual still feels himself or herself to be controlled. Activities regulated in this way are carried out in response to feelings of internal pressure such as the need to avoid guilt or anxiety or the pursuit of pride or self-aggrandisement (Ryan & Deci, 2000). For example, students may choose to learn an L2 because they would otherwise feel embarrassed at their lack of facility with the language, and continue learning only to eradicate their feelings of guilt (Noels et al., 2000).

The most self-determined type of extrinsic motivation is **identified regulation**. This form occurs when a person has identified with the value of an action and thus accepted the regulation process as his or her own (Ryan & Deci, 2000). Language learners, for example, may make more effort to learn an L2 through repetitive oral drills on the grounds that such activities will help them to achieve their valued goal of L2 competence, which they believe to be necessary to their educational progress (Noels et al., 2000). ‘Identified’ behaviour of this type is considered to be more fully internalised into the self and thus more self-determined, because identification helps the individual to feel a sense of choice and therefore perform the action more willingly. This kind of EM is “expected to be better maintained and to be associated with higher commitment and performance” (Deci & Ryan, 2000, p. 236).

A third type of motivation incorporated in the L2 SDT model (Noels et al., 1999; 2000) is termed ‘**amotivation**’ and defined as “a state in which people lack the intention to behave” (Deci & Ryan, 2000, p. 237). I excluded amotivation from this

study, as participation was voluntary. The SDT model used in this study was adapted from the L2 SDT model (Noels et al, 1999; 2000), as shown in Figure 3.1 below.



Adapted from Noels et al. (1999, 2000)

**Figure 3.1: L2 Self-determination theory model**

Ryan and Deci (2000) indicate that studying different types of motivation is important for education researchers because motivation has a significant effect on learning outcomes. They describe intrinsic motivation as a fundamental concept in education and a natural source of learning, which when fostered may result in high-quality learning and creativity. Therefore, it is important to understand how these different types of IM can be enhanced and to identify the factors and powers that may forestall them. It is also important to examine the different types of EM and ascertain effective ways to facilitate and foster their internalisation because not all students can be expected to be intrinsically motivated, especially as many of the tasks required of them are not pleasant or enjoyable. Therefore, finding ways of encouraging “more active and volitional (versus passive and controlling) forms of extrinsic motivation becomes an essential strategy for successful teaching” (Ryan & Deci, 2000, p. 55).

SDT acknowledges the importance of intrinsic motivation and the occurrence of extrinsic motivation by incorporating both forms on a continuum wherein the “intrinsic-ness” of motivation ranges from highly extrinsic, through different combinations of intrinsic and extrinsic, to highly intrinsic (Koestner & Losier, 2002). Furthermore, Noels (2001) stresses the usefulness of the concepts of EM and IM in understanding language-learning motivation. Based on many empirical studies in the field of language-learning motivation, Noels argues that the distinction between intrinsic and extrinsic purposes may be a significant predictor of language-learning outcomes. For example, intrinsic motivation has been associated with self-efficacy, language practice, grammar comprehension, oral-skills proficiency, teachers’ estimation of LL achievement (Ehrman, 1996), and students’ preferences for particular types of learning strategies and instructional methods (Schmidt, Boraie & Kassabgy, 1996). However, Noels criticises these studies for their failure to consider the subtypes of extrinsic and intrinsic motivation explained above. She points out that “these nuances are well-worth observing because the motivational subtypes differentially correlate with certain LL outcomes, including anxiety in the classroom, effort expended in language learning, the intention to pursue language studies in the future, and indices of L2 competence” (Noels, 2001, p. 112).

According to SDT, three fundamental needs must be taken into account to understand motivation: the need for autonomy, the need for competence and the need for relatedness. The satisfaction of these needs promotes more self-determined and self-motivated behaviour. Deci and Ryan (2000) state that “the concept of needs specified the content of motivation and provided a substantive basis for the energization and direction of action” (pp. 227-228). In other words, these innate needs are essential because they determine the conditions required for optimal psychological functioning

and personal development. Comanaru and Noels (2009) describe this process as follows:

SDT posits a mechanism through which intrinsic and more self-determined extrinsic orientations can be developed and sustained. When the circumstances and people in the learner's social world support the learner's sense of competence, autonomy, and relatedness, a more self-determined orientation (e.g., identified, or intrinsic) is likely to be fostered. (p. 135)

SDT defines needs as the “innate psychological nutriments that are essential for ongoing psychological growth, integrity, and well-being” (Deci & Ryan, 2000, p. 229). Motivation is seen to originate from three innate psychological needs that affect people's choices and actions. The need for competence describes the individual's need to feel skilled and capable of accomplishing a task or performing an activity; the need for autonomy describes people's desire to practise personal choices and self-organise experiences without external pressure; and the need for relatedness describes the human need for connections with and a sense of belonging to others (Comanaru & Noels, 2009; Deci & Ryan, 2000). According to SDT, it is part of human nature to “engage in interesting activities, to exercise capacities, to pursue connectedness in social groups, and to integrate interpersonal experiences into a relative unity” (Deci & Ryan, 2000, p. 229). If individuals' need for autonomy, competence and relatedness is appropriately met by their engagement in a given activity, they will be psychologically satisfied (Gagne & Deci, 2005; Dörnyei & Ushioda, 2011), which will in turn enhance their self-determination and personal perseverance with the learning process. When self-determined, students will freely perform activities that they perceive to be interesting and which satisfy their needs, and will continue to pursue these activities as long as they are self-organised and moderately challenging (Deci & Ryan, 2000).

However, if one or more of these essential needs are not properly satisfied, students will experience feelings of pressure and control as a result of external constraints or incentives that will eventually make them resist or avoid the activities in question.

The assumption of SDT is that supportive conditions are necessary to catalyse, develop and sustain intrinsic motivation, and to foster the internalisation of extrinsic regulations. Therefore, SDT researchers focus on investigating the extent to which people can satisfy their basic psychological needs in social contexts, and how different degrees of satisfaction may yield different forms of self-motivated behaviour, which are seen as the result of an “ongoing dialectic between people’s needs and their ambient social contexts that have either fulfilled or frustrated the needs” (Deci & Ryan, 2000, p. 232). In other words, people’s inherited propensities for internal integration (i.e., autonomy), social integration (i.e., relatedness) and self-efficacy (i.e., competence) need support from the social context to flourish and develop. Therefore, the process of fostering intrinsic motivation and the internalisation of extrinsic regulations is affected by the satisfaction of these three needs and the environmental factors that either enhance or undermine their functioning. SDT is considered to be a relevant approach to investigating the potential of various forms of technology to motivate students by satisfying their needs for autonomy, competence and relatedness (Alm-Lequeux, 2004, 2006; Ushioda, 2013; Vesey, 2013). These three fundamental needs will be discussed in more detail in the following section, accompanied by a brief discussion of the educational uses of technology in the light of SDT.

### **3.4.1 The Need for Relatedness**

To cultivate and sustain the several forms of intrinsic motivation, and to ensure that the extrinsic forms of motivation are effectively internalised and accepted into the self, learners' desire for a sense of belonging and feelings of warmth and connectedness to other people – described in SDT framework as a sense of 'relatedness' – must be satisfied (Comanaru & Noels, 2009; Ryan & Deci, 2000; Standage, Duda, & Ntoussamis, 2005). According to SDT, providing students with opportunities that satisfy their need to feel valued, secure and closely connected to significant others, such as teachers, parents, peer groups or society at large, encourages them to engage in activities perceived as uninteresting and fosters their intrinsic motivation to explore, learn, and accomplish. This is due to individuals' natural tendency to internalise peer values, which Deci and Ryan (1991) call the "intrinsic social need that directs people's interest toward the development of relational bonds and toward a concern for interpersonally valued and culturally relevant activities" (p. 242). This need "to belong or be attached to a group" (Pintrich, 2003, p. 670) is thus seen as essential in the educational context, because its fulfilment increases students' willingness to accept school-related values (Ryan & Deci, 2000). For example, primary-school children who perceive their parents to be more involved and more supportive of the children's autonomy are more self-determined and more intrinsically motivated to learn (Deci, Vallerand, Pelletier & Ryan, 1991). Studies conducted using the SDT framework indicate that students' feelings of relatedness and thus their self-determined motivation are enhanced by environments that support social interaction and collaborative learning, and in which students work collectively to achieve shared goals (Ryan & Deci, 2000; Standage et al., 2005). In their review of L2 motivation theories, Oxford and Shearin (1994) identified 'environmental support' among five other factors

affecting motivation in LL. The ‘environmental support’ refers to the amount of teacher and peer support, and the incorporation of cultural and social support (beyond the class) into learning experiences. Furthermore, Ushioda (1996) claims that collaborative learning offers psychological advantages that can cultivate learners’ intrinsic motivation. Most of L2 studies stressing the importance of collaborative learning are often influenced by Vygotskian socio-cultural theory in which effectual learning is considered as a product of an active and meaningful social interaction between learners and others (Kearney et al., 2012).

### **3.4.2 The Need for Competence**

Although supporting learners’ feelings of relatedness can encourage engagement in educational activities, it is important to satisfy their need to feel competent. Competence is a fundamental psychological need that in combination with relatedness and autonomy forms the basis of self-motivation and self-determination. Deci and Ryan (2000) indicate that the need for competence represents the desire to experience confidence in personal skills and promotes a sense of accomplishment. According to SDT, people need to feel confident in their own abilities to be capable of attaining the desired goals. Supporting individuals’ need for competence enhances skills development, enjoyment, and confidence in their capabilities and consequently increases their intrinsic motivation to engage in activities. This concurs with White’s (1959) suggestion that individuals often engage in activities to satisfy their feelings of efficacy or competence. Earlier research has indicated competence is a critical determinant of different types of intrinsic and extrinsic motivation (Deci & Ryan, 1985; 2000). More specifically, a positive and significant correlation was reported

between competence and identified form of EM and the three forms of IM (Vallerand, 1997). In educational contexts, competence is believed to enhance learners' motivation (Oxford & Shearin, 1994) "because it keeps students focused on their task and endorses them to persist and develop learning strategies to complete it" (Agnesia, 2010, p.10).

However, SDT emphasises feelings of competence as beneficial and sustainable only under certain conditions. Students' competence can be supported by providing learning activities that offer optimal challenges, instructional support, and effectance-relevant feedback. According to Deci and Ryan (2004), learners' need for competence drives them to search for optimal challenges that match their capacities, and then preserve them throughout the activities. Furthermore, engaging in optimal challenges enables learners to assess and develop their learning abilities (Niemic & Ryan, 2009). Elliot, McGregor and Thrash (2004) indicate that, in order for learning activities to be optimally challenging, they should have a moderate level of difficulty and be accomplished with supported effort. It is essential that tasks are slightly above learners' current level, meaning they should not be over-challenging; when tasks are too difficult, students can feel frustrated and ineffectual. Conversely, activities that are perceived as too easy might be found boring, leading to disinterest or even resistance (Agnesia, 2010; Alm-Lequeux, 2006). To develop a sense of competence, students initially need to feel positive about their improved skills and ability to solve the problems they encounter when engaging in activities that are somewhat challenging for them. This notion of competence is supported by Vygotsky's (1978) theory of the Zone of Proximal Development (ZPD), which purports that engaging in activities slightly above the learners' level, if reasonable support and guidance is given by skilled people, or in collaboration with more capable peers, may result in the

development of students' knowledge and competence, enhancing their ability to carry out activities independently in the future. In LL research, Krashen's theory of input+1 (1985) suggests learners should have greater access to L2 language, facilitating receipt of instructions or exposure to L2 comprehensible input one step above their current level of language knowledge (i+1). Krashen's (1985) comprehensible input hypothesis emphasises the quantity (more exposure to the target language) and the quality of input (i+1) as crucial for progressing in L2 learning. Therefore, in addition to the importance of increased L2 exposure, language learners should also be offered appropriately challenging tasks to facilitate progressive development of their language skills and enhance their feelings of competence. Supportive contexts play a crucial role in making input comprehensible; they can provide language learners with communicative activities by using visual aids or relating the input to learners' wider knowledge of the world.

Thus, instructional support is considered an important contextual factor when enhancing students' feelings of competence. Before starting a task, students should be provided with the necessary information to undertake that task, such as establishing the goal of the task, the required skills or materials, and the instructional support they will receive while performing the task (Wu, 2003). SDT argues that providing extrinsically motivated students with task rationales allows them to perceive the value of the lesson, facilitating internalisation of extrinsic goals and later promoting perceived competence in performing that task (Ryan & Deci, 2000). Therefore, offering instructional support can increase students' chances of success when engaged in challenging activities which in turn fosters their sense of competence (Wu, 2003).

An appropriate instructional supportive context is especially important for facilitating language competence, because it offers "a richer palette of acquisition-attuned textual

varieties and tasks along with scaffolded learning environments” (Byrnes, 2007, p.3). According to Vygotsky (1978), scaffolding can promote independent and self-regulated learning as the support offered is equally balanced with challenge. Based on the Vygotskian theory of the ZPD, scaffolding is defined by Wood, Bruner and Ross (1976) as a “process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts” (p.90). The teacher’s role as scaffolder is to attract and sustain learners’ attention by designing varied, appealing and challenging activities, by breaking challenging tasks down into manageable parts to be completed collaboratively by students, and to demonstrate and model the necessary procedures and processes involved in accomplishing the task (Wu, 2003). The ‘just-in-time’ assistance (Hmelo-Silver, Duncan & Chinn, 2007) that scaffolding offers can enhance students’ self-regulation, insuring they receive cues or suggestions that can assist the development of their problem-solving skills and improve their performance (Kennedy et al., 2012; Wu, 2003).

In addition to offering challenging tasks and appropriate instructional support, students should be offered direct positive feedback to satisfy their desire to have their competence verified. Niemiec and Ryan (2009) highlight the importance of providing learners with suitable materials and feedback, as a means of enhancing their sense of efficacy and encouraging their success. According to the authors:

A central notion is that students will only engage and personally value activities they can actually understand and master. Accordingly, it is necessary that feedback downplays evaluation and emphasizes students’ effectance, thus providing relevant information on how to master the tasks at hand. (p. 139)

Early studies employing SDT indicated how intrinsic motivation was enhanced by positive feedback in comparison with demeaning evaluations or lack of feedback, and such findings were related to satisfying the need for competence (Deci & Ryan, 2000). It is proposed that feedback should be informational rather than controlling, in order to effectively enhance competence, otherwise students might fall below their “optimal level of challenge in order to ensure competence” (Alm-Lequeux, 2006, p.33). This requirement can also be applied to rewards, which according to Deci, Koestner and Ryan (2001) can also have informational and controlling features. If rewards are expected and tangible, they are perceived as controlling, and thus undermine intrinsic motivation (Deci et al., 2001). Furthermore, when rewards are viewed as the sole reason for motivation, this might pursue learners to make the least effort to obtain the extrinsic reward (Alm-Lequeux, 2006). On the other hand, if rewards are not tangible and unexpected, such as verbal or informational rewards, they should not diminish intrinsic motivation, because they might not be seen as controlling (Deci et al., 2001).

Collaborative learning can also be a positive factor, as “it allows the unique talents of individuals in a group to become maximized in niche-relevant ways, and this differentiation may in turn produce benefits for all group members” (Deci & Ryan, 2000, p.235). Students’ sense of competence and self-efficacy can be enhanced through pair work or small group work, as they engage in shared activities and each uses his/her own skill to compensate for deficiencies elsewhere within the group.

Self-confidence differs from self-efficacy, which is task-specific (Graham & Weiner, 1996). However, self-efficacy can sometimes be evaluated at the domain-specific level, as it is said to overlap with competence (Schunk & Pajares, 2002). The concept of self-efficacy was proposed by Bandura (1977) as a component of his social cognitive theory of motivation, and is defined as the “personal judgment of one’s

capabilities to organise and execute courses of action to attain designated goals” (Zimmerman, 2000, p. 83). According to this construct, students’ degree of self-efficacy can be influenced by a number of factors including *previous experience*, i.e. students’ prior knowledge based on undertaking similar activities or by observing others demonstrating the new activity and feedback (Schunk & Pajares, 2002). The quality of the feedback students receive is important because students’ motivation and self-efficacy is enhanced if feedback is positive and vice versa (Schunk & Pajares, 2002).

Wu (2003) investigated the role of perceived competence and perceived autonomy in enhancing L2 intrinsic motivation. In his quasi-experimental study, he examined the perceived competence of Chinese children studying EFL relative to environmental conditions. The findings revealed involving moderately-challenging activities, necessary instructional support provided by the teacher (e.g. modelling, prompting, task-sharing, and collaboration), and informational evaluation among other factors were effective in fostering children’s self-perceptions of L2 competence, which also then enhanced their L2 intrinsic motivation.

It has been reported elsewhere that positive feedback, freedom from demeaning evaluations, optimal challenges, and additional contextual conditions necessary for competence and self-efficacy do not enhance intrinsic motivation unless they are accompanied by a sense of control and responsibility for the competent performance (Ryan & Deci, 2000). To enhance feelings of competence, students must therefore be offered activities that allow them to expand their capabilities and experience choice and control over their desired outcomes. Therefore, satisfying the need for autonomy is essential to developing feelings of competence and enhancing motivation.

In short, a supportive classroom environment in which young learners are provided with instructional support, feedback, praise and compliments on their work may enhance their competence and in turn their motivation (Kennedy et al., 2012).

### **3.4.3 The Need for Autonomy**

Research within the framework of SDT suggests autonomy occupies a prominent position among the three basic needs. The earlier discussion of different forms of extrinsic motivation, in which self-regulation is presented along a continuum reflects the extent to which behaviour can be autonomous (self-determined) or controlled. Furthermore, Deci (1978) states, “intrinsic motivation implies self-direction” (p.198). SDT emphasises motivation as originating from the view that “individuals can exert control over their environment” (Pintrich & Schunk, 2002, p.257); this suggests that autonomy is a fundamental part of the theory. SDT argues that satisfying the need for autonomy is a crucial condition for supporting and sustaining feelings of competence and relatedness. Conversely, excessive control over people’s actions can diminish their intrinsic motivation; even where they feel competent or connected to others (Niemiec & Ryan, 2009). According to Ryan and Deci (2004), “autonomy ... concerns the difference between behavioural engagement that is congruent and fitting with one's values, interests, and needs (i.e. with one’s self) versus alienated, passively compliant or reactively defiant (p.450). This natural tendency signifies volition, feelings of internal willingness to engage in an activity (Ryan & Deci, 2006) and the desire to devote time and effort to learning activities (Niemiec & Ryan, 2009). However, it is essential to highlight that autonomy in SDT is often misinterpreted as independence or

individualism (Chirkov, Ryan, Kim & Kaplan, 2003; Ryan & Deci, 2006). As Noels (2009) states:

Autonomy does not imply that one acts independently of environmental influences, and/or acts counter to the influence of generalised norms or the demands of specific individuals. If, upon reflection, we concur that such mandates are consistent with our values and interests, we would be acting autonomously. (p. 302)

The sense of autonomy can be catalysed by providing students with opportunities that allow them to experience freedom, to expand their sense of choice when engaged in activities as well as receiving supportive feedback (as opposite to salient evaluations) to foster autonomy (Niemic & Ryan, 2009). If for example learning activities are appealing, matching students' own interests and enabling them to make their own choices, they are likely to engage in tasks (Alm-Lequeux, 2006) and to pursue them (Ryan & Deci 2002). However, in many cases students need to be informed of the task's rationale, function and value (Reeve, Deci & Ryan, 2004) to become aware of its relevance and significance (Alm-Lequeux, 2006). This all develops the students' confidence in their performance, enhancing their intrinsic motivation, facilitating internalisation of extrinsic forms of motivation, and yielding more positive outcomes (Deci & Ryan, 1985; Reeve, Nix & Hamm, 2003; Ryan & Deci, 2002). Outcomes can be represented by students' persistence and achievements (behaviour), as they seek challenges, to further their learning and creativity (cognitive), and increase their satisfaction through learning (affective results) (Guay, Ratelle & Chanal, 2008). In an SDT situation, individuals are considered capable of detecting and admitting their powers and limitations and of selecting and determining techniques which satisfy their needs and interests (Pintrich & Schunk, 2002).

Conversely, if students' activities are initiated, regulated, controlled and tightly directed by others, they will work as though under pressure, and might act reluctantly to complete the required task, eventually undermining their sense of autonomy. Students feel controlled when their activities are regulated by external pressures, such as tangible rewards, punishments, deadlines, salient evaluations, and surveillance; this can thwart their autonomy and their intrinsic motivation (Ryan & Deci, 2002). As Niemiec and Ryan (2009) suggest:

Under such controlling conditions, however, the feelings of joy, enthusiasm, and interest that once accompanied learning are frequently replaced by experiences of anxiety, boredom or alienation. This creates the self-fulfilling prophecy so evident in many classrooms, whereby students no longer are interested in what is taught, and teachers must externally control students to make learning 'occur'. (p. 134)

Many studies have applied SDT in educational contexts, investigating the importance of the teacher's role in supporting students' autonomy. Burton, Lydon, D'Alessandro and Koestner (2006), Tsai, Kunter, Lüdtke, Trautwein et al. (2008) and Standage et al. (2006) reported that students with autonomy-supportive teachers were more intrinsically motivated, and had more internalised self-regulation, expressing more interest and greater persistence with their learning than those working with controlling teachers.

In the field of LL, autonomous language learners are typically motivated learners (Ushioda, 2003). Dörnyei (2001a) argues that "we will be more motivated to do something out of our own will than something we are forced to do (self-determination theory)" (p.12). A growing body of research has focused on examining the role of

autonomy in LL (see Benson (2011)). Although L2 autonomy researchers might reflect different specialisms in their research into this concept, there is agreement on the main principles of learner autonomy: i.e. learners are responsible for their own learning; they make choices about what and how to learn; they are aware of their needs; and, they expand their practising of English beyond the classroom setting (Snodin, 2013). As with SDT, some L2 researchers believe autonomy is an innate feature that cannot be learned or taught, but which can instead be catalysed and enhanced in an appropriate learning environment (Benson, 2011). This contrasts with the beliefs of other researchers who argue that autonomy is not inbred and must be learned and developed consciously over time (Holec, 1981). According to Najeeb (2013), autonomy in LL is grounded by three fundamental aspects: learner involvement (encouraging students to make choices, make decisions, and engage in the learning process); learner reflection (supporting students' critical thinking during self-initiating, self-monitoring and self-evaluating activities); and suitable use of the target language.

Autonomy in LL is frequently described in terms of 'independent learning', which differs from conception of autonomy in SDT, in which the autonomous learner is not entirely independent of the social influences. However, both terms agree on the notion of agency. By experiencing the self as an agent, the autonomous learner undertakes what is termed, 'authentic' activities because he/she identifies them as his/her own (Snodin, 2013). In reference to LL autonomy and social and contextual influences, autonomy connects with the need for relatedness. This is because LL is an interactive social process that can lead to 'autonomous interdependence', a notion presented by Little (1991), who cites learner autonomy as the outcome of interdependence not independence.

The view of autonomy as the cornerstone of motivation has been challenged, especially because of the increasing interest and focus on cross-cultural research (Noels, 2009; Ryan & Deci, 2006). It is suggested that the centrality of autonomy is more relevant to 'Western' contexts where individualism is a cultural value but which might be less valued in 'collectivistic' cultures (Noels, 2009). Although examining SDT in non-Western societies is still a relatively new idea, the appropriateness of autonomy for LL across contexts has been the subject of considerable discussion and debate (Noels, 2009). Some argue that autonomy in LL may not be relevant in environments where "social interconnectedness and respect for authority are emphasised" (Noels, 2009, p.309). Researchers report that students in collectivistic contexts were more comfortable with traditional teacher-centred styles, in which authority is completely yielded to the teacher (Hart, 2002, Smith, 2003). On the other hand, empirical studies conducted in collective cultures reveal a positive association between autonomy, personal well-being and self-determined motivation (Jang, Reeve, Ryan & Kim, 2009) and intrinsic L2 motivation (Wu, 2003).

In light of these contradictory findings, "no consistent pattern of cultural differences has emerged regarding the strength of the relationship between SDT need, satisfaction and well-being" (Church et al., 2012, p.509).

### **3.5 Mobile Technologies, Motivation and LL**

As mobile technologies become ever more ubiquitous and popular in non-educational environments, especially among the younger generation, students are already motivated to use them regardless of their functionality in learning contexts (Jones,

Issroff, Scanlon, Clough & McAndrew, 2006). Research on mLearning has indicated that the use of mobile technologies in education can positively encourage students' engagement, motivation and understanding of a subject, and enhance interaction and collaborative learning (Kukulka-Hulme, 2006; Isabwe, 2012; O'Bannon & Thomas, 2015).

The findings of a number of studies in the field of mLearning indicate that mobile technologies have certain motivational effects on learning. Extending the findings of earlier mLearning literature, for example, Jones et al. (2006) identify six factors that make mobile devices motivational for informal learning: control over one's own learning goals; a sense of ownership; communication and collaborative learning; fun and entertainment; learning in context; and the continuity between learning contexts afforded by the portability of such devices. Furthermore, Jones and his colleagues (2006) suggest that students' motivation to learn can be increased through the use of technological devices that offer tools for easy correction of errors, a semi-private environment, control over one's learning situation, enhanced self-esteem and the ability to learn at one's own pace. In their report on a project exploring play and creativity in pre-schoolers' use of apps, Marsh et al. (2015) identified a number of factors that motivated children to engage with apps. These included fun, interactivity and opportunities to learn new skills, acquire knowledge, practise skills, achieve a sense of mastery, exercise autonomy and independence and receive positive feedback and rewards for achieving goals. With reference to LL context, Golonka, Bowles, Frank, Richardson and Freynik (2012) state that when properly used, "technological innovations can increase learner interest and motivation; provide students with increased access to target language (TL) input, interaction opportunities, and feedback; and provide instructors with an efficient means of organising course content

and interacting with multiple students” (p. 1-2). However, portability and immediacy have been identified as the most significant aspects MALL (Norbrook & Scott, 2003).

The increased exposure to and use of the target language facilitated by mobile technologies such as podcasts (Chin, Lin & Chan, 2010; for iTunes U podcasts, see Rosell-Aguilar, 2013) develop students’ language skills and enhance their motivation to learn the target language. Frequently practising the target language fosters learners’ sense of confidence, as noted by Ushioda (2013). Kinash et al. (2012) explored university students’ use of the Blackboard Mobile Learn application on the iPad, and found that the experience of the application was positive, and that it strongly motivated the students to learn. However, the students were neutral in their feedback on the efficacy of the iPad in improving their learning. Similarly, Rau, Gao and Wu (2008) found that although the use of SMS in LL did not improve students’ performance, it motivated the students to learn the language and reduced their anxiety. Language learners have also reported that their motivation to learn languages via mobile devices is enhanced by concept map oriented applications in mobile interactive settings (Hwang et al., 2011), mobile performance support systems (Mileva, 2011), content creation on handheld computers (Wong & Looi, 2010), tablet PC-based wireless games (Hung, Young & Lin, 2009), mobile chat and the use of iPods for oral assessment (Cooney & Keogh, 2007). The scholars above highlight other advantages of MALL in addition to improved motivation: an improved quality of learning, ease of access to language materials, immediacy, ease of use, fun, and increased communication.

However, the use of mobile technologies for learning is not always motivational. Huizenga, Admiraal, Akkerman and Dam (2009) show that history games on mobile devices may enhance students’ engagement and acquisition of knowledge, but do not

necessarily motivate them to study history. Furthermore, Ushioda (2013) points out that as mobile technologies are viewed as one's personal property and used mainly as personal and social tools, students may not recognise their value in LL. She argues that some students prefer to use laptops or desktop personal computers (PCs) rather than mobile devices for LL purposes because they view their mobile devices as “private space” that should be “kept clearly separate from their ‘studying space’” (p. 3).

Although the results of a number of studies of mLearning suggest that mobile technologies can motivate students to learn, research on the motivational qualities of mLearning is still at an early stage (Jones et al., 2006), particularly in the LL field. Ushioda (2013) points out that language learners may not be fully aware of the increasing pedagogical interest in mobile technologies and their potential to assist LL; that they may not, therefore, be motivated to exploit the affordances of such devices in their learning of other languages; and that the extent to which mobile devices facilitate students' engagement and sustain their motivation to learn languages is unclear. Comas-Quinn et al. (2009) agree that the motivational role of mobile technologies in education is not yet fully understood, and that more investigation is thus needed. Similarly, Tran, Warschauer and Conley (2013) highlight the need for research on the capacities of mobile technologies to motivate learning, as our knowledge of their potential is still very limited, especially in LL (Ushioda, 2013). More specifically, the application of SDT to motivation in MALL is still under-researched. Therefore, the next section of this study addresses tablets and certain other mobile technologies in relation to the three previously mentioned dimensions of SDT – relatedness (collaborative learning), competence and autonomy – which are crucial to the promotion of self-determination and self-motivation.

### 3.5.1 The Need for Relatedness in mLearning Contexts

Alm-Lequeux (2006) proposes that the need for relatedness in a technology-mediated language-learning context can be viewed from a socio-cultural perspective that emphasises the important role of social interaction in facilitating and developing learning (Vygotsky, 1978), as people use mediational tools such as language, symbols and signs to engage in conversation and negotiate meaning (Wertsch, 1991). The idea that knowledge is “mediated socially” (Felix, 2005, p. 86) fits well with the nature of language learning, as Goldenberg (2013) states that “second language learning is a social process in which language develops largely as a result of meaningful and motivated interaction with others” (p. 14). Crook (2000) points out that motivation and collaboration are strongly associated; sharing activities with others is in itself motivating. Collaboration is considered “a motivated activity because it has a distinct, important emotional dimension” (Jones et al., 2006, p. 254). According to Crook (2000), the reasons for the motivational role of collaboration are the “shared meaning” constructed and developed by a pair or a group during their interaction in collaborative activities, and the idea that these shared experiences are unique to the specific pair or group. In online contexts, Davies (2009) indicates that “the social aspects of the web are being seen as a way of continuing existing relationships, of providing an additional dimension to play out friendships and an arena where important socialising take place” (p. 112).

In recent years, researchers have paid increasing attention to the use of technologies as mediational tools and supportive media for L2 interaction and collaborative learning (Sharples, Taylor & Vavoula, 2007). Jonassen (2000), for example, refers to computers as “mind-tools” that learners not only learn *from* but *with*. Technologies such as computers, mobile devices and recently tablets are increasingly viewed as

potential platforms for social interaction and communication for educational purposes. Alm-Lequeux (2006) indicates that in LL environments, students' relatedness can be viewed in terms of their innate desire to be connected to their learning community in the classroom. However, teacher-centred approaches are commonly used in many EFL contexts, especially with large classes; therefore, this interaction is typically teacher-controlled, as the teacher is the one who asks questions, corrects answers and provides feedback, although some teachers may encourage peer feedback, depending on their teaching methods. As a result, EFL students are rarely provided with sufficient opportunities to practise their target language in a collaborative way, which may undermine their motivation and interest in English LL (Lan, Sung & Chang, 2013). As LL is a social activity (Norbrook & Scott, 2003), it may benefit from the use of mobile technologies, which have the potential to facilitate collaborative learning and communication (Kearney et al., 2012; Traxler, 2013).

Collaboration is at the heart of many recent studies of mLearning, and has been addressed in several models of the use of mobile technologies in education, such as those presented earlier in this chapter (Section 2.4). Benefiting from the mobility, instant accessibility and immediacy of information-sharing provided by mobile devices, face-to-face and online group activities can enhance collaborative learning by encouraging active and meaningful interaction and spontaneous communication between learners (Kearney et al., 2012; Sharples et al., 2007). In this regard, Kearney et al. (2012) make the following observation:

M-learners can enjoy a high degree of collaboration by making rich connections to other people and resources mediated by a mobile device. This often-reported high level of networking creates shared, socially interactive environments so m-learners can readily communicate multi-

modally with peers, teachers and other experts, and exchange information.

(p. 10)

Mobile technologies with suitable integrated applications are an effective means of facilitating small-group collaborative learning activities that would otherwise be challenging to perform (Valdivia & Nussbaum, 2007). According to Kukulska-Hulme (2009), even if the mobile nature of such activities is not salient, “the design of the learning activity is predicated on close interaction, conversation and decision-making between members of a group, which includes some physical movement and can be difficult to achieve with the use of fixed computers” (p. 160). Many learning activities conducted using handheld devices have been reported to encourage and extend collaborative knowledge construction across time and space (Kearney et al., 2012; Pierroux, 2008).

In addition to using these handheld technologies as consumption tools, students may exploit their affordances to produce collective digital outputs. Various applications of mobile technologies have been informed by the social-constructivist learning paradigm. The multiple capabilities and functions of mobile devices provide a rich platform for designing social-constructivist learning scenarios. For example, students may begin a task by planning their activity either in a group or in pairs, and then use mobile technologies to collect or produce the required data in the classroom or outdoor settings; this may involve writing notes, drawing digital pictures, taking photos or recording audio and video clips. The learners’ final productions and findings can be then shared and discussed either in the classroom or virtually through blogs or school websites. The relevance of collaboration and social-constructivist principles to the use of mobile technologies has been strongly emphasised (Brown Castellano,

Hughes & Worth, 2012; Cochrane, & Bateman, 2010; Lan, Sung, & Chang, 2013; Rogers & Price, 2009). The social-constructivist approach is suitable for many mobile-learning activities, including LL activities, due to its social dimension and support for co-present collaboration and interaction with others.

According to Marsh (2014), “one feature of developments in the new media age is the way in which children’s communicative practices involve a range of modes, including still and moving image, gesture/animation and sound” (p.180). Such multimodal communicative practices are offered by many apps on mobile devices, such as Web 2.0 tools. Davies and Merchant (2009) indicate that blogs offer various interactive and collaborative possibilities for individuals and groups. As ‘multimodal texts’, blogs enable publishing and sharing activities to develop over time “in text form, in still and moving image or in audio format [or in] a combination of these modes” (Davies & Merchant, 2009, p. 31). Alm-Lequeux (2006) suggests that technologies that offer Web 2.0 applications such as blogs and Wikis can support language learners’ need for relatedness. These social networks provide learning environments that can facilitate and increase language learners’ interaction with their peer groups. Chen (2013) reports that adult English students used tablets for blogging through which they shared their in progress works, exchanged comments and discussed their learning tasks which enhanced interactive and collaborative LL, and encouraged students to value each other productions. Cochrane and Bateman (2009) indicate that the use of mobile Web 2.0 tools encourages students to collaborate and motivates them to socially construct content. Blogs can be powerful tools to extend learning beyond lessons (Betts & Glogoff, 2004), and offer students an online space in which to meet virtually, share experiences, exchange opinions and communicate with their teachers. In this sense, blogging can be viewed as a means of supporting a community of practice or as an

affinity space (Davies & Merchant, 2009). However, the use of blogs for educational purposes does not always have positive outcomes. For example, Divitini, Haugalokken and Morken (2005) found that integrating a blog in an educational course did not encourage students' interaction; the students posted only nine entries during their year of study. To enhance students' interaction when using blogs, Kim (2008) recommends encouraging them to allow comments from peers, which may increase feedback from the group and thus improve students' self-motivation.

Tablet devices, as a type of mobile technology, may play a similar role in promoting students' co-present collaboration and interaction; however, research indicates that multi-touch tablets offer more opportunities to support learners' collaborative learning. Technologies such as iPad tablets have been indicated to play an active role in shaping both the physical and the social actions of their users (Merchant, 2015b). The iPad's affordances (including its mobility, large multi-touch screen and multi-functionality) have been reported to enhance children's collaborative learning and social interaction (Brown et al., 2012; Butcher, 2014; Chen, 2013; Ciampa, 2013; Cochrane et al., 2013; Davies, 2014; Falloon & Khoo, 2014; Kucirkova et al., 2014; Pellerin, 2014; Sullivan, 2013)

Henderson and Yeow (2012), for example, note that the iPad's large screen allows 360-degree viewing, enabling a group of children to share its use, unlike desktop computers around which students must crowd to see the content. Furthermore, the iPad's portability and lightweight frame make it easy for the device to be carried, used collectively in various settings, and passed between users whenever needed. These observations are supported by Sandvik et al. (2012) who examined the use of tablets (Apple iPads) for LL and literacy development with a group of pre-schoolers. They indicated that the tablets' portability and shared screens made them useful tools for

communicating and sharing information. The mobility of the tablets enabled the children and their teachers to use them in different areas of the classroom, such as on the floor, at tables and on chairs, which encouraged various forms of collaborative work and increased the flexibility of learning. The researchers found that the iPad's shared screen and a suitable sound volume when using the apps were necessary to encourage the children's interaction. They also found the children's interaction with peers to be enhanced by the iPad's multi-touch screen, which not only enables single-user interaction but allows a pair of users to interact jointly with an app. The researchers reported extensive peer support; the children were helping each other whenever necessary, whether in the paired activities or the full-group work. The portability of the tablet and its shared screen facilitated turn-taking. Projecting the children's activities by connecting the tablet to a large wall display was also reported to enhance the children's collaboration and increase the interaction between the child controlling the iPad and displaying the app and the rest of the group, who offered suggestions and advice.

Additionally, Gasparini and Culen (2012) carried out a study with primary-school children, and noticed that the children enjoyed sharing their iPads in the classroom while playing and pursuing other activities. The study showed that some of the children were pleased and proud to demonstrate their skills on the iPad to family members, enjoyed teaching their younger siblings how to use easy apps, and were proud of using the same tablet that their parents were using. However, the data collected after the second semester revealed that the children were dissatisfied with the process of sharing the iPads in the classroom and preferred to use the tablets individually. This may be attributable to a reduction in the tablet's novelty and/or the teacher's failure to design appropriate iPad activities.

Brown, et al. (2012) also found that the tablet's large screen, high sound volume and lightweight design enabled a group of up to four students to share the device and pass it between them. Furthermore, they found that the tablet's multi-functionality – such as the capacity to video- and audio-record, to take photos, to search the Web and to write documents – encouraged the more rapid creation of appropriate and socially inclusive presentations in the classroom. The iPad's portability and multi-touch screen motivated students to mutually create and watch presentations, making it suitable for collaborative learning.

More recent research on educational use of tablets confirm the role of tablets' affordances such as their mobility and their large multi-touch screen which allow wider view and concurrent use of the screen by a group of students encouraging thus more collaborative learning and communication throughout learning activities (Chen, 2013; Davies, 2014; Falloon & Khoo, 2014; Fisher et al., 2013). This is confirmed by an earlier study conducted by Hutchison et al. (2012), who indicated that certain iPad apps (e.g., Doodle Buddy) were found to be effective in supporting and enhancing collaboration among young students, as they allowed the students to use the screen concurrently to draw, write and so on. The researchers also observed that the children tended to work collaboratively to solve problems faced when using the iPad and to find ways of navigating the interface. This collaboration enhanced the students' interaction during the learning tasks.

According to Falloon and Khoo (2014), collaborative learning encouraged by the shared and concurrent use of tablet screens facilitated a change in the relationship between paired students from competitive to affirming and critically constructive. In the same vein, Ciampa (2013) points out that the collaborative use of tablets for learning may promote peer support, encourage helping behaviour and enhance

intergroup relations. More specifically, Ciampa (2013) highlights the role of tablet-based collaborative learning in encouraging students to overcome their shyness and increasing their participation, indicating that students' peer support resulted from sharing the tablets improve the inclusion of academically challenged students. Again, the affordances of tablets, such as their wide viewing angle, display rotation and potential use in different positions (e.g., lying flat on tables or standing using tablet cases), are frequently stressed to encourage their use as public work spaces (Falloon & Khoo, 2014). These affordances enable them to be smoothly passed between and shared by students whenever needed, thereby enhancing collaborative learning (Falloon & Khoo, 2014; Fisher et al., 2013).

Furthermore, Davies (2014) carried out a study with adult learners to examine the role of the iPad in encouraging small-group collaboration and developing group presentation skills. A Wiki page was created in which the rest of the group could edit, discuss, and provide feedback on each group's work. The results revealed that the iPad enhanced group collaboration, engagement with content and interactivity due to its multi-functionality. As witnessed by Cochrane et al. (2013) and Sullivan (2013), the introduction of tablets in higher education seem to encourage a shift from lecture-based environments to more collaborative learning environment as students actively participate in their activities and increasingly interact with peers and teachers.

Examining the use of SDT in a mLearning environment, Vesey (2013) investigated the effectiveness of iPads in motivating seven Year 12-13 students during their Physical Education lessons. The findings indicate that the use of an iPad helped to motivate the students in their group-dance activities by encouraging them to interact closely, support each other, collaborate and hold group discussions. As this satisfied the students' need for relatedness with their peer group, they were motivated to

undertake their learning tasks, although at certain times the device was dominated by more proficient users or those with natural leadership ability.

Supporting such feelings of relatedness to significant others is therefore essential to eliciting students' intrinsic motivation and ensuring the development and continuation of the learning process.

### **3.5.2 The Need for Competence in mLearning Contexts**

As discussed earlier in the section on competence, students' need for competence can be satisfied by the provision of optimal challenges, instructional support and informational feedback. To ensure that EFL students are optimally challenged, they must be given comprehensible yet demanding input in the target language. Both Krashen's comprehensible-input hypothesis ( $i+1$ ) and Vygotsky's Zone of Proximal Development theory emphasise that for effective learning to occur, the input should be slightly above learners' current level of competence. For many language learners, especially FL beginners and intermediate students, learning a new language poses a variety of challenges and difficulties, such as limited exposure to the target language (especially authentic input), resources beyond their language proficiency, and anxiety about making pronunciation and grammatical errors (Tamara, Villegas & Freedson-Gonzalez, 2008). These difficulties may increase learners' affective filter and thus affect their willingness to learn the language (Krashen, 1982). Therefore, to support the need for competence and thus enhance motivation to learn, it is crucial to provide young language learners with moderately challenging materials; clear and well-designed instructions; supportive guidance; effective modelling of skills, techniques

and processes; informative feedback; and opportunities to apply their new learning (Goldenberg, 2011).

Technology, especially mobile devices, may help to satisfy learners' need for competence by effectively incorporating such supportive factors. For example, mobile captions and the ability to slow speech have been found to significantly increase the comprehensibility of speaking and listening materials, vocabulary acquisition and motivation to learn (Wang & Shen, 2012). In addition, multimedia annotation and glossing have been found to make reading materials more comprehensible. In his study of ESL vocabulary acquisition, Al-Seghayer (2001) found the use of multimedia (video clips and written definitions) to be more effective than pictures and written text in helping learners to obtain new words, simply because "the variety of modality cues can reinforce each other and are linked together in meaningful ways to provide an in-depth experience" (p. 225). Similarly, Sun and Dong (2004) claim that multimedia technologies such as cartoons can offer an authentic, vibrant and multi-sensory environment that helps children to learn vocabulary more effectively, as they benefit from contextual cues to ascertain the meaning of unknown words. Kim and Gilman (2008) also used multimedia (combining audio and visual media with written text and graphics) for vocabulary learning, and found it a useful means of enhancing students' motivation to learn. This outcome is supported by McManis and Gunnewig (2012), who argue that digital multimedia technologies facilitate access to authentic materials and are more effective for learning than audio or written materials because they help learners to forge more memory connections, and offer immediate playback.

Alm-Lequeux (2006) suggests that Web 2.0 applications are rich in online language materials that can suit different proficiency levels. This accessibility may be more

evident in a mLearning context; the portability of mobile technologies, the support they provide for communication and collaboration, and their multi-functionality facilitate access to educational materials, engagement in moderately challenging activities, reception of different modes of instruction and exchange of constructive comments and feedback. For example, mobile technologies such as mobile phones and tablets can support language learners' understanding of the target language by enabling them to quickly and easily translate unknown words using bilingual-dictionary apps, thus making challenging materials more comprehensible. Wang and Smith (2013) found that moderately demanding mobile-learning topics and activities were more appealing to their young EFL participants, who preferred to read English essays than undertaking grammar quizzes because the latter were difficult to interact with on mobile phones and iPads.

Engaging learners in over-challenging mobile-learning activities may distract them from learning instead of helping them to learn and achieve goals. Brown et al. (2012) found that a music-creation app developed by Apple (Garageband) was confusing for students, who had to follow too many steps to produce and record their music. Twining et al. (2005) also found that the technological challenges encountered by some students when using tablet PCs were sufficiently problematic to impair their learning. It is therefore crucial to "design mobile learning experiences so that they are not too bewildering or overly complex" (Rogers & Price, 2009, p. 16). Learning materials should be tailored to learning standards determined by the curriculum and the students' age (McManis & Gunnewig, 2012), to ensure that they are not over-challenging.

However, it is crucial to note that mobile devices vary in terms of the technical difficulties and challenges they pose. Lynch and Redpath (2012), for example, indicate that children prefer iPads and iPods to other digital devices used in the classroom such as desktop PCs and laptops, because the former touch technologies have little or even no technical problems, which strongly motivates students to use them for learning. Students often report that they can solve technological problems with apps independently by closing the offending app and reopening it again, whereas laptops or desktop PCs require them to ask repeatedly for the teacher's help, causing frustration.

Furthermore, students in mobile-learning contexts should be provided with appropriate instructional and environmental support to enhance their sense of competence. This can be done by initial modelling of new mobile activities, the provision of clear instructions, prompts and scaffolding to facilitate and support students' engagement with activities, and guiding students to appropriately challenging apps (Milman, Carlson-Bancroft & Boogart, 2012).

Many mLearning contexts have well-implemented scaffolding that allows support to be "adjusted in relation to a student's needs and preferences, including students for whom English is their second language" (Dalton, 2008, p. 155). Yelland and Masters (2007) describe three kinds of scaffolding that can be integrated in children's mobile-learning activities: cognitive, technical and affective. Cognitive scaffolding resembles the conventional support provided for young learners using mobile devices by proficient adults or more capable peers. This type of scaffolding allows teachers to question the students, model activities and facilitate group collaboration. McManis and Gunnewig (2012) recommend selecting apps for tablets that enable children (individually or collectively) to create animated stories using newly learned

vocabulary while the teacher scaffolds their use of the new words. Henderson and Yeow (2012) argue that the successful use of iPads in learning requires teachers to facilitate and manage the iPad activities. Lys (2013) examined the use of iPads in an advanced German conversation class. The students were encouraged to hold video discussions on Face-Time (an iPad app), record video clips of their own homes using the iPad camera, accompanied by simultaneous commentary on the recording, and then upload the videos to a private YouTube channel for peer and teacher feedback. The findings show that the use of the iPad encouraged language learners to engage in meaningful interactive activities, enabled teacher and peer scaffolding, increased authenticity, and enhanced students' sense of competence. Peer scaffolding, support and help have also been shown to be important and beneficial. While observing the use of iPads by young students in classroom settings, Milman, Carlson-Bancroft and Boogart (2012) noticed that the students were frequently assisting each other in using and navigating the iPads. The absence of screens propped up on the students' desks encouraged them to interact more closely and share their iPad learning achievements more enthusiastically. The researchers also found that many students sought their peers' help with apps or spelling, and those who had mastered the iPad or certain apps were seen as the 'go-to' students for assistance. Some of the students showed great familiarity with and prior experience of the iPad's capabilities, and thus worked as "tech-helpers", helping both their teachers and other classmates to navigate apps, and sharing their discoveries of new app features.

Similarly, Henderson and Yeow (2012) report that older and more experienced students help and teach younger students to use iPad gaming apps and read e-books, and that students enjoy this type of assistance. The researchers also indicate that young students with technological competence may help their teachers by, for instance,

uploading a picture to the Pages app and demonstrating this skill to the rest of the class. Additionally, Pellerin (2014) reported on the peer-scaffolding of students learning French when working in pairs while using mobile technologies (e.g., tablets) such as showing the incorrect choice of word while describing an image. This kind of scaffolding is more explicit in the “constructivist” (also known as “open” and “productive”) type of app, which often lacks technical feedback and thus requires students to receive peer or teacher scaffolding and feedback. An example is the Puppet Pals app used by children to create narratives, supported by the teacher who scaffolds their use of vocabulary (Sandvik et al., 2012).

The second type of technological scaffolding in Yelland and Masters’s (2007) model is the technical scaffolding provided by the technology itself to guide, support and facilitate learning. Sandvik et al. (2012) point out that iPad apps can themselves scaffold LL, as the multimodality of such apps supports children’s learning and encourages them to construct their own meanings. Examples of this kind of scaffolding are the “drill and practice” and “present-test-feedback” apps informed by Skinner’s behaviourist approach. This approach to learning activities is still common, as it has advantages such as enabling users to design content and supplementary materials to reinforce learning of specific subjects and curriculums (Naismith et al., 2004). The behaviourist “stimulus-response” style of these apps can play the role of the teacher in presenting information, asking questions (e.g., in the form of games or multiple-choice activities) and providing instant feedback or reinforcement components (Naismith et al., 2004). Sandvik et al (2012) indicate that although this type of app does not pose cognitive challenges, it suits young children who have begun to learn the basics. They found that children were highly engaged and challenged when using this type of app (See and Say, for example, in which users try

to find specific images in a visually rich picture, and are provided with positive feedback on achieving success). The mini-games embedded in some educational apps may also take a “drill and practice” form, providing a tool for revising the target language and exploring or acquiring new items (Dalton, 2005).

One of the significant educational features of “drill and practice” and other apps is the use of “characters [whether animated or static] presented on a computer screen that guide users through multimedia learning environments” (Heidig & Clarebout, 2011, p. 28). Their design may vary from talking heads to animals or cartoon characters, and some of their features can be customised by users, such as character type, gender and clothing (Heidig & Clarebout, 2011). Integrating design characters or design parameters (Falloon, 2013) into multimedia technology has been reported to provide more instructional support such as guidance, feedback (explanatory or corrective), prompts, and clues, and also to enhance motivation and improve learning outcomes (Clark & Choi, 2005). Such design characters or design parameters support language students’ understanding and development of language skills by digitally highlighting certain parts of the target-language input, offering e-glosses along with definitions of new vocabulary, and combining images, text and sound to explain unknown concepts (Doughty & Long, 2003). However, Falloon’s (2013) empirical research with 5-year-old primary-school students on the effects of the design and content of iPad apps on the quality of students’ learning reveals that design characters or design parameters can both support and hinder learning. In support of learning, the apps’ design and content can provide scaffolding and various forms of instruction and feedback. For example, apps with a traditional teaching style have been found to be very useful for learning (e.g., Mr. Phonics app) (Falloon, 2013). Another aspect of the design of these apps that strongly supports learning is their text-to-speech functionality (embedded or

optional), which helps very young learners to understand the instructions, as their reading skills are still not fully developed. Furthermore, word highlighting in e-stories have been shown to be very useful learning scaffolds. However, other features of iPad apps have been found to restrict or thwart learning; these include pop-up or banner advertisements, external Web links inviting users to purchase apps or other additional features, the use of culture-specific words or accents, imposed time-limits on app activities, automatic increase of difficulty level and the absence of embedded instructions. Such features may discourage young learners from playing or experimenting with the content and navigation of apps, and even from using the apps altogether. According to Heidig and Clarebout (2011), most of the research on design characters (pedagogical agents) suggests that they have no positive effect on learning or motivation (e.g., Baylor & Ryu, 2003; Domagk, 2010). Some scholars have even found them to distract learners rather than facilitating learning (Dehn & van Mulken, 2000).

The third type of scaffolding is affective scaffolding, which encourages students to persevere with technological tasks (Yelland & Masters, 2007). Teachers can affectively scaffold young students' use of technology by remaining physically close to them and reacting positively to their success (e.g., giving a "thumbs-up") or difficulties (e.g., saying "I saw you do this activity the other day; you can do it!"). Alternatively, technological features can modify the difficulty level of tasks in response to students' answers, or provide positive feedback (McManis & Gunnewig, 2012). According to SDT, it is very important to provide positive, informational and direct feedback, as well as optimal challenges and instructional support, to satisfy students' need for competence. The function of detailed positive corrective feedback is to improve students' performance in digital activities and thus support their sense of

accomplishment, which in turn enhances intrinsic motivation. Researchers have stressed the value of positive and immediate feedback to learning achievement and motivation (Johnson, Perry & Shamir, 2010) especially in MALL contexts (Demouy, Eardley, Shrestha & Kukulska-Hulme; 2011; Li & Hegelheimer, 2013; Ozdamli & Cavus, 2011). The immediate corrective feedback offered by mobile technologies helps learners to measure their understanding of the digital LL input (Li & Hegelheimer, 2013; Ozdamli & Cavus, 2011). This is particularly necessary and useful for language learners (Zhao & Lai, 2008) as language teachers may choose not to correct all of their students' mistakes to avoid discouraging them (Lightbown & Spada, 2006). The semi-private environment provided by mobile technologies may offer a non-threatening context in which learners can receive corrective feedback.

Furthermore, the instant feedback provided by mobile devices may enhance students' engagement with learning content and reduce distraction; students can continue with their digital activities without waiting for the teacher's feedback at the end of each task (Lan, Sung & Chang, 2007). The instant digital feedback provided by mobile devices ranges from simple, behaviourist feedback such as "correct/incorrect" responses in spelling or grammar tests (Zhao, 2003) to more advanced mobile applications and systems such as interactive response systems enabling the assessment of oral skills (Demouy et al., 2011), "drill and practice" exercises on tablets followed by digital feedback and diagnostic reports accessible by teachers, parents and students (Lai, Lai, Shen, Tsai, & Chou, 2012), and apps providing evaluation, detailed explanations and built-in supplementary materials (Li & Hegelheimer, 2013). These mobile applications of direct feedback have been found to be effective in promoting language learners' self-efficacy and enhancing LL development and motivation to learn.

Although receiving instant feedback on performance makes learning more personal for young learners and thus motivates them to learn using mobile devices, it is advisable to make the feedback more constructive and informational than simply “right” or “wrong” (e.g., explaining why an answer is incorrect) (Sandberg, Maris & De Geus, 2011). The games and mini-games embedded in educational mobile activities can also provide instant, corrective and detailed feedback (Leemkuil & De Jong, 2011; Mayer & Johnson, 2010) as well as opportunities to master or acquire new skills, thereby enhancing students’ sense of competence (Ryan, Rigby & Przybylski, 2006).

Proponents of SDT claim that rewards, an essential element of games, decrease intrinsic motivation due to their arbitrary and controlling nature; for example, receiving points for completing a level (Ryan et al., 2006). However, Osterloh and Frey, (2000) argue that small “symbolic rewards” do not necessarily reduce intrinsic motivation; on the contrary, they may enhance it. This argument is supported by Garaus, Furtmüller and Güttel (2014), who ascertained experimentally that small and hidden virtual rewards enhance students’ intrinsic motivation, because the informational aspect of the virtual rewards (bonus points) is more salient than the controlling aspect.

In addition to the value of technology-generated feedback in enhancing students’ sense of competence, the provision of corrective and informational peer feedback via iPad apps that enable peer editing and annotation has been reported to enhance students’ confidence. Students find such feedback a useful means of assessing each other’s tasks and providing detailed explanations of the correct methods of completing the tasks (Isabwe, 2012). Similarly, Davies (2014) indicates that iPad activities are very useful in encouraging group presentations, facilitating peer feedback, increasing students’ engagement with learning activities and in turn enhancing their confidence.

This kind of scaffolding and feedback has been also reported by Falloon and Khoo (2014), according to whom Year 1 students frequently seek others' feedback when using tablets for learning, such as evaluation of written input.

Marsh et al. (2015) report a number of factors that motivated children to engage with apps in a project exploring play and creativity in pre-schoolers' use of apps. This motivational role is related to the affordances of apps, such as scaffolding features appropriate to children's age group, navigational aids (animated, highlighted, verbal or visual), model responses, word highlighting in text-to-speech apps, verbal reinforcement (e.g. 'well done' responses) and positive feedback and rewards (e.g. badges, cheering and clapping). However, Marsh et al. (2015) highlight some features of apps that may limit pre-schoolers' play and creativity, such as a lack of clarity, too many pop-up menus, in-app purchases, too much written text and limited scaffolding techniques. These features, as well as other issues such as app freezing, may cause frustration and confusion, making children's use of apps over-challenging and thus hindering their effective use of apps for playing resulting in disengagement and demotivation.

Numerous studies of mLearning and MALL have emphasised the effectiveness of these methods in empowering learners and enhancing their self-efficacy, self-esteem, self-confidence and linguistic or digital competence, thereby increasing their motivation to learn (Ali-Khan & Siry, 2014; Brown et al., 2012; Gromik, 2012; Henderson & Yeow, 2012; Lou et al., 2012; Lynch & Redpath, 2012; Lys, 2013; Martí & Ferrer, 2012; Selwyn, 2013; Wang & Smith, 2013).

Mobile technologies may offer language learners greater opportunities to practise the target language, which enhances their confidence (Lys, 2013). Many of the above

researchers claim that the affordances of these devices – such as portability, instant connectivity, immediacy of communication and the capacity to publish work – empower students and increase their confidence (Naismith et al., 2004; Selwyn, 2013). For example, the iPad's accessibility empowers primary-school children by enabling them to access an extensive range of information (Henderson & Yeow, 2012). Similarly, mobile devices offer increased access to a variety of learning materials and facilitate the selection of relevant information (Koole, 2009), thereby empowering students and increasing their self-confidence (Butcher, 2014; Selwyn, 2013).

Furthermore, the multi-functionality of the iPad and other mobile devices has been reported to empower learners and enhance their sense of accomplishment and competence by enabling them to create, design and produce. Brown et al. (2012) indicate that the multi-functional features of the iPad empower students to create presentations, record audio clips and videos, copy and save images, and search and view websites on one device in one classroom session. Moreover, Henderson and Yeow (2012) report that the use of the iPad to create and share digital work with peers, family and teachers develops students' feelings of empowerment and pride in their output, and increases their engagement and the time spent on a learning task, resulting in higher-quality presentations. Lynch and Redpath (2012) also describe children's feelings of excitement and pride when sharing their iPads' digital production (e.g. audio-video alphabet books) with family members and the school community on schools' Twitter pages and YouTube channels. Mobile technologies have been shown to empower language learners by enabling them to capture and store their learning experiences (using built-in cameras and audio and video recorders), and share these experiences with a community of other learners (Martí & Ferrer, 2012). For example, Gromik (2012) reports that the video-recording feature on mobile

phones empowers English-language learners to create authentic videos and evaluate their speaking skills. Joseph, Bisted and Suthers (2005) and Hasegawa, Ishikawa, Shinagawa, Kaneko and Mikakoda (2008) also indicate that mobile devices empower students to create their own vocabulary-learning materials using photos or videos with captions that represent their understanding of the newly learned words. Furthermore, Wang and Smith (2013) suggest that creating language materials may effectively increase students' motivation to learn.

Young students' prior digital experiences and knowledge of mobile technologies may play a role in enhancing their self-efficacy and digital competence when using these devices in educational environments. As children spend a large part of their free time playing digital games and interacting with technological devices (Aghlara & Tamjid, 2011), they build up their technological skills over time. Their expertise as users of mobile technologies has been observed and described by a number of researchers (Brown et al., 2012, O'Mara & Laidlaw, 2011; Marsh et al., 2015; Merchant, 2015a; Vesey, 2013). In some cases, learners appear to take the role of technological experts who teach or introduce new technological functions/ideas to their teachers. Ciampa (2013), for example, reports that the use of tablets in young-learner classrooms reversed the role of student and teacher, as the students taught their teacher about new tablet functionalities and apps.

The digital competence of these young learners recalls Prensky's (2001) theory of "digital natives", in which he proposes that new generations are far more immersed in technology and thus possess far more sophisticated technical skills than their teachers (who are denoted "digital immigrants"). Some researchers seem to agree with this claim, suggesting that teachers should "turn to their students to learn through observing young peoples' competencies with these technologies" (O'Mara & Laidlaw,

2011, p. 152). However, these “colourful and persuasive accounts of children or young people as experts, or ‘digital natives’, ... clearly do not generalize to all students” (Merchant, 2012b, p. 163). Indeed, it is not realistic to view all students as “digital natives”, nor to consider all teachers “digital immigrants”. The extent of digital competence may vary between students depending on a variety of factors, such as access to technologies, support when using these technologies and personal abilities. More specifically, variation in children’s capital resources has been highlighted by Merchant (2012b) as one of the key conceptual and practical issues raised in educational discourses. This is connected to a related concern regarding the ownership of mobile technologies such as tablets: that only some children have the cultural capital to make effective use of iPads in education, thereby amplifying current inequalities (Merchant, 2015a).

### **3.5.3 The Need for Autonomy in mLearning Contexts**

According to SDT, providing students with a supportive learning environment is necessary not only to fulfil their need for competence but to support their need for autonomy. According to Ryan et al. (2006), learning activities that offer students choice, rewards in the form of informational feedback (which do not restrict their behaviour) and non-controlling instructions have been shown to enhance autonomy, which in turn increases intrinsic motivation, and vice versa. The use of mobile technologies in learning has been shown to effectively enhance students’ need for autonomy and elicit a sense of agency, personal ownership and control over their learning (Ahmed, 2012; Henderson & Yeow, 2012; Jones & Issroff, 2007; Kukulska-Hulme & Shield, 2008; O’Mara & Laidlaw, 2011; Pachler et al., 2010; Pilar, Jorge &

Cristina, 2013). Control over one's learning and autonomous decision-making are considered among the key motivational factors in the context of mLearning, as proposed by Jones et al. (2006). "The ubiquity and mobility of mobile technologies offer the students a larger degree of freedom to exercise agency in self-regulating their own learning" (Sha, Looi, Chen & Zhang, 2012, p. 373), and increase their "any time, anywhere" control over their learning (Wankel & Blessinger 2013). This seems to be enhanced by the view of mobile technologies, such as tablets, as 'nearly always on' technologies (Butcher, 2014; Fisher et al., 2013). Mobile devices provide students with "control over the place (physical or virtual), pace and time they learn, and [...] autonomy over their learning content" (Kearney et al., 2012, p. 4). The feelings of agency and ownership elicited by mobile devices are important means of enhancing students' intrinsic motivation and their engagement with mLearning tasks (Jones & Issroff, 2007; Sha et al., 2012).

With reference to LL environments, Ushioda (2013) points out that "autonomy, flexibility, freedom and choice are intrinsic features of mobile learning" (p. 2). Godwin-Jones (2011a) agrees that the affordances of MALL have the potential to enhance students' autonomy. Ushioda (2013) suggests that due to the emphasis placed in SDT on the value of intrinsic types of motivation (which indicate control and autonomy over learning), the decision to use portable devices is better left to the language learners themselves. Kukuska-Holmes (2013b) also indicates that mobile technologies can enhance language learners' autonomy and self-direction, thus encouraging more learner-centred learning.

The accessibility and flexibility of learning enabled by the portability of mobile devices such as tablets can encourage young students' direct access to LL resources, enabling them to supplement their real-time classroom learning (Ciampa, 2013;

Henderson & Yeow, 2012) and extend this classroom learning to other settings (Kukulska-Holmes, 2013b; 2014; Pilar et al., 2013). Furthermore, the affordances of mobile technologies have been shown to motivate language learners to pursue regular learning, as they encourage exploration, the discovery of new online language materials and the creation of activities such as audio-recorded dialogues for later discussion with the teacher (Kukulska-Holmes, 2013b). This is noted by Ciampa (2013) who identifies greater and easier access to various learning materials as a key affordance of tablets, highlighting the potential role of this affordance in arousing and cultivating young students' cognitive curiosity and willingness to autonomously explore and search for new apps to use for learning.

The curiosity-based exploration (Deci & Ryan, 2000) encouraged by the features of some tablet apps has been addressed and discussed in mLearning literature. Ciampa (2013), for example, reports that young students enjoy using tablet apps that offer unlimited choices (e.g., the iBooks app) to search for additional learning content. This encourages their spontaneous and intentional learning, extending learning beyond the class and thus bridging the gap between school and home learning. In the same vein, Kucirkova et al. (2014) reports that the various tools and features of tablet apps preserve children's intrinsic interest in the apps, as they seem meaningfully engaged in exploring their features and looking for particular tools to use in their work. Ciampa (2013) also reports that multimedia such as videos, audio, music and animation and the interactivity of some apps may arouse young learners' interest and sensory curiosity (e.g., a maths app that included colourful patterns, charts and tables). Ciampa (2013) and Pellerin (2014) describe the positive impact of the multimodal sensory affordances of mobile technologies, such as tablets, on young learners' motivation to learn. Ciampa (2013), for instance, indicates that some apps (e.g., the iBrainstorm app)

add excitement to children's reading and writing activities due to the options offered by their built-in tools, such as adding virtual sticky notes and changing their colour and location. Ciampa (2013) stresses that sensory stimuli as well as the multimedia options offered by tablets and other mobile devices can encourage children to use these technologies for learning, as they are able to interact with the relevant content.

Furthermore, Pellerin (2014) points out that tablets, among other touch-screen mobile devices, can enhance children's motivation and engagement in LL tasks due to their multimodal sensory affordances, which meet children's different learning needs and interests (physiological, cognitive and emotional). Pellerin (2014) explains that the functional and multimodal options of touch devices appeared to increase the autonomy of young Canadian students in French classes, as they were able to choose tools to develop their learning and produce L2 output (e.g., using some apps to record their voices) that displayed their knowledge and skills. This claim is supported by Kukulska-Hulme (2013b), who identifies the multimodality offered by mobile technology, and the greater opportunity to make learning more personally relevant, among the most valued aspects of MALL.

In addition to these affordances, the ease of use and navigation of tablets and tablet apps have been shown to encourage autonomous learning (Lynch & Redpath, 2012). The opportunity to capture learning information using built-in cameras rather than traditional note-taking makes tablets an easy to use educational tool, and has been shown to foster adult students' positive perceptions of tablets as a potential learning device (Butcher, 2014).

The personalisation enabled by "any time and anywhere" learning is considered another advantage of mobile technologies, as it encourages autonomous learning

(Fayed et al., 2013) and increases learners' choice, agency and self-regulation (McLoughlin & Lee, 2008; Traxler, 2007). A significant number of studies in the field of mLearning have highlighted the usefulness of mobile devices for personalised learning (Viberg & Grönlund, 2013). According to Kearney et al. (2015) "the personalisation feature [in mLearning] has strong implications for ownership, agency and autonomous learning" (p. 49). The authors indicate that high levels of personalisation along with the ability to customise and modify both integrated features and activities can lead to a powerful sense of ownership. The "just enough, just-in-time, just-for-me" features of some mLearning activities are believed to facilitate personalised learning (Kearney et al., 2012). MLearning allows users to customise both devices and content (Kearney et al., 2012). Language apps can also be customised (Steel, 2012) and be of extended benefit if they can be used offline, as learning is thus not restricted by Wi-Fi or Internet connection (Fayed et al., 2013). The ubiquitous nature of MALL (Kukulka-Hulme & Shield, 2008) and the customisable features of some apps can accommodate a variety of learning interests, habits and styles (Godwin-Jones, 2011; Kearney et al., 2012).

Furthermore, Palfreyman (2012) reports that the use of mobile devices by adult ESL learners to take photos of their daily lives and use them in writing tasks enhanced their autonomy. Such open-ended MALL activities can encourage more contextualised learning (Kearney et al., 2012) and more personalised learning, which may eventually foster students' sense of autonomy and agency.

In addition, some apps have built-in scaffolding for the provision of feedback that encourages more autonomous and self-regulated learning (Sha et al., 2012). For example, Li and Hegelheimer (2013) designed an app called Grammar Clinic to improve students' acquisition of grammatical rules and self-editing by providing them

with instant feedback and a detailed explanation of each bite-sized grammar task. The app was found to improve the students' self-editing of English writing. Mobile games can also enhance students' autonomy by providing learners with choices of movements, methods, tasks and goals, as well as offering them rewards for positive feedback (Ryan et al., 2006).

It is very important to note that encouraging students' autonomy does not mean allowing them always to work alone, as "children working with technology in teacher-led activities or in peer groups can be a powerful type of learning, particularly for additional language and social skills development" (McManis & Gunnewig, 2012, p. 19). Furthermore, mobile blogging can encourage language learners' agency and control over their learning, which may in turn cultivate their autonomy (Lou et al., 2012). Blogging and other Web 2 environments can enhance students' autonomy by allowing them to personalise blogs or webpages, initiate discussion of subjects they have selected, and provide and receive non-controlling feedback (Alm-Lequeux, 2006).

Although giving students more control over their learning is an important means of motivating them to learn, Comas-Quinn et al. (2009) believe that the sense of responsibility associated with the ownership of learning may cause its own problems, especially if students are used to a traditional learning approach in which they are closely guided by teachers. Working in a new way may lead to feelings of insecurity; language learners may not be aware of the reasons for the freedom offered, and may not know how to deal with it. Furthermore, not all students may be proficient in the use of mobile technologies and applications. Therefore, the researchers recommend training learners and providing them with support in the use of such technologies. McManis and Gunnewig (2012) indicate that teachers who provide model examples,

comprehensible instructions and prompts encourage their students' autonomous learning and positive attitudes towards technology use. Milman et al. (2012) also recommend that educational tasks on iPads are initiated by teachers, but that students are permitted considerable freedom and choice in performing and customising the activities. They show that successful teachers sometimes provide students with guidelines and instructions for the content of their work, but give them freedom to choose the apps they wish to use to present or create their tasks.

In Alm-Lequeux's (2006) words, "it is the careful balance between structure and choice that allows learners to become autonomous" (p. 34). Therefore, tablet-based LL activities should allow students some degree of control and choice in planning and managing the learning process, to satisfy their need for competence, relatedness, and autonomy and in turn enhance their intrinsic and internalised motivation.

### **3.6 Chapter Summary**

In this chapter, I discussed the theoretical framework that underpins my study, namely SDT. Investigation of this theory and other research findings indicated that the affordances of tablets and other mobile technologies have the potential to influence students' self-determination to use them for LL. Informed by SDT, I investigated and discussed the motivational affordances of tablets and their apps for ELL based on the EFL children's social and lived experiences. According to SDT, children's energy, direction and persistence in using tablets and tablet apps for ELL are guided by the underlying determinants of human actions: relatedness, competence and autonomy (Ryan & Deci, 2000). These three underlying needs were also discussed in this chapter in relation to mLearning and MALL.

As I explained at the beginning of this chapter, I chose to use SDT as my theoretical and analytical lens in this thesis because I found it to be most relevant and applicable to my data for a number of reasons. First, it fully captured the open nature of my inquiry as it includes various kinds of motivation and levels of self-regulation, which are interpreted in terms of the reasons underlying actions (Ryan & Deci, 2000). This allowed me to explore the various aspects and affordances of apps that may encourage different types of motivation and levels of self-regulation. Second, I found this theory appropriate because it helped me to fulfil my ontological, epistemological and methodological aims. Finally, there has been little discussion to date about the application of SDT to young EFL students in tablet-based learning contexts. For these reasons I found SDT to be the most relevant theory to be used in my thesis.

In light of the above, I will outline and justify in the next chapter the meta-theoretical and methodological paradigms, research design and data-collection and data-analysis procedures used to achieve my study's objectives and answer my research questions.

## CHAPTER FOUR

### Research Design and Methodology

#### 4.1 Introduction

This chapter presents and describes the general methodological framework I developed to collect and analyse the research data. The research design and methodology were guided by the research objectives and selected as the most appropriate for answering the research questions. I conducted a qualitative case study, enabling in-depth exploration of the motivational affordances of both iPad tablets and their apps for ELL by young EFL students and an investigation of how the students' motivation to use the tablets and apps for ELL might be affected by satisfying their need for competence, autonomy and relatedness. The aim of the study was to understand the children's experiences and perceptions of using the tablets to learn English as a new language. I sought to answer the following questions:

1. **What are the motivational affordances of tablets for ELL by Saudi children learning EFL as beginners?**
2. **What are the motivational factors of the most popular apps used for ELL by Saudi children learning EFL as beginners?**

The aim of this chapter, therefore, is to illustrate the chosen research methodology, clarify the underpinning philosophical paradigm and describe and justify the data-gathering methods and the tools used for data analysis. The chapter begins with an overview of the social-constructivist paradigm adopted to guide the research design, methodology, data-collection and data-analysis procedures. As the main objective of

the study was to describe and explore in depth the motivational aspects of iPad tablets and their apps as voiced by young EFL pupils, I developed an exploratory qualitative case study design to investigate the outcomes of the study. The research procedure, sampling technique, data-collection tools and ethical considerations are thoroughly presented and discussed. Then, the study's rigour is addressed by clarifying the measures taken to enhance the research's trustworthiness, and the nature of my own position as researcher. At the end of this chapter, the data analysis and interpretation methods are presented and discussed in details.

#### **4.2 Meta-theoretical Research Paradigm**

When undertaking research, the researcher is usually guided by “highly abstract principles” (Bateson, 1972, p. 320) and certain philosophical assumptions of reality that work as lens through which the researcher views the world. These philosophical assumptions are referred to as paradigms (Guba & Lincoln, 2005). A paradigm is regarded as the theoretical framework for research (Mackenzie & Knipe, 2006), comprising “a loose collection of logically related assumptions, concepts and propositions that orient thinking and research” (Bogdan & Biklen, 1998, p. 22). Hughes (2001) believes that a paradigm is a world view that “frames a research topic” and affects the understanding of the topic (p.31). Similarly, a paradigm is defined “as a set of basic beliefs (or metaphysics) that deals with ultimates or first principles. It represents a worldview that defines, for its holder, the nature of the "world," the individual's place in it, and the range of possible relationships to that world and its parts” (Guba & Lincoln, 1994, p. 107). This set of beliefs consists of three assumptions that are combined in practice: ontological, epistemological and

methodological. The ontological assumption is concerned with the nature of reality; the epistemological assumption seeks to identify the relationship between the knower and the known; while methodological assumptions address ways to discover knowledge of the world (Guba & Lincoln, 2005, p.22).

As the aims of this research were to investigate the motivational aspects of both tablets and tablet apps for EFL learning as experienced and voiced by children, and to explore the effects of the use of tablets and tablet apps on children's self-determination with reference to their relatedness, competence and autonomy, I chose a social-constructivist paradigm to underpin the study and guide the data collection and analysis. The ontological assumption of the social-constructivist approach is relativist, whereby multiple realities are constructed by individuals situated within a social context. The epistemological stance of this research is subjectivist: concerned with establishing a link between the researcher and the informants to facilitate the social construction of realities. Thus the researcher and the participants work together to understand and co-construct knowledge. Finally, I chose a qualitative research methodology, as this enabled me to produce a full and detailed description of the analysed data. A full account of both the social-constructivist paradigm and the research methodology are presented later in this chapter.

Generally, paradigms are divided into four main categories: positivist, post-positivist, critical-theoretical and constructivist. However, this classification of philosophical paradigms is not fixed and may vary between scholars. For example, Denzin and Lincoln (2005) identify four main paradigms of qualitative research along with their respective subdivisions: positivist and post-positivist, constructivist-interpretive, critical (Marxist, emancipatory) and feminist-post-structural. In relation to research involving children, Kumar (2005) highlights two major approaches that underpin

social-science research: the positivist paradigm and the naturalistic (interpretivist) paradigm.

The following section presents a reflective overview of two key paradigms addressed in the literature. It begins with the positivist paradigm, the traditional scientific approach, and links it with post-positivism; then, the section moves on to the social constructivist and interpretive paradigm, which I adopted as the theoretical approach to the current study.

#### **4.2.1 Positivist and Post-positivist Paradigms**

During the nineteenth century and the first half of the twentieth century, positivism was the predominant approach used in behavioural and social research (Holloway & Wheeler, 2010). The positivist approach seeks to verify theories and hypotheses using scientific methods of finding and testing knowledge. Knowledge can be predicted and created deductively from a theory or hypothesis. The positivist view of the world is that reality is unchangeable as it is based on universal rules that must be understood through direct repeatable observations and the systematic recording of existing facts. These are then analysed objectively in light of the factors that caused its occurrence (Hughes, 2001). According to this approach, facts that are observed or measured should be isolated from context and independent of the researcher to prevent bias (Guba & Lincoln, 1994). To collect data, positivists depend mainly on quantitative methods, such as experiments, quasi-experiments, questionnaires and “rigorously defined qualitative methodologies” (Guba & Lincoln, 2005, p. 24). When the data has been collected, it is analysed statistically and the results are generalised and replicated.

During the second half of the twentieth century, positivism was criticised for its heavy reliance on scientific methods (Lincoln & Guba, 1990). The idea that only visible objects should be studied in isolation, while abstract phenomena are avoided, was criticised and questioned (Blaikie, 2007, p. 183). Opponents claim that scientific quantitative methods are not suitable for studying human social issues, which are better investigated using qualitative methodologies. Such attacks on positivism caused what Lincoln and Guba (1990) called a ‘paradigm shift’. This shift resulted in the post-positivist approach, which preserves features of positivism while adjusting others to meet these criticisms and enable objective research within the field of the social sciences. In its broadest sense, the post-positivist assumption is sometimes extended to refer to “the full range of current approaches following the demise of positivism including anti-positivist views” (Robson, 2011, p. 22). Indeed, the fundamental principle of post-positivism is that no absolute truth can be found when searching for knowledge, as scientific theories and hypotheses are subject to falsification and cannot be confirmed (Popper, 1968). According to Phillips and Burbules (2000), the post-positivism paradigm claims that “science does not attempt to describe the total reality (i.e., all the truths) about, say, a classroom; rather, it seeks to develop relevant true statements – ones that can serve to explain the situation that is of concern or that describe the causal relationships that are the focus of interest” (p. 38). According to Phillips and Burbules (2000, p. 29-43), post-positivists believe that the creation of knowledge combines both rational processes, dependent on evidence, and social practices, dependent on power, politics and ideology. They also argue that it is affected by socio-political factors. Moreover, research should be grounded in the “best” available evidence. Accordingly, knowledge claims are formed and tested, then improved or abandoned based on the evidence. Furthermore, objectivity is regarded as

a crucial element of post-positivist philosophy; the researcher needs to examine methods and conclusions in order to avoid bias and provide an account of the research's rigour and validity.

Although positivism and post-positivist approaches provide a variety of methodological strategies that serve the pursuit of knowledge, including qualitative methods, isolating the objects studied by the researcher and the procedures employed is problematic. Both positivism and post-positivism as objective epistemologies do not encourage a relationship between the investigator and the participants, which was required in this research to understand the complexities of the participants' social reality. Consequently, I adopted a subjectivist epistemology, as this allows the researcher to connect with the informants. Furthermore, this approach facilitates the social construction of realities whereby the researcher and participants work together to understand and co-construct knowledge. In other words, my task as a researcher was to engage and participate with the students in their everyday experiences while they constructed their knowledge. Engaging with participants in order to understand their social behaviours, attitudes and preferences cannot be achieved through objective knowledge based on cause-effect relations, hypothesis testing, generalisation and mathematical analysis, as advocated by positivists and post-positivists, because social reality is too subjective, distinctive and complex to be understood through realistic observation (Arbner & Bjerke, 1997). Therefore, I chose the social-constructivist paradigm as my meta-theoretical research approach.

#### **4.2.2 Social-Constructivist Paradigm**

In contrast with positivist and post-positivist epistemological assumptions that rely on statistical measures to describe phenomena, the constructivist paradigm is used to understand social phenomena, and thus favours the use of qualitative and hermeneutic techniques (Creswell, 2007; Denzin & Lincoln, 2005; Johnson & Christensen, 2004).

As the aim of this study was to understand how the affordances of tablets and their apps motivate young EFL students to use these devices for ELL, and how the children perceive the influence of these tablets and apps on their self-determination (i.e., the extent to which tablets fulfil the basic needs of relatedness, competence and autonomy), I chose the social-constructivist paradigm as the meta-theoretical approach to underlie my study and guide the research design and methodology. This selection was guided by the research questions and objectives, which aimed to examine the young students' learning experiences and understand them as active constructors of knowledge rather than passive receptors (Piaget, 1977), and as the subjects rather than the objects of the research: : “researched *with*, rather than, *on*” (Christensen & James, 2008). Thus, understanding children's usage of tablets in MALL practices was accomplished through the children themselves. This is in line with Burr (2003), who points out that social claims stem from the “consideration [of] how certain phenomena or forms of knowledge are achieved by people in action” (p. 9). Therefore, the aim of this study was to understand how the participants constructed multiple realities within authentic contexts (Creswell, 2003).

The choice of social-constructivist paradigm to underpin my study was based on the idea that knowledge is created in connection with the values and social context of the phenomenon under study. Further, interaction between the researcher and the

participants is necessary in order to elicit data (Cousins, 2002; Neuman, 2000; Schwandt, 2000; Vygotsky, 1978). This reflects the relativist ontological assumption that multiple realities are constructed by individuals located in a social setting. Social settings may affect how people construct knowledge; therefore, a social-constructivist researcher should consider such contextualities and investigate their influence (Grbich, 2007). More precisely, knowledge construction “has been determined by such things as politics, ideologies, values, the exertion of power, and the preservation of status, religious beliefs, and economic self-interest” (Philips, 2000, p. 6).

Following the social-constructivist paradigm, this research was oriented towards empathising with the participants as active actors who construct their social realities through multiple, changeable and shared meanings (Denzin & Lincoln, 2005); therefore, the study was dependent on their perceptions and views in order to understand the phenomenon being examined. This is supported by the social-constructivist belief that “reality is viewed as socially and societally embedded and existing within the mind. This reality is fluid and changing and knowledge is constructed jointly in interaction by the researcher and the researched” (Grbich, 2007, p. 8). According to Lofland and Lofland (1996), the participation of other people’s minds is crucial to understanding their meanings. This implies that social knowledge is obtained mainly through personal experience, whereby a researcher is encouraged by his “transactional” epistemological stance (Guba & Lincoln, 2005) to form a relationship with the participants in order to obtain data.

Despite the benefits offered by the social-constructivist paradigm, there are some limitations that need to be addressed. For example, the rejection of objective reality may lead to biased knowledge, as the subjectivity of the researcher may affect the research findings (Guba & Lincoln, 2005). In this sense, the advantages of social

constructivist research have been questioned, as it may yield unreliable knowledge that renders the research meaningless. It was impossible for me to divorce myself from the study, as it involved real-world research during which I had to be close to the participants in order to obtain the data (Coffey, 1999). However, to minimise this drawback, I employed self-reflexivity, continuously reflecting on my subjective standpoint and personal preconceptions. My position as a researcher is discussed in Section 4.7.2.

### **4.3 Research Methodology**

It is believed that the research methodology, research design and choice of data collection and analysis methods are shaped and guided largely by the researcher's theoretical assumptions (Denzin & Lincoln, 2005).

The choice and adequacy of a method embodies a variety of assumptions regarding the nature of knowledge and the methods through which that knowledge can be obtained, as well as a set of root assumptions about the nature of the phenomena to be investigated (Morgan, 1980, p. 491).

The selection of research methodology is not only influenced by the philosophical paradigm underpinning the research, but guided by the research objectives and questions. The research methodology is referred to as the “strategies of inquiry”, which guide the methods used in the research design (Creswell, 2009). According to Silverman (2000), research methodology is the “general approach to a research topic” (p. 88). Researchers sometimes confuse research methodology with research design, which is “a framework for the generation of evidence that is situated both to a certain

set of criteria and to the research question in which the investigator is interested” (Bryman, 2004, p. 26). While the research methodology is the general strategy that defines the research process, the research design clarifies the procedures and tools utilised to answer the research questions. Research methodologies are classified as case-study research, action research, ethnography, surveys and experiments. The research design is the backbone of the study, relating research questions to data-gathering methods and, finally, to the findings (Yin, 2009). A relevant and well-defined research design should involve appropriate data sources, data-collecting tools, procedures, kinds of data, and data analysis to respond to the research questions (Lincoln & Guba, 1985). Table (4.1) below outlines the research design and the data-collection methodology and processes selected for use in this research. In the following section, I discuss the methods used to contextualise the key components of the research design and thereby fulfil my research objectives and answer my research questions.

**Table 4.1: Summary of research methodology and design**

|   |  |
|---|--|
| <b>ASSUMPTIONS</b>  |  |
| <b>Epistemological Paradigm</b>   | Social-constructivist  |
| <b>Methodological Paradigm</b>  | Qualitative case study   |
| <b>STUDY DESIGN</b>   |  |
| Qualitative case study and multiple qualitative data collecting methods   |  |
| <b>DESIGN AND IMPEMENTATION OF THE STUDY</b>  |  |
| <b>Study Design</b>   | Reviewing literature about tablets' use in education; examining the course objectives; choosing and purchasing tablet devices; selecting and downloading educational apps; designing instructional iPad activities for each English lesson.  |
| <b>Study Implementation</b>   | Conducting 16 English lessons involving iPad activities (2 45-minute English lessons per week).  |
| <b>SELECTION OF PARTICIPANTS</b>  |  |
| <b>Purposeful Sampling</b>  | Selection of a 4 <sup>th</sup> grade English class at a primary state school in an area of middling socio-economic status. The selected 22 female participants owned and accessed iPad tablets at home and had previously used them mainly for amusement and partly for informal learning. |
| <b>DATA COLLECTION</b>  |  |
| <b>Data-Collection Methods</b>  | <b>Data-Recording Methods</b>  |
| One-to-one semi-structured summative interviews, post-lessons focus groups, post-study focus groups, researcher observations and reflections, reflective blog | Verbatim transcripts and descriptive and reflective field-notes  |
| <b>DATA INTERPRETATION AND ANALYSIS</b>   |  |
| Employment of Nvivo 10 software for analysing data. Thematic analysis of data   |  |
| <b>THE TRUSTWORTHINESS OF THE STUDY</b>   |  |
| Crystallisation of research methods (triangulation), personal and impersonal reflexivity, audit trail, peer debriefing, and thick descriptions of data        |  |
| <b>ETHICAL CONSIDERATIONS</b>   |  |
| Informed consent, voluntary participation, confidentiality and anonymity of participants  |  |

### 4.3.1 Qualitative Research

Due to the nature and purpose of this study, I chose a qualitative case study as my research methodology. The design of this research comprised preparing the study, conducting the research in authentic settings and gathering data from the participants. In order to collect the data, I employed qualitative methods framed within the social-constructivist paradigm to obtain an in-depth understanding of the phenomena under investigation. These qualitative methods included participant observation, dialectical discussions (interviews and focus groups) and a reflective blog, which together enabled me to dig deeply and collect rich information on the impact of iPad tablets and their apps on children's intrinsic motivation and self-regulation to use them in MALL contexts.

According to Denzin and Lincoln (2005),

The word qualitative implies an emphasis on the quality of entities and on processes and meanings that are not experimentally examined or measured (if measured at all) in terms of quantity, amount intensity or frequency. Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied and the situational constraints that shape inquiry. Such researchers emphasise the value-laden nature of inquiry. They seek answers to questions that stress how social experience is created and giving meaning. (p. 10)

From the definition above, it is clear that qualitative research suits the social constructivist paradigm. "Qualitative research" is "an umbrella term" (Atkinson, Coffey & Delamont, 2001, p. 7) that covers a variety of research methods that share characteristics. Qualitative research is undertaken in natural settings to uncover social meanings constructed by actors (Denzin & Lincoln, 2005). For example, the

qualitative researcher conducts research in the territories of the subjects, such as schools or hospitals, which enables participation and engagement with the individuals. Context, therefore, is crucial to this type of research. Additionally, qualitative research is flexible, allowing the researcher to refine, improvise and change the research questions, sampling techniques or methods of data collection and analysis as the research is carried out (Creswell, 2003; Robson, 2011). “It is usually small-scale in terms of numbers of persons or situations researched” (Robson, 2011, p. 19), and therefore yields more rich and detailed data than a quantitative approach. Qualitative research favours the inductive approach in which a researcher begins by collecting data to generate concepts and theories (Merriam, 2009). Nevertheless, both inductive and deductive reasoning can be combined in the research process. Qualitative research employs multiple and interactive methods of data collection, such as case study, personal experience, life story, interview, observation and documentation (Denzin & Lincoln, 2005, p. 3). The purpose of qualitative research is to understand rather than predict a social phenomenon as constructed and perceived by the participants (Patton, 2002). Finally, qualitative research acknowledges the subjectivity of the researcher and encourages his/her self-reflexivity (Robson, 2011).

Much research concerning the use of technology and mobile devices in education has been conducted using quantitative methods (Robertson, 2003; Wu et al., 2012). This is supported by Duman et al. (2015), whose comprehensive meta-analysis of MALL studies from 2002 to 2012 indicates that quantitative research designs are most frequently used by MALL researchers, followed by mixed-method designs and finally qualitative designs. However, a review of the literature associated with the educational usage of tablet devices reveals a reliance on qualitative approaches. This may be because the usage of tablet devices as a learning aid is a new phenomenon that

requires in-depth understanding and exploration. As a relatively new form of mobile technology, tablets' educational uses and affordances remain fairly under-researched, especially in relation to young EFL students in MALL contexts. Therefore, the qualitative approach supported the objective of this research: to understand in depth the real-life experiences of young EFL students using tablets and their apps to learn English, how they constructed these uses, and what they thought of their experiences in relation to the potential influence of the devices' affordances on their self-determination to use iPads for ELL. In addition, the use of qualitative research was familiar, as I used this approach during my Master's degree and found researching words that reflect others' perceptions and feelings to be interesting. Moreover, it enhanced the research in a way that could not be achieved using numerical measures (Silverman, 2001).

However, although qualitative research has its strengths, it is not without limitations. It has been criticised for producing voluminous data that is time-consuming to analyse. Another disadvantage is the inability to generalise the findings to other individuals or settings due to the subjectivity and probable bias of the researcher. Further, the small scale of the research affects its rigour. These limitations are discussed fully in relation to the current research in Sections 4.7.1, 4.7.2 and 7.3.

### **4.3.2 Case-Study Research**

The word "case" in "case-study research" may refer to the setting, individual, group of people, community, organisation or other phenomenon of interest (Robson, 2011). Tracing the origin of case-study research reveals that it has been linked to the Chicago School of Sociology. However, the use of this approach is not limited to sociology but

encapsulates fields such as education, business, marketing, politics and health and medicine (Gerring, 2006). The case study is sometimes thought of as the object of research, or what Stake (2005) refers to as the “choice of what will be studied” (p. 443); however, it is employed mainly as a research methodology or a procedure of inquiry (Merriam, 1998), as is the case in this research. Case-study research has characteristics distinct from those of other research methodologies. Using a qualitative case study helps a researcher to acquire an in-depth understanding of a contemporary social phenomenon through the subject’s or subjects’ real actions and perceptions. Moreover, case-study research allows the researcher to “dig into meanings, working to relate them to context and experience” (Stake, 2005, p. 450). Furthermore, case-study research enables the researcher to be flexible in his/her choice of methods of collecting and analysing data. This triangulation, which combines different procedural methods, evidence, reflections and perceptions in a single enquiry, encourages rich investigation (Flick, 2002). In particular, a qualitative case study “is characterised by the main researcher spending substantial, on site, personally in contact with activities and operations of the case, reflecting, revising meanings of what is going on” (Stake, 1994, p. 242).

As the aim of this study was to explore the motivational affordances of tablets and their apps for children’s EFL learning and to gain an in-depth understanding of their perceptions and preferences, I chose a qualitative case study as my research methodology. Therefore, the following section provides an overview of case-study research as the basis for my choice of methodology.

#### **4.3.2.1 Definitions of Case Study**

The literature provides many different definitions of case-study research. Stake (1995), for instance, defines a case study as “the study of the particularity and activity of a single case, coming to understand its activity within important circumstances” (p. xi). Similarly, Yin (2009) defines the case study as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real life context” (p. 18). Further, according to Creswell (2007), a case study is concerned with exploring in depth a bounded system using multiple methods of data collection; while Simons (2009) refers to the case study as:

... an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institutions, programme or system in ‘real life’ context. It is research-based, inclusive of different methods and evidence. The primary purpose is to generate in-depth understanding of a specific topic, programme, policy, institution or system to generate knowledge and/or inform policy development, professional practice and civil or community action. (p. 21)

The definitions provided above characterise the case study, generally, as a methodological research approach implemented to understand deeply particular and unique cases within their actual settings. Case-study research has been categorised into different types, which are explained in the following section.

#### **4.3.2.2 Types of Case Study**

Several classifications of case study have been proposed and discussed in the literature (Hakim, 2000; McDonough & McDonough, 1997; Stake, 1995; Yin, 1994).

Understanding the differences between the various types of case-study research was essential to determine the methods utilised to gather the data (Stake, 1995). Therefore, I provide a brief explanation of each type of case study, as proposed by Yin (2009) and Stake (1995), before identifying and justifying my selection. According to Yin (2009), a case study can be divided into three types: explanatory, exploratory and descriptive. Explanatory case studies may involve explaining a complex phenomenon and investigating its causality. The exploratory case study aims to explore a certain phenomenon that has no clear or specific outcomes and can be used as an introduction to further research. The descriptive type of case study describes a phenomenon and its real contexts guided by a descriptive theory.

Another scheme classifying qualitative case studies is proposed by Stake (1995), and again consists of three categories: intrinsic, instrumental and collective. Intrinsic case studies examine an unusual situation or a topic that is of interest to the researcher. Instrumental case studies are used to illuminate and clarify a specific issue. Collective case studies are used when multiple cases are described and compared within a study.

For the purpose of this research, I chose an intrinsic, instrumental and exploratory case-study methodology to gain a better understanding of the subject under investigation. There were two main reasons for my decision, as follows.

*Nature of research questions:* A case study seeks to answer the question of “what specially can be learned about the single case?” (Stake, 2005, p. 443), which was central to my research. Case-study research enabled me to find an answer to the question of “what specially can be learned about the motivational affordances of tablets and apps for EFL learning by children?” The learning process highlighted in this question was investigated through my participation in the research (observation)

and my social interaction with the participants, who were my ‘windows’ on the case (via interviews, focus groups and blog).

*Nature of phenomenon:* When the case under study is a contemporary complex social phenomenon that occurs within a natural setting in which potentially significant variables and the boundaries between the phenomenon and its context are not clear to the researcher, the case-study approach is the appropriate research methodology, as it enables in-depth exploration of this phenomenon (Yin, 2009). The single phenomenon addressed in this research was relatively new; that is, little or no research has been conducted in this area to date (Stake, 1995). In this sense, it was an intrinsic case study, wherein the intrinsic merits of the iPad as an educational tool were addressed and considered in order to gain better understanding of this topic (Creswell, 2008). Such an unusual topic requires in-depth exploration and full description (Stake, 2005); however, it had received no attention prior to this study in the intended research context (Morse, 1991). Therefore, this case study was exploratory; I attempted not only to understand and explore the use of this hyped mobile technology for learning a language, but to provide a prelude to further study in the future (Silverman, 2006). The exploration of this phenomenon was bounded by its specificity to EFL young learners as the constructors of the uses of the tablets. This was investigated in relation to the emergent variables that might affect their usage and the reasons for their preferences and perspectives (Gall, Gall & Borg, 2007). Furthermore, the single case cannot be separated from its context: that of the school, the English class and the students’ homes. It was in these contexts that the experiences and perceptions of the children were formed and developed. Therefore, addressing the context in which the usage of the tablets occurred was vital to acquire a better understanding of their affordances and aspects as reflected on and experienced by the children.

In addition to categorising case studies in terms of their objectives, they can be classified according to their design. Yin (2009) states that a case study can be either a single or a multiple case study. Yin (2003) classifies the single case study further on the basis of the unit of analysis (real source of information). For example, when a single case under study is concerned with a single global level of analysis, it is called holistic. However, when it involves multiple levels of analysis, it is known as 'embedded'. This case study was a holistic single case study because it involved the experiences and perceptions of a group of 22 young EFL students situated within one distinctive and 'extreme' (Yin, 2009) contextual setting (English classroom) regarding their usage of tablets to learn English.

#### **4.3.2.3 Limitations of Case-Study Research**

Although case studies have valuable characteristics that make them the preferred choice of many qualitative researchers, they are not without limitations. Indeed, qualitative case studies have inherited many limitations from the qualitative approach. For example, their findings cannot be generalised. As opposed to quantitative research methodologies such as surveys, case studies are regarded as 'microscopic' (Yin, 1993) because they use a single or small number of case(s) (participants or events), which reduces their capacity for scientific generalisation. However, Yin (2009) states that:

... case studies, like experiments, are generalizable to theoretical propositions and not to populations or universes. In this sense, case study, like experiments, does not represent a sample, and doing a case study your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies (statistical generalization). (p. 18)

I did not seek to statistically generalise the results to a wider population. I aimed to expand and generalise the theory of the use of tablets in MALL contexts by young learners and to provide a prelude to extended research on this phenomenon from which statistically generalisable results can be drawn. More discussion of this issue and the quality measures used can be found in Section 4.7.

In addition, qualitative case studies are criticised for their lack of objectivity and rigour; researchers depend on subjective procedures to conduct research in which personal bias may distort the findings (Yin, 2009). Therefore, to minimise this limitation, self-reflexivity should be applied and “data should be collected carefully and systematically and presented neutrally” (Alhinty, 2011, p. 32). First, detailed explanations of the adopted theoretical and methodological approaches are provided (please consult the previous section). Later in this chapter, I illustrate and justify in detail every method used to collect the data. Moreover, the process of selecting the case and accessing the site was clarified carefully, along with the ethical issues addressed in the research. This was followed by a detailed explanation of the analysis process and how the research questions and literature review were logically linked to the obtained data. Furthermore, I used my previously developed conceptual framework of ELL tablet use, as well as SDT (Deci & Ryan, 1985; Noels et al., 1999; 2000), to ensure that the data collection and analysis were carried out within reasonable limits. Besides utilising the conceptual framework and SDT model deductively during the data analysis, I used an inductive approach to maintain the exploratory nature of the research. The trustworthiness and robustness of the study were ensured through the use of crystallisation, thick description, documenting study decisions and processes (audit trail), self-reflexivity and member debriefing. All these are addressed in more detail in Section 4.7 of this chapter.

Before carrying out the case study, I made sure that the design and planning of the case study were guided by an understanding of the target population and the context in which the study would be implemented. Therefore, the following section provides a description of the case-selection technique, including the nature of the case and the context in which the study took place.

#### **4.4 The Case and its Context**

The case to be studied is a complex entity located in a milieu or situation embedded in a number of contexts or backgrounds. Historical context is almost always of interest, but so are cultural and physical contexts. Other contexts often of interest are the social, economic, political, ethical, and aesthetic. (Stake, 2005, p. 449)

The quotation above implies that the purpose of studying a case is to understand the complexity of its historical background, unique characteristics, and related contexts. This was important: the case on which this research focused was intertwined with its context, as it reflected a situational social phenomenon (Guba & Lincoln, 2005). To determine the case study for the current research, careful procedures of school identification and selection were implemented to negotiate the location of the research and recruit the participants. Moreover, ethical issues were carefully evaluated, as they were fundamental to this case-study, as detailed in the following section.

#### **4.4.1 Case-Selection Technique**

I began this qualitative case study research by selecting a data-rich research site, before I attempted to identify the participants. Certain criteria for site selection were determined in the research-design phase. Once a suitable site had been found, participants were identified from among those studying at the site. Therefore, the selection technique was purposive sampling, rather than random sampling, to serve the objectives and needs of the study (Gall et al., 2007). As the current study was a qualitative case study designed to explore in depth the motivational aspects of tablets and their apps in EFL learning by young beginner-level students, using a purposive selection technique made it possible to identify a specific case through which to interpret the phenomenon (Merriam, 1998; Stake, 2005). According to Patton (1990), the “logic and power of purposeful sampling lies in selecting information-rich cases for study in depth. Information-rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the research” (p. 169). Therefore, both the school in which the study took place and the participants were selected purposively for their particular characteristics, which were anticipated to enrich the study (Patton, 1990).

The case-study setting chosen was a 4<sup>th</sup>-grade class of EFL Saudi students using tablets to learn English inside and outside school. Saudi Arabia’s 4<sup>th</sup> grade primary school students are aged 9-10, and constitute a unique group, as Saudi students begin studying a new language (English) in the 4<sup>th</sup> grade. Until 2011, English-language education was provided only from the 5<sup>th</sup> or 6<sup>th</sup> grade in most Saudi primary schools and at 4<sup>th</sup> grade in selected schools. For example, in Riyadh city, where I conducted the study, 240 primary schools for boys and 240 primary schools for girls were selected to pilot the English syllabus. The English syllabus was divided into four

different textbooks according to their source of publication. Each textbook was assigned to a particular geographic region of Riyadh; north, south, west, east, and the city centre (Table 4.2). However, in September 2013, English-language education was introduced nationwide to all 4<sup>th</sup>-grade pupils, with one of the selected textbooks used in each district. All four English syllabuses will be piloted for 4-5 years, followed by an evaluation by the Ministry of Education, after which one of the four will be selected as the official English syllabus.

**Table 4.2: Distribution of piloted textbooks across Riyadh’s districts**

| Location | District | Title of Series                  | Publisher         | Number of Schools |      |
|----------|----------|----------------------------------|-------------------|-------------------|------|
|          |          |                                  |                   | Girls             | Boys |
| Riyadh   | Central  | Primary English for Saudi Arabia | Macmillan         | 240               | 240  |
|          | Eastern  | We Can                           | McGraw Hill       |                   |      |
|          | Western  | Smart Class                      | MM Publications   |                   |      |
|          | Northern | Set Up                           | Oxford            |                   |      |
|          | Southern | Pack Back Gold                   | Pearson Education |                   |      |

Before beginning the study, it was essential to identify the specific location of the case study, as the tablet-based programme could not be designed without knowing which textbook the participants would be using. Therefore, I searched for a gatekeeper capable of helping me to select and gain access to a suitable school in Riyadh. Ideally, I wished to find someone in the English primary education sector who could provide information on the 4<sup>th</sup>-grade English syllabus. After some issues with securing this assistance (including subscribing to many websites and forums to access and contact English teachers, and making numerous international calls to English teachers

teaching other grades, none of which yielded satisfactory results), one 6<sup>th</sup>-grade teacher connected me with an inspector working at the Ministry of Education and responsible for the implementation of Department of English education in primary schools, who routinely supervises the teachers' lessons. The inspector was very helpful and cooperative in clarifying the English syllabus in each of Riyadh regions. As she works as an inspector at the Ministry of Education, her job requires her to routinely visit various primary schools within her allocated area (Western Riyadh) to supervise the English teachers. Therefore, she had an "insider status" (Creswell, 2008, p. 219) at most of the sites in her area. With her assistance, a site for the study was selected based on three criteria, as described below.

#### **4.4.1.1 Socio-economic Background of Site**

The economic context of the case was crucial, because the main objective of the study was to explore the motivational affordances of iPad tablets and their apps by 4<sup>th</sup> grade EFL school students. Therefore, I investigated the use of a kind of technology that may not be available at the homes of students from all economic backgrounds. This possibility was highlighted during telephone calls with two teachers working in an area of Riyadh with a low socio-economic status; a couple of their students did not have computers at home, and had thus been unable to complete homework that required them to use the Internet. Nevertheless, computing technologies are an essential part of everyday life nowadays in Riyadh, especially at home, and the use of tablets, particularly Apple iPads, is very popular among children. Therefore, the decision was made to select a school located in an area with a middling socio-economic status to ensure that the students were likely to have their own tablets or

access to iPads at home. This group was also expected to be more likely to have families that accepted the idea of using iPads for educational purposes (the research objective). My intention was to give iPads to students without access to the device, to help them participate in the study.

The site that was finally selected was located in western Riyadh, and its pupils were drawn from neighbourhoods with a middling socio-economic status. According to the head teacher at the school, iPad ownership was common among the students, who were accustomed to bringing their devices with them to school on open days (e.g. festivals) to play with.

#### **4.4.1.2 Level of ICT Use at Site**

Selecting a school with a good level of ICT support and ample ICT opportunities was important to this research study, which involved the usage of mobile technologies that might require maintenance and technical support. A review of the literature associated with using the iPad for primary-school education revealed that although these tablets require less maintenance than laptops or desktop computers, the provision of technical support is still necessary when using these devices in the educational setting. The site selected for this research was a primary school in the city of Riyadh, which is home to 45 primary, intermediate and secondary schools. Nine hundred schools in the Kingdom are currently participating in the King Abdullah Bin Abdul Aziz Public Education Development Project (Tatweer, 2013). This project began in 2007, with the intention of improving the resources at public schools to benefit teachers and students. Schools taking part in the initial stage of the project have benefited from educational experts' visits, training courses, and additional technological and educational

resources. The selected school had four resource rooms, and classrooms containing projectors and ‘smart’ interactive boards. The school was also equipped with technical support. Selecting a school with good ICT practice in terms of resources (e.g. the presence of a projector), maintenance and technical support (if technical problems occurred) was important to my study.

#### **4.4.1.3 Cooperation of Gatekeeper**

Identifying a school at which the gatekeeper (the head teacher in this case) is cooperative and willing to mediate the researcher’s access to the site and allow access to the required group of children is crucial. Implementing a study in a classroom is a complex task, in which changes must take place that may affect the routine practices in the classroom. Not all head teachers accept the introduction of such programmes, due to the potential disruption these projects may cause in the classroom. However, if the head teacher is interested in the potential outcomes of the study in the future, gaining her consent and cooperation is easier. In the current case study, the gatekeeper at the primary school was a head teacher with a degree in English language, who was interested in experimenting with new LL technologies. Once the head teacher had been informed about the research topic and how it would be undertaken, she expressed her approval of the study and stated that she would help to facilitate its preparation and implementation in the school. The head teacher was also interested in the topic, and hoped that the outcomes of the study would provide insights into English-language teaching and learning at her school.

#### **4.4.2 Selection of Participants**

Seeking to explore and understand a phenomenon in depth involves a qualitative approach that “typically focuses in depth on relatively small samples, even single cases, selected purposefully” (Patton, 1990, p. 169). Therefore, a single case – a 4<sup>th</sup>-grade English classroom – was selected for the study. The sampling procedure used to select this subgroup was homogeneous: the participants were purposively selected because they shared similar characteristics (Creswell, 2008; Patton, 1990). Qualitative research usually involves a small number of participants/cases, because the qualitative researcher seeks to understand complex phenomena in depth, which demands a large volume of data that take a long time to collect and analyse (Creswell, 2008). In this study, I examined a 4<sup>th</sup>-grade English classroom in depth in order to understand the children’s experiences of using iPads to learn English. The 4<sup>th</sup>-grade students were all girls, because the school was a single sex (female) school. The students attended two English classes lasting 45 minutes a week. Eight students of the class were chosen randomly to be observed and participate in the after class focus groups and summative one-to-one interviews. Table 4.3 below outlines the demographic information of the eight participants.

**Table 4.3: Participants' Demographic Information**

| Participant's name | Technological devices accessed/used at home                              | Uses of technological devices   | Places in which devices were most commonly used  |
|--------------------|--|---|--|
| Sarah              | iPad 2, Sony PlayStation, PC and Galaxy tablet                           | iPad: playing games and searching for information   | At home and at relatives' houses                 |
| Hana               | iPad 3, iPod and PC  | iPod: playing<br>iPod: learning, listening to songs and watching videos   | iPod: at home and outside.<br>iPod: at home only |
| Dana               | Laptop, iPad 2 and PC  | iPad: dictation, playing games, searching for subjects' related information such as Arabic or maths.<br>Laptop: using CDs for learning subjects | At home and outside                              |
| Yara               | iPod, iPad 2, iPhone and Galaxy tablet,                                  | iPad: learning using gamified maths and English apps, e-textbooks (e.g., Arabic, English) and watching YouTube                                  | At home and outside                              |
| Nada               | iPad 3, Laptop and Galaxy mobile   | iPad: playing and learning English  | At home and outside                              |
| Lana               | PC, Sony PlayStation, iPad 2, Blackberry, iPhone, and Galaxy mobile      | iPad: learning, downloading e-textbooks, playing games and watching videos<br>PC: for games unavailable on iPad.                                | At home and at relatives' houses                 |
| Nora               | 2 PC, 4 laptops, 2 iPad mini, 2 iPad 2, iPod, 2 iPhone and Galaxy mobile | iPad: playing games, learning using gamified apps (e.g., maths, Arabic and Quran) and socialising (e.g., chatting)                              | At home and outside                              |
| Lena               | iPad 2, 2 laptop, 2 iPod, Blackberry and iPhone                          | iPad: playing   | A home and at relatives' houses                  |

#### 4.5 Designing the Study

I believe that carrying out a study in a natural setting is a challenging task that requires careful preparation and planning. Effectively preparing and designing such research studies involves a number of procedures that are crucial to enhance the quality and outcomes of the study. According to Goldenhar, LaMontagne, Katz, Heaney and Landsbergis (2001), a researcher should begin by collecting background information based on previous studies of the topic to be investigated, related theories and the target population and its surrounding context. This is followed by developing a partnership (stakeholders) to facilitate the study and then selecting appropriate methods of data

collection and analysis. In the following section, I discuss the technique used to establish an information background.

Before conducting the study, I reviewed the literature associated with mLearning and explained the basis of this theory and its applications in education. I used this as a departure point from which to discuss MALL in detail. Furthermore, since the main aim of this research study was to investigate the motivational affordances of tablets (iPads) and their applications for ELL, following SDT (Deci & Ryan, 1985; Noels et al., 1999; 2000), I reviewed the existing literature on the educational usage of iPad tablets, particularly by primary-school children. This extensive review enabled me to gather background information on the use of tablets for learning in schools and provided me with insights into the best way to investigate this usage. Some of the reviewed studies were based on interventions, in which guidelines were proposed and discussed for the practical preparation and implementation of the studies. For example, the processes of preparing and designing the implementation of tablets in the primary-school sector have been illustrated thoroughly in some studies; these processes include examining the course objectives; choosing and purchasing devices; designing instructional activities; choosing educational apps; establishing practical methods of using educational apps; and providing technical support (Hutchison et al., 2012). These guidelines were helpful when planning the current study.

In addition, before designing a study, it is crucial to consider the theoretical approach underpinning the research study, as this guides the content. As the social-constructivist paradigm was adopted in this study, the planning of this study and the design of its activities were guided by this framework. Therefore, I designed activities that enabled children to construct their own ELL using the tablets. For example, during their English class, I initially instructed the children to how to use the tablets and the apps

in order to learn a specific part of the English course. Then I encouraged them to create their own knowledge and present and share their learning products with others. However, at home, children were encouraged to explore and use the iPad for learning English as they liked, assisted by a list of recommended apps. The subsequent section illustrates the practical steps I followed in planning and preparing the study, including purchasing the tablets, selecting and downloading suitable educational apps and designing English lessons using iPads (Figure 4.1).

# 1

## DESIGNING THE STUDY

### Planning the Study

- Reviewing mLearning, MALL and tablets-based learning research.
- Developing a partnership (stakeholders) to facilitate the study.

i

### Purchasing Tablets and Other Necessary Items

- Purchasing: 11 16G iPads 2 with Wi-Fi  
11 colourful child's proof iPad cases  
22 earphones and 11 of dual connectors  
Speakers compatible with IOS devices  
An Apple VGA Adapter
- Borrowing a Wi-Fi router

ii

### Selecting and Downloading Educational Apps

- Registering iPads with Apple Store
- Developing criteria to guide selection of apps
- Searching for educators and users' reviews of apps
- Testing and piloting each app
- Downloading selected apps in iPads
- Arranging apps in folders according to their educational uses

iii

### Designing and Preparing English App Lessons and Activities

- Obtaining a copy of students' English textbook
- Examining course and lessons' objectives to design relevant lessons and activities.
- Designing 16 English lessons.
- Preparing students' handouts
- Designing a poster of rules of iPad use

# 2

## CONDUCTING THE STUDY

- The study took ten weeks;
- Week 1: introducing the project and building rapport with students
- Weeks 2-9: carrying out app lessons (2 lessons a week) and collecting data through observation, focus groups and blog
- Week 10: collecting data using focus groups and interviews

Figure 4.1: Outline of process of designing and conducting the study

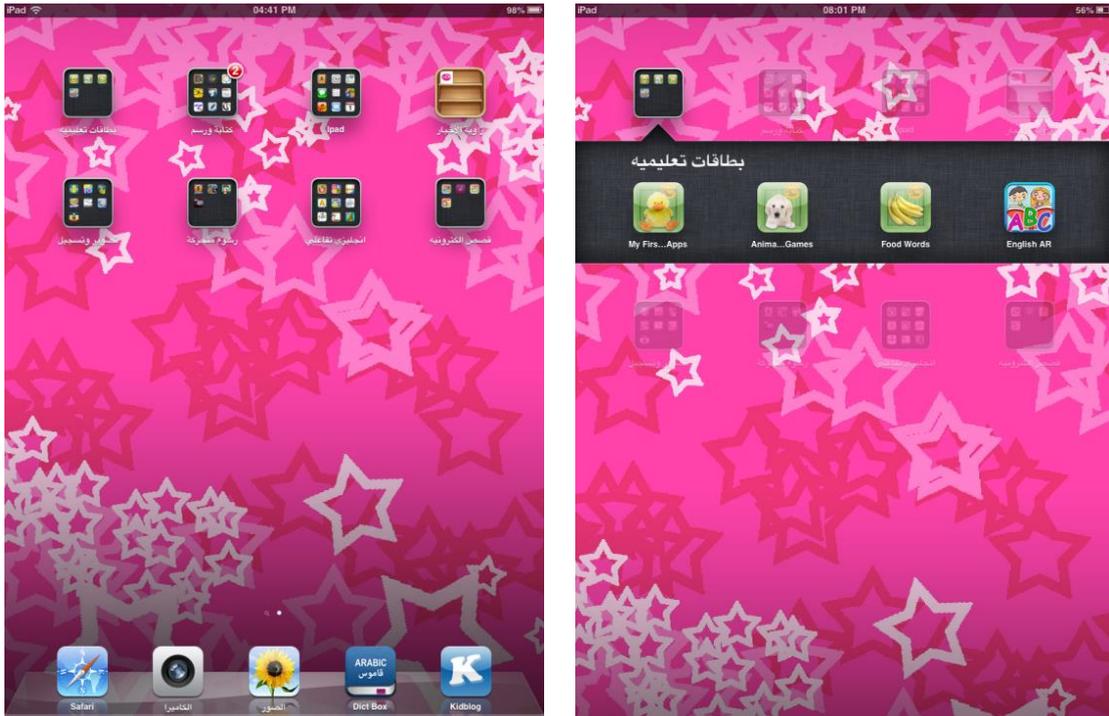
## **4.5.1 Planning the Study**

### **4.5.1.1 Purchasing the Tablets**

I purchased 11 16G iPad 2 tablets with Wi-Fi (but without 3G SIMs), whose prices were more reasonable. To protect the tablets from damage, I also bought 11 colourful child-proof iPad cases. In addition, I purchased 22 sets of earphones, and was able to find a mini headphone/earphone splitter cable that allowed two pairs of earphones to be connected to a single tablet. I bought 11 of these dual connectors: one for each tablet. I also needed speakers to connect to my and the students' iPads to enable audio or video clips to be shared on the projector with the whole class. I found decent speakers that were compatible with IOS devices. I also purchased an Apple VGA Adapter to connect the iPad tablets to the projector. Finally, I borrowed a Wi-Fi router in case of problems with the school's Wi-Fi.

### **4.5.1.2 Selecting and Downloading Educational Apps**

After purchasing the tablets and related accessories, I registered the devices with the Apple Store and downloaded all the apps that I planned to use with the children in class. Next, I grouped each category of educational apps on the desktop of each iPad (with Arabic names, enabling the students to read them). This step made it easy for me to instruct students to open specific apps (Figure 4.2).

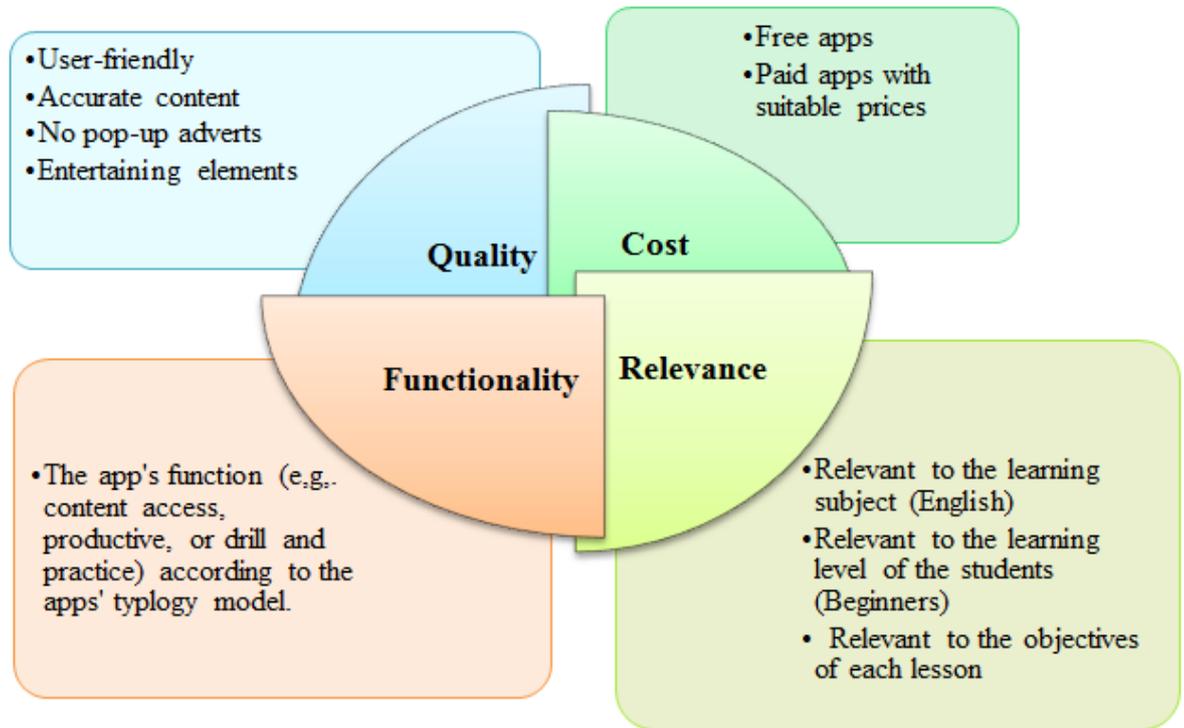


**Figure 4.2: Arrangement of folders on iPad desktops**

The first step in the process of selecting suitable apps started long before purchasing the tablets, as I knew that the 4<sup>th</sup>-grade English syllabus generally involved learning basic English, such as letters, numbers and basic structures and vocabulary. This general knowledge enabled me to start selecting, downloading and testing apps.

As thousands of educational apps are available in the Apple Store, selecting suitable and useful apps was a challenge. Before downloading any apps, I searched for reviews by educators and users to gain a full idea of their advantages and limitations. I established criteria guiding the selection of apps, as shown in Figure 4.3 below. After downloading the selected apps, I played with them and tested them for some time before deciding whether to keep or reject them. Each app was then piloted with my children and my friends' children (six girls of the same age as the participants) to ensure that it met the criteria (e.g., user-friendliness), and I responded to the children's

feedback on their experience of each app. Finally, I downloaded all of the selected apps to the iPads for use with the students in the English classroom.



**Figure 4.3: Criteria for app selection**

#### **4.5.1.3 Designing and Preparing English Lessons and Activities using Apps**

To design appropriate English lessons and activities using the apps, I first had to obtain the textbook used in the school's 4<sup>th</sup>-grade English classes. Fortunately, the inspector who facilitated my access to the school was able to provide me with a copy of the students' English textbook (Smart Class 1) as well as a copy of the Smart Class 1 teachers' manual to help me understand the objectives of each lesson. As soon as I received the two books, in July 2013, I started designing the app-based lessons and activities. It took me about a month to finish designing the 16 English lessons. Planning the lessons was a lengthy process, as the English learning activities had to be developed and then 'tabletized' (Davies, 2014). I had to choose suitable apps that

provided the children with opportunities to take advantage of the mobility and affordances of tablets and tablet apps. I designed the app lessons in tandem with the English textbook to maximise the children's range of activities and choices, using a 'learning menu' to enable flexible and self-directed learning (Davies, 2014).

Once the iPad tablets and lesson plans were ready to use, I started preparing handouts to give to the children. I prepared a document summarising issues of 'digital citizenship', which I discussed later with the students during an online-safety lesson. I asked them to hang the document in a noticeable place in their homes to serve as a reminder. Next, I prepared a poster and handouts on the rules of use of the iPads (Appendix 1). After discussing these rules with the students, I distributed the handouts and attached the poster to the classroom wall to remind them of the guidelines (Figure 4.4).



Figure 4.4: Poster outlining iPad use rules in class.

Next, I prepared documents listing the apps recommended for use at home, and gave them to the students (Appendix 2). I then prepared instructions relating to the blog, such as the steps required to download and register the blog, and how to use the various options and functions afforded by the blog. I gave these instructions to the students to encourage and assist them in using the blog.

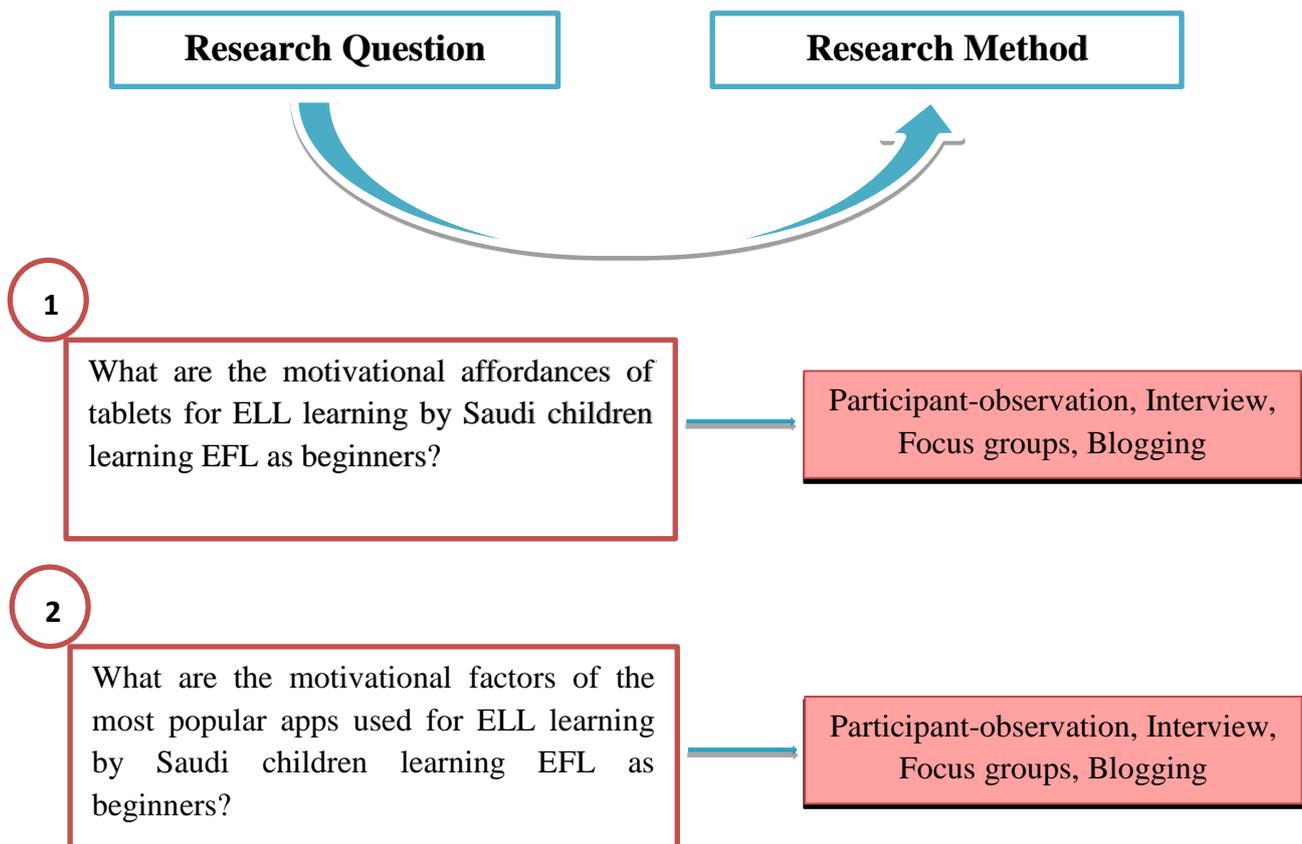
#### **4.5.2 Undertaking the Study**

The study lasted for about ten weeks. The first week was an introductory week during which I spent time developing a relationship with the young participants. Establishing and maintaining a rapport with the children was crucial because “participants are the ultimate gatekeepers [who] determine whether and to what extent the researcher will have access to the information desired” (Hatch, 2002, p. 51). Therefore, I spent the first week of the school term playing games with the children and preparing them for the study (familiarising them with the project’s goals and procedure, obtaining their consent and discussing their digital citizenship).

In the following eight weeks, I carried out app-based English lessons with the children (two lessons per week), and collected data from participant observations (during each lesson), a focus group comprising eight students (held after each lesson) and the students’ blog (every day). Next, I held summative focus groups with the whole class and summative semi-structured one-to-one interviews with the eight students in the focus group.

#### **4.6 Data-Collection Methods**

My choice of data-collection methods was guided by the research questions, objectives and strategy, and determined by other aspects, such as the availability of time and funds and the number of participants (De Vaus, 1996). Robson (2011) adds that “the selection of a method or methods is based on what kind of information is sought, from whom and under what conditions” (p. 232). Due to the qualitative approach chosen for this study, multiple methods were used to collect the data. Multiple ‘interactive and humanistic’ methods of gathering data are used in qualitative research, allowing for ‘active participation by participants’ (Creswell, 2003, p. 181), which gives a voice to the participants and provides an in-depth understanding of the participants as constructors of knowledge. These methods also help the researcher to reach data saturation by elaborating on and extending the perceptions of the participants. Using a combination of data-collection methods helped me to answer the research questions (see Figure 4.5) and crystallize (Richardson & St. Pierre, 2005) the data-gathering methods. In accordance with my qualitative case study framework and social-constructivist epistemological standpoint, I used a combination of four methods to collect the data; participant observation, interviews, focus groups, and blogging. These methods are discussed in the following sections.



**Figure 4.5: Research questions and methods matrix**

#### 4.6.1 Observation

Observation is commonly employed as a data-collection method, especially in real-world research during which people’s behaviour and activities are observed, recorded, analysed and interpreted to provide rich data (Robson, 2011). According to Creswell (2008), observation is “the process of gathering open-ended, first-hand information by observing people and places at a research site” (p. 221). Throughout this process, the researcher takes field notes to record the observed actions and behaviour of the participants. These field notes may also include a description of the field such as the physical setting, information about particular events, schedule and a description of the

participants (Bogdan & Biklen, 2003). The process of observing in qualitative research can take the form of either informal or unstructured observation, in which the observer is flexible and free in his/her choice of what data to collect and how to record it (Robson, 2011), or semi-structured observation, during which predetermined areas are observed. The observation method can take many forms in terms of the role of the researcher. These forms vary from non-participatory, in which the researcher is an ‘outsider’ sitting at the back of the classroom observing and recording, to a participant observer, who either completely or partly engages in the activities at the research site (Creswell, 2008, p. 222).

In this case study, I decided to take the role of a participant observer, and used semi-structured field notes to record the behaviour and activities of children during their English classes. In the next section, I discuss in detail the role of participant observation and the rationale for its use as one of the data-collection methods.

#### **4.6.1.1 Participant Observation**

In the role of participant observer, the researcher takes part in the activities that occur at the research site. Therefore, the researcher’s tasks combine observation and participation, as s/he observes, participates, records, and then analyses the research topic in the light of the participants’ experiences and perceptions. Taking an emic stance, the researcher becomes an ‘insider’ observer (Creswell, 2008, p. 222) who engages in group events and activities. The role of participant observer, or what Robson (2011) calls the ‘participant-as-observer’ (p. 322), served the objectives of the study and offered the most appropriate means of answering the research questions.

The aim of this study was to understand the influence of the affordances of tablets and tablet apps on young EFL students' self-determination to learn English. The two research questions were concerned with exploring and understanding the ways in which these affordances affect children's self-regulation and intrinsic motivation to use tablets and tablet apps to support their learning of English. The participant-as-observer role enabled me to observe the children (a group of eight students) in depth as they used these devices during their English classes. Furthermore, my participation was necessary to help the teacher conduct the iPad activities, as although I trained her in the use of iPads for English learning, she still needed assistance to carry out the innovative activities correctly. In the role of participant-as-observer, my presence, observation, note taking and participation were overtly witnessed by the participants. My role here was then opposite to that of the 'complete observer', whose position is unknown to the participants (Robson, 2011). My known status made it possible to work closely with the teacher, assisting the students when they were carrying out their iPad activities in the class. By observing the children closely while using the iPad and participating in instructing and guiding their usage during the English classes, I was able to understand the experiences of the children as they occurred in the real world; thereby understanding how the children were constructing their knowledge by using the iPad to learn English.

In practice, the study was integrated with the lessons; the teacher helped to introduce and teach the lesson during the first 10-15 minutes, and I contributed when the iPad activities were undertaken (usually during the last 30-35 minutes of the lesson). Creswell (2008) highlights the potential to change the nature of the observational role; he points out that the role of the researcher can be adapted according to the situation that best provides him/her with rich data. I conducted and therefore observed 16 iPad

lessons (two 45-minute lessons per week). As well as conducting activities on the iPad with the whole English class and observing a group of eight students in particular, I took notes on the children's actions and experiences when using the devices. As my observation was semi-structured, I prepared a semi-structured observational protocol for young EFL students' use of iPads for learning English to assist and guide the data collection (observation and field-notes) and help answer the research questions.

The protocol for each lesson consisted of background information (including time, date, length of observation and total number of students); contextual information, such as classroom setting (including space, seating arrangements and technological resources); and information on lesson structure (e.g. when in the overall lesson sequence the iPad activities took place), interruptions (e.g. shortened lesson time, weak Internet connectivity or Wi-Fi disconnection) and the learning materials used (e.g. textbooks, technological/audio-visual resources, hands-on materials). In addition to recording this basic information, much of which did not change during the study (e.g., context, lesson structure and some background details), it was crucial to take down descriptive and reflective field-notes. In my descriptive field-notes for each lesson, I recorded in detail the children's iPad activities, interactions and verbal and non-verbal actions, as well as the full chronology of these events. I also used the reflective field-notes to capture my personal thoughts, feelings, problems and emerging ideas or concerns. The process of recording the semi-structured observation occurred in two stages. During each lesson, while observing the students, I jotted down my descriptive and reflective notes; then, after finishing the lesson, I went immediately to the third-floor office allocated to me by the school, opened my laptop and elaborated on the field-notes, writing them out in full detail. The latter stage

usually took about ninety minutes, which was sufficient to record my observation precisely and accurately in English.

My prior experience of observing young primary-school students and writing field-notes facilitated this task. During my MA degree at Southampton University, I undertook several observations of primary-school children in their classrooms, during which I simultaneously recorded descriptive and reflective field notes. Despite playing the role of non-participant observer in the latter research – unlike my role in the current study – this experience gave me the knowledge necessary to effectively undertake observations and record field-notes.

#### **4.6.1.1.1 Advantages and Disadvantages of Participant Observation**

As well as being a direct and low-cost method, participant observation has the benefit of enabling the researcher to participate actively at the research site while collecting the data; in the school setting, this can help facilitate engagement with the children, who see the researcher as ‘akin’ to the teacher (Robson, 2011, p. 323). Therefore, using this method enables the researcher to collect rich information on the phenomenon under study, and to capture the meaning of the observed phenomenon from the perspective of the participants (Silverman, 2006). Using this method also allows the researcher to observe and record the social context and verbal and nonverbal interactions of the participants. Furthermore, participant observation is particularly beneficial as a data-collection method in small projects that, according to Robson (2011, p. 321), have an exploratory purpose and involve a small number of participants, frequent repetition of events, and short processing periods. The elements required for useful participant observation were all included in the case study design,

with the aim of identifying the ways in which 4<sup>th</sup>-grade Saudi students are motivated by the affordances of tablets and tablet apps to use these devices on a daily basis at home and during English classes (twice weekly) to learn English.

However, participant observation is not without disadvantages. When using this method, the task of the observer is known and so might influence the participants' behaviour, disrupting the opportunity to observe a natural phenomenon (Robson, 2011). This potential change in participants' behaviour or actions may threaten the reliability and validity of the recorded field notes. However, to minimise this threat, I held a preparatory week at the beginning of the semester to observe the students' daily activities. During this week, the children were also prepared for the learning that would start in the following week by taking part in activities and games. Hence, this week offered a valuable opportunity for me to introduce myself and participate in their activities before the actual learning started. Furthermore, as English was new to the students, my participatory role as the teacher's assistant during the preparatory week seemed more normal.

Additionally, the subjective standpoint of a participant observer may lead to bias when taking field notes. This drawback was reduced by recording my observations on the students' *in situ* uses of the iPad in the classroom, making "conscious efforts to distribute [my] attention widely and evenly" while observing (Robson, 2011, p. 328). To recognise and avoid bias during participant observation, Robson (2011) also recommends starting the observation with an open mind and eliminating pre-judgements and expectations that might distort the researcher's interpretations. Additionally, researchers should avoid focusing only on friendly and welcoming participants. Writing field notes in narrative form as soon as possible is advisable to maintain accuracy and inclusiveness in the observational data. I followed these helpful

instructions precisely when observing the children's uses of the iPads in the classroom. Furthermore, I engaged in self-reflexive practices, acknowledging my position, perceptions, and feelings throughout the study. This technique of self-awareness made it possible to record clearly and thoroughly the children's experiences as they occurred and separately record my personal reflections, thereby enhancing the objectivity of the observational data.

The use of the participant-observation method to collect data is often supplemented with interviews, as in multi-method case studies (Robson, 2011). In this case study, participant observation was supported by other data-gathering methods such as interviews, focus discussions and blogs to gain a clear and crystallised picture of the children's experiences and perceptions regarding the motivational aspects of iPads and their apps during ELL.

#### **4.6.2 Interviewing**

Interviewing is a common method of collecting data in social research (Mason, 2002; Robson, 2011). Cannell and Kahn (1968, p. 527) define the interview as "a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him or her on content specified by research objectives of systematic description, prediction, or explanation." Similarly, Kvale and Brinkmann (2009) indicate that "an interview is literally an inter-view, an inter-change of views between two persons conversing about a theme of mutual interest" (p.2). Nachmias and Nachmias (1996, p. 232) also state that "the interview is a face-to-face interpersonal role situation designed to elicit answers pertinent to the research hypotheses".

Based on these definitions, it is clear that an interview generally entails dialogue between the researcher and the interviewee about the phenomenon under investigation. The conversation is guided by questions and objectives, such as the objective of obtaining data about the world as experienced by the participant. Interviews can be conducted in different forms, including direct face-to-face interviews, group interviews, telephone interviews, and e-mail interviews. Interviews can also be classified as structured, semi-structured or unstructured. Structured interviews consist of predetermined, short and closed questions presented in a pre-set order (Nachmias & Nachmias, 1996; Robson, 2011), making them easy to conduct and analyse. Structured interviews are closer to surveys than qualitative research methods (Mason, 2002), due to their high degree of objectivity and inflexibility. This is supported by Wallace (1998), who believes that structured interviews are merely questionnaires presented orally. Both unstructured and semi-structured interviews can be used in qualitative research. Mason (2002) describes the qualitative interview approach as an “in-depth, semi-structured or loosely structured form of interviewing” (p.62). In particular, the unstructured interview is conducted in a highly flexible and informal manner in which the researcher asks unplanned, open questions regarding a general area of interest. This kind of interview may yield rich data due to its free and open style, which enables focused exploration of the area of interest; however, it is time-consuming and requires complex analysis. The third type of interview is the semi-structured method, in which the researcher asks the interviewee open-ended questions guided by a pre-determined set of topics following a flexible sequence that can be modified as the interview develops (Robson, 2011). In this study, I selected three types of qualitative interview for data collection: the face-to-face interview, the one-to-one semi-structured interview and the focus-group interview. The following

section provides an overview of the semi-structured interview approach, including definitions, a rationale and comments on its strengths and limitations.

#### **4.6.2.1 Semi-structured Face-to-face Interviews**

The semi-structured interview is commonly employed in qualitative and multi-method contexts in which interviewers:

... have their shopping list of topics and want to get responses to them, but they have considerable freedom in the sequencing of questions, in their exact wording, and in the amount of time and attention given to different topics. (Robson, 2011, p. 284)

According to Mason (2002), the qualitative interview is an exchange of discourse carried out in an informal style pertaining to certain topics or issues during which meanings and knowledge are contextually re-constructed. Similarly, Burgess (1984) describes qualitative interviews as “conversations with a purpose” (p. 102). When conducting a qualitative, semi-structured interview, the interviewer uses open-ended questions that allow the interviewee added flexibility and freedom to express his/her views, ideas and thoughts. The decision to use face-to-face, qualitative, semi-structured interviews in this study was guided by ontological and epistemological perspectives that underpinned the research questions and objectives. The rationale for using this type of interview was informed by and benefited from Mason’s (2002) list of questions and reasons for qualitative researchers to consider when undertaking interviews. First, the decision to use semi-structured one-to-one qualitative interviews was guided by the ontological view that the interviewee’s perceptions, attitudes, opinions and experiences are significant parts of their social reality – a concept that

meshed with the research topic of exploring the constructed multiple realities of the interviewees in relation to their context. Second, epistemological perspectives based on social constructivism, in which dialectical discussions between the researcher and the interviewee are necessary to obtain the data. This also influenced the use of individual, semi-structured interviews. During the interview, the researcher engages with each interviewee in conversation to facilitate understanding and the co-construction of knowledge. Through this interactive discourse, the researcher questions the interviewees and listens to their interpretations to gain an understanding of their perceptions and experiences (e.g. the use of tablets to assist English learning), and how these contextual and situational experiences were constructed. A qualitative approach enables more in-depth exploration of the social phenomenon being studied, providing a deeper understanding of its complexities. Hence, using this style of interview enables the topic to be investigated in detail, in contrast with quantitative methods that emphasise the breadth of the data gathered. Third, the use of semi-structured face-to-face interviews supports the social-constructivist view that a child deserves to have his/her voice heard. For some time, scholars have viewed children as objects of research; contextualised as “researched on” instead of “researched with” (Darbyshire, 2000; Oakley, 1994). Some researchers have perceived children to be ‘silly’ and incompetent, and thus unsuitable for interviewing, often leading to a reliance on adults for information on children’s experiences (Oakley, 1994; Scott, 2000). This culminates in what is called the ‘missing child’ effect (Darbyshire, MacDougall & Schiller, 2005, p. 419): the child’s voice is excluded “from the political culture of the public sphere” (Kulynych, 2001, p. 259). However, an interviewing method guided by a qualitative approach and social-constructivist views empowers children as creators of social knowledge and provides them with control over and

flexibility in how and what to say during the interview. Thus, children have more freedom to express their experiential and perceptual realities and to interpret their social world (Silverman, 2000).

#### **4.6.2.1.1 Advantages and Disadvantages of Semi-structured Face-to-face Interviews**

Interviewing is a crucial source of case-study data (Yin, 2009) and a useful method of collecting data, especially in contexts in which participants' behaviour cannot be observed (Creswell, 2008; Merriam, 1998). Furthermore, interviewing is flexible and adaptable in nature (Robson, 2011; Wallace, 1998), making it preferable for qualitative research. Using face-to-face interviews enables the researcher to modify his/her questions according to the flow of the conversation. For example, in addition to verbal responses, the researcher may benefit from an interviewee's non-verbal cues, such as facial expressions, emotions and body language, which may carry meaning that supports their responses; the researcher can then react to these non-verbal cues and modify their line of inquiry accordingly (Robson, 2011). In addition, semi-structured face-to-face interviews encourage cooperation and help to establish rapport with the interviewees, which may ease, comfort and increase their willingness to participate effectively. Additionally, the semi-structured face-to-face interview offers opportunities for explanation and clarification of questions that are likely to encourage productive answers. Finally, the semi-structured interview helps to gather useful information by allowing the inclusion of open-ended questions to "explore reasons for the closed-ended responses and identify any comments people might have that are beyond the responses to the closed-ended questions" (Creswell, 2008, p. 228).

Using face-to-face discussion also provides the interviewer with insights into the participants' experiences and personal perceptions (Atkinson & Silverman, 1997; Patton, 1990). This flexible and adaptable method encourages the interviewer to expand the interviewee's answers using probes and associated prompts (Robson, 2011). This is important, as the value gained from the interview depends predominantly on the skills and behaviour of the interviewer. If conducted in an adept and professional manner, the interview can yield rich, useful and efficient data. According to Robson (2011), "the interviewer should listen more than speak, ask clear and direct questions and avoid long, biased and leading questions that might suggest certain answers" (p. 282). To achieve this, advanced preparation is required to plan and predict the content of the interview.

Nevertheless, using qualitative interviews to gather data has several disadvantages. First, it is time-consuming to conduct, transcribe and analyse the resulting data (Nachmias & Nachmias, 1996; Robson, 2011). Furthermore, the method's reliability is compromised due to a lack of standardisation (Robson, 2011). Additionally, bias can occur if the researcher's preconceptions and assumptions are uncontrolled and allowed to influence the analysis of data. In light of and to counter these tendencies, I conducted this study in a reflexive manner. In areas of potential bias, I analysed the data as reflective of the interviewees and not guided by my perceptions and feelings. Second, the semi-structured interview method is a complex and difficult process (Creswell, 2008) in comparison with structured interviews, as it requires experience to handle unanticipated responses and improvise to broach interesting issues as they emerge. A third potential disadvantage is that "interview data may be deceptive and provide the perspective the interviewee wants the researcher to hear" (Creswell, 2008, p. 226). In other words, the interviewee may respond in a manner merely to please the

interviewer. To minimise the Hawthorn effect, efforts were made to establish a rapport and relationship with the children before interviewing began (during the preparation week), particularly through engagement in daily activities and games, and alongside active participation in class activities (during the study period).

In this study, the semi-structured interviewing was carried out in two stages: as informal individual conversations during the observation with the eight students observed; and as a summative post-study (PS) interview with the same students, to complement the observation and combine the observational data with the children's perceptions and opinions (Robson, 2011). Next, I designed an interview schedule to assist in the data collection and answer the research questions. The schedule also helped to set boundaries for dialogue to facilitate more systematic and comprehensive interviewing (Patton, 1990).

I carried out informal conversations along with the observation to obtain instant feedback on the students' experiences of the MALL activities. The summative interview began by welcoming the interviewee, thanking them for participating and informing them as to the purpose of the interview. A set of open-ended questions, arranged in sequence, followed, but the questions and their ordering were flexible, and were modified according to the interviewee's responses. Therefore, I included default wordings, alternative questions and associated prompts in the interview schedule and used them when necessary. This preparation helped to support and enhance the interview process.

Visual aids such as cards and photos are considered useful when interviewing children. Therefore, I used materials such as the iPad tablets and snapshots of classroom artefacts to encourage the children to articulate their experiences and

perceptions of using the iPads and their apps for learning English. Using such visual aids, in addition to an appropriate interview length (about 30-45 minutes), helped to prevent respondent fatigue; during the interview, any signs of fatigue from the children were met with suitable responses (e.g. taking a break, having a drink) or resulted in interview postponement.

To guarantee the accuracy of the data collection, I audio-recorded all of the interviews using a recording app (iTalk). In addition, although I audio recorded all the interviews, I also took notes to ensure that no data would be lost if unfortunate circumstances arose (i.e. problems with the recording app). At the beginning of each interview, I asked for the respondent's permission to record the interview. I transferred the recordings to my laptop to avoid losing first-hand data. Using an audio-recorder helped to ensure the data's truthfulness, as every transcription from voice to written copy involved a one-to-one correspondence between the words spoken and the words transcribed (Hesse-Biber & Leavy, 2006). Lastly, I conducted the interview in the children's native language (Arabic), not only due to the children's marginal English proficiency, but because their use of their first language better enabled them to articulate and express their thoughts and experiences. After completing the interviews, I transcribed the audio recordings as soon as possible to ensure data accuracy.

#### **4.6.2.2 Focus-Group Interviews**

Focus-group interviews are a method of gathering shared perspectives and experiences from a number of informants through discussion undertaken in a relaxed atmosphere. Krueger and Casey (2009) describe focus-group interviews as "a carefully planned series of discussions designed to obtain perceptions on a defined area of interest in a

permissive, non-threatening environment” (p. 2). Focus-group interviews were chosen to complement individual interviews in this study because “they can encourage participation from people reluctant to be interviewed on their own or who feel they have nothing to say” (Kitzinger, 1995, p. 299). This supports Morgan (1988), who asserts that “the hallmark of a focus group is the explicit use of the group interaction to produce data and insights that would be less accessible without the interaction found in a group” (p.12). Focus-group interviews are also useful in qualitative research as they enable in-depth exploration of the perceptions, views and experiences of several individuals simultaneously, yielding rich and efficient data (Patton, 2002; Robinson, 1999; Robson, 2011). The dynamic interaction that occurs when discussing a certain topic(s) within a focus-group interview makes it a valuable source for data collection. During a focus-group interview, the researcher stimulates participant interaction by suggesting discussion topics and encouraging participants to talk and exchange ideas and opinions. Therefore, the researcher acts as a facilitator and guide of the group’s discussion via a planned set of questions that require participant reflection. The resulting interactive discussion offers a collaborative opportunity for participants to express their views while commenting on those of others. This process exposes participants to similar as well as different experiences and perceptions within the group in relation to the discussion topic, while also illuminating significant issues and beliefs for the researcher (Krueger & Casey, 2009).

In this study, I conducted two sets of focus-group interviews. More specifically, I conducted sixteen focus-group interviews with the eight students observed; each focus group took place immediately after the lesson or whenever possible during the same day. These post-lesson interviews were held to complement my observation of the eight students and to enable detailed exploration of their experiences while the use of

the iPads and apps was still fresh in their minds. The other type of focus-group interview comprised post-study (summative) focus-group discussion with the whole class, which took place at the end of the study to explore and collect data on all of the participants' views, experiences and perceptions of using the iPad and its apps to learn English.

According to the literature, there is no standard size for a focus group, though they may range from four to six (Creswell, 2008), six to eight (Patton, 1987), six to ten (Morgan, 1998) or eight to ten members (Stewart & Shamdasani, 1990). For the summative focus group discussion, I divided the target group – a 4<sup>th</sup> grade English classroom – into three focus groups of approximately 6-8 students each. The participants were homogeneous in many respects: they studied in the same classroom and shared common characteristics (e.g. age, context, language, culture and gender). According to Brown (1999), homogeneous groups encourage interaction, as members feel more secure and able to express issues of conflict or sensitivity. Focus-group interviews typically take an hour each, but may last for two hours or more (Robson, 2011). In this study, the summative focus group interview took about one and a half hours. Due to time limitations, however, the post-lesson focus-group interviews were shorter (30-40 minutes each). Similar to the one-to-one interviews, I chose a quiet and private place in which to hold all of the focus-group interviews, and audio-recorded the discussions using a highly sensitive recording IOS app (iTalk) to ensure that all of the participants' speech was captured. As in one-to-one interviews, the researcher must be flexible in guiding focus-group research and sensitive to cues emerging from interaction to facilitate effective discussion and produce high-quality data (Mason, 2002). While remaining flexible, the researcher must also strive for and oversee discussion focused on the scope of the topic and within the planned period of time. I

took all of these guidelines into consideration when conducting the focus-group interviews.

The use of focus groups with children has been increasingly adopted as a research method (Darbyshire, MacDougall & Schiller, 2005; Green & Hart, 1999; Morgan, Gibbs, Maxwell & Britten, 2002), as it enables children to participate actively and meaningfully in issues related and connected to them as key agents. From a social-constructivist perspective, I chose this method to support the belief that children are social agents and active creators of knowledge. Therefore, it was necessary to prepare a “supportive research environment, which gives children space and time to reflect on and discuss issues, with each other and with adults” (Mayall, 1999, p. 15). To this end, I conducted focus-group interviews to encourage the children to reflect on their experiences of using iPads and their apps to learn English.

Similar to the one-to-one interview methodology, I designed an interview schedule for both; the post-lesson focus groups and the summative focus groups, utilised the children’s first language (Arabic) in the focus group and aided the discussion by including children’s artefacts (Westcott & Littleton, 2005). Furthermore, I encouraged the children to demonstrate their use of iPads and their apps in order to share their experiences and knowledge with one another (Ebrahim & Muthukrishna, 2005).

I piloted and modified the one-to-one semi-structured and focus-group interviews before collecting the data. I piloted the interview schedule with six Saudi girls living in Sheffield with their parents (who were undertaking postgraduate degrees at Sheffield University). The six children were in the same class at a Saudi school they attended every Sunday. The girls were of a similar age to the research participants, enabling me to ensure that the wording of the interviews was appropriate and their

length acceptable. I piloted the interviews in one of the children's family homes. First, I piloted the apps I intended to use in the study with the six girls (each pair sharing one iPad), then conducted interviews and a focus-group discussion in Arabic. I recorded and took into account the children's suggestions and comments and modified the questions in light of these suggestions.

I further explored the children's experiences and perceptions through a blog. The following section provides a detailed explanation of the blog and my use of the blog as a source of data and method of data collection.

### **4.6.3 Blogging**

A blog is simply website that an owner or 'blogger' can update on a regular basis. Updates are normally date-posted and displayed in chronological order with the most recent entry or posting shown at the top of the page (Davies & Merchant, 2009. p.23).

The advancement of computing technologies and internet services helped enhance the increasing use of blogging. The user-friendly format in which posts are easily published, edited and disseminated has made them a popular and interactive platform for communication and socialising (Davies & Merchant, 2009). Blogs can be personal and individual, used as diaries to record feelings, thoughts, news, announcements and other achievements, or they can be group activities to share collective experiences, opinions and ideas. Also, by enabling comment functions, social interaction and a "scaffolding of new ideas" (Ferdig & Trammell, 2004, p. 1) is encouraged. Furthermore, bloggers can insert pictures, multimedia files and hyperlinks within their posted text to enrich content. Outside personal journalistic and social contexts, blogs

have been created for marketing and educational purposes. Blogging is increasingly used in schools to encourage communication and interaction with a real-life global audience whose members can read and comment on posts (Davies & Merchant, 2009; Godwin-Jones, 2003; Marsh, 2009; Richardson, 2006). Many studies report that blogging encourages reflection, critical thinking, authentic learning and active feedback that enhance motivation (Godwin-Jones, 2003).

In this study, blogging was used as an introspective method of qualitative research that provided the EFL children with an open space in which to express their opinions and thoughts and share their experiences and ideas. It served as a platform for reflection, enabling the children to record their experiences, views and opinions regarding the use of iPads and their apps to support ELL, including posting new and interesting apps or suggestions for other innovative learning tools using tablets.

Blogging enables widespread interaction and discussion. Through blogging, children can extend such interaction and discussion beyond their classroom and time constraints (Drexler, Dawson & Ferdig, 2007). Moreover, students can exercise greater freedom to express and discuss ideas when blogging, gaining control of their virtual space and thereby enhancing their construction of knowledge and learning (Baggetun & Wasson, 2006; Bloch, 2004; Godwin-Jones, 2003; Richardson, 2006). Also, “for digital natives new media technologies are more appropriate than paper based reflective logs because they already participate on a global level” (Sharma & Monteiro, 2012, p. 94). For these reasons, blogging was chosen as a data-collection method as it allowed me to gather rich and detailed data and provided a valuable opportunity for ongoing access to the children’s experiences and perceptions as recorded in virtual diaries (throughout the research project and connecting with the children outside school hours), unlike the one-to-one interviews and focus groups

undertaken at the end of the project and the post-lesson focus group interviews undertaken twice a week with the eight observed participants. I thus perceived the blog as a useful tool for interacting daily with the children, actively stimulating discussion and the exchange of ideas and opinions.

To enable meaningful communication, I created a child-friendly blog hosted by a website called Kidblog – an online blog provider (Figure 4.6) that promotes a safe and secure environment for young learners in which blogs are private by default and can only be accessed by the teacher and students. Advertisements are also prohibited. The blog was free and easy to set up and use through its simple interface, upload space and personalised features. The students did not require email addresses and did not have to provide any personal information to log in to the blog. To access the blog and publish blog posts, the children chose their own names from a class list and typed in the given password. The blog was accessible from mobile devices such as iPads, encouraging blogging at any time and anywhere, as well as from home and other computers. The blog enabled the children to share videos, photos, podcasts and artwork with their classmates. It was my responsibility to moderate the interaction and make sure all blog content was suitable.



**Figure 4.6: Blog used in the study**

I identified blogging as a valuable data-collection method for use in this study, as it allowed me to examine and collect data on the participants' informal use (outside school) of iPads for learning English. The mobility of the tablet not only enabled the children to report their experiences as they occurred outside school (e.g. at home, in the car or during a family visit), but helped me to directly examine their experiences in real time. The blog was piloted with six students, two of whom lived overseas and were thus able to test the blog's functionality alongside gaining user experience and moderating the discussion. Prior to introducing the children to the blog, I gave them an introductory lesson on digital citizenship (Ribble, 2011) to raise their awareness of the safe and responsible use of online technology. I also prepared a sheet providing a

summary of the lesson, which I distributed to the students to hang up at home. In addition, I prepared a simple and clear manual for the use of the blog, with instructions for accessing and operating the blog, such as the processes of downloading and registering the blog and utilising its functions and tools. I encouraged the children to follow the manual in order to share their app experiences and digital productions via the blog.

During the eight weeks of the study, the students used and interacted with the blog less than I had expected. To avoid disappointment during the data-collection process, I kept in mind that I should not expect things to work exactly as I had planned, as advised by Robson (2011). At first, the children expressed great happiness and enthusiasm regarding the opportunity to blog and chat informally about their daily iPad experiences. After receiving the blog-manual handout and their user names and passwords, most of the class logged in within 30 hours and started greeting each other. More precisely, the blog directory showed that 20 of the 22 participants registered on the blog within this period.

The first posts were mainly greetings. I pinned one post containing all of the students' greetings, enabling them to comment or reply instead of sending separate posts. I allowed them to greet each other and post some images (e.g., images of their names or random images from the Web), as they needed to test the blog. However, despite instructing the children in the usage and purpose of the blog prior to its actual use, I had to remind them every now and then of the blog's purpose, and that personal or irrelevant photos were not allowed. Some of the students were extremely keen to post photos of their personal lives (e.g., photos taken at home or on holiday) or photos of celebrities, which encouraged other students to post similar photos and engage in irrelevant conversations that distracted them from the educational use of the blog. As a

result of my reminders, these students became gradually less excited about blogging; fewer than half of the participants (about 10 students) maintained their enthusiasm and continued to post daily about their experiences of using the iPad and apps for ELL. In the meantime, the blog entries of other students registered on the blog showed no posts or comments. I published new posts every now and then to stimulate the students to comment, and commented consistently on their posts. At the end of each iPad lesson, I also encouraged them to log in and share their experiences or comment on others' posts in the blog. However, the blog was generally underutilised for a number of possible reasons, such as family restrictions on iPad usage, family perceptions of blogs as chat tools rather than educational tools, excessive exam preparation and homework commitments, and technical issues with the blogging app itself, such as a tendency to freeze or suddenly shut down. All of these factors are discussed in detail in the chapter on findings.

In addition to these reasons, I believe that the culture of blog usage generally and for education specifically is absent from Saudi children's lives, unlike other Web 2 tools (e.g., Facebook, Instagram). Therefore, more time and support would have been needed to establish a culture of the use of this new social platform for learning. Given the relatively short duration of the study (eight weeks), the limited support of others (notably the children's families), and the other influences mentioned above, the potential of the blog as an educational tool for the children and thus a data-collection tool for me as the researcher was not fully exploited. The blog experience, however, was greatly appreciated by most of the young EFL students who registered on the blog, as it familiarised them with the idea of blogs and blogging as a means of communicating and socialising with their friends outside school (discussed in the

chapter on findings, Section 5.2.2). Therefore, the study seemed to offer a valuable introduction to this platform.

Despite the class's limited amount of blogging overall (only half of the class was active), I was able to collect adequate data from the blog, which offered a window on the children's daily iPad-based ELL outside the English classroom, including their discoveries and recommendations of new apps, problems and other issues with the apps, and the types of output and artefacts produced using the apps.

In this section, I discussed the multiple methods I used to collect the data. In the following section, I outline and discuss the ethical considerations. This is followed by a discussion of the trustworthiness of the study.

#### **4.7 Ethical Considerations**

Research with participants in real-world contexts raises certain ethical concerns in terms of the potential for harm, distress or anxiety that the study might cause to those participating in the research (Robson, 2011). Ethical considerations are most strongly implicated when research is conducted with "high-risk" participants such as children or young students, due to their vulnerable status. In this research, children were seen as "competent yet vulnerable" (Lahman, 2008, p. 285): they participated in the research as social actors who actively constructed their knowledge, but at the same time were vulnerable and in need of care. To protect their rights, their anonymity, confidentiality and privacy were ensured. Denzin (1989) expresses this obligation precisely as follows:

Our primary obligation is always to the people we study, not to our project or to a larger discipline. The lives and stories that we hear and study are

given to us under a promise, that promise being that we protect those who have shared them with us. (p. 83)

Denzin's notion is in line with that of Stake (2005), who points out that "qualitative researchers are guests in the private spaces of the world. Their manners should be good and their code of ethics strict" (p. 459). We, as qualitative researchers, enter other people's lives and investigate their personal experiences, perceptions, and feelings. Therefore, researchers should be sure to maintain the privacy, anonymity, safety and well-being of their research subjects by designing research to meet the highest ethical standards. As this study was a qualitative case study subjectively carried out with children at an institutional site (school), a number of ethical issues were thoroughly considered and addressed. Ethical approval for the study was sought and received from the Ethical Research Committee at the University of Sheffield in 2013 (Appendix 3). To comply with the principles recommended by the Ethics Committee, I developed a research proposal consisting of three versions of information sheets and consent forms to be given to the children, their parents/carers, and the head teacher. These documents were critical, as they clearly illustrated the procedures I would follow to ensure that the children understood what participating in the research meant, thereby ensuring the researcher and participants' safety. The ethical concerns included anonymity, confidentiality, respect for the choice not to participate, and reducing the distress or anxiety that might result from participation. Each version of the information sheet provided details of the study, the role of the researcher, the role of the addressees (children, parents, and head teacher) and the methods planned to deal with the collected data, with emphasis on the participants' freedom of choice regarding participation in the study. Additionally, the participants

were informed of their right to access the results of the study and to obtain a copy of the findings. In addition, I sought the permission of the local educational authority in Riyadh to gain access to the school, and received letters from the authority acknowledging their cooperation.

Prior to the empirical research, the head teacher, who had already given me her verbal consent to carry out the study in her school, was given a written information sheet and a consent form to sign. Once again, I discussed with the head teacher all of the details of the study, such as its aims and processes. I also translated the children's information sheet into Arabic, so they could understand it, and distributed it to the children. I read the information sheet to the children, explained the project in detail and answered any questions raised to ensure that the students understood the project, their role, and their rights as participants. The children then took their information sheets home, along with their parents' information sheets and consent forms (translated into Arabic), before making an informed decision on taking part in the study. The children participating in the research were 9-10 years old, at which age they were capable of understanding the meaning of the research (its aims, purposes, and methods as explained by me and as outlined on the information sheet) and thus of making decisions on their participation in the research. During the study, I repeatedly reminded the children that they had the choice to stop participating at any time they wished; they needed simply to speak to me or their class teacher to arrange an alternative way of completing the lesson, such as reading books or stories or undertaking some book-based English exercises.

Furthermore, I made great effort to uphold the participants' autonomy, privacy and confidentiality before, during and after collecting, analysing and reporting the data. Audio recordings of the children, as well as any artefacts and information they gave, were treated with the highest level of confidentiality throughout the different phases of the research. The data collected were anonymised and pseudonyms were used to keep the identity of the participants confidential. In addition, to maintain the anonymity of the participants, I used no excerpts that might have disclosed the identity of the participants. I stored the information I gathered on a safe, password-protected computer so that no one could access the data except me and my supervisors.

Additionally, further efforts were made to maintain the safety, protection and well-being of the young participants. I did my best to ensure that they felt comfortable by avoiding asking any sensitive questions that might have caused distress, embarrassment or discomfort during the interviews and focus-group discussions. Moreover, the interviews took place in a private space, such as the school library/resource room, and in the presence of a staff member. During the interviews and the focus-group discussions, I was very sensitive to verbal or non-verbal reactions that may have denoted signs of discomfort, and modified the session (in terms of length of time or number of questions) accordingly. Furthermore, regarding the children's online safety when using the iPad, I gave the students an introductory lesson on safety and security when using the Internet and controlled the use of the iPad by outlining certain rules that the students had to follow. I also selected appropriate apps for use inside and outside the classroom. Regarding the use of a blog to collect data, the selected blog was designed specifically for children's use and collaboration in a safe and secure environment. I controlled the blog so that no one

could log on, participate or view the content except those who had permission (namely the students, the teacher and the researcher).

#### **4.8 Research Trustworthiness**

Concerns associated with qualitative research need to be acknowledged and carefully addressed in order to enhance the trustworthiness of the research. The term 'trustworthiness' is embraced by many qualitative researchers who use it in replacement for the positivist criteria of validity and reliability (Cousin, 2010; Robson, 2011).

To assess and ensure the trustworthiness and quality of this study, I used multiple measures: the crystallisation of research methods (triangulation), personal and impersonal reflectivity, an audit trail, peer debriefing and thick descriptions of data (Lincoln & Guba, 1985; Robson, 2011). In this section, I discuss the issues and concerns associated with qualitative research, including issues of generalisability and a lack of objectivity, and describe the quality criteria measures I used to enhance the trustworthiness of the study.

##### **4.8.1 Issues of Generalisability**

One of the limitations of qualitative case studies is that their findings cannot be generalised. The aim of this research, however, was not to statistically generalise the results to the wider population. Generalisation should not be stressed in all enquiries (Simons, 1980), as a focus on generalisation may distract the researcher from significant aspects of the case (Stake, 2005). The context of the study was specified

and distinct: a 4<sup>th</sup>-grade English class at a state primary school in an area of Riyadh with a middling socio-economic status. Therefore, the results obtained cannot be generalised to other contexts in the same city. However, the findings may be applicable to schools and students that resemble the case-study school and participants, respectively. Therefore, in an earlier part of this chapter, I provide a detailed account of the criteria used to select both the study site and the participants. Additionally, in my analysis and discussion of the collected data, I consider and discuss in detail the influential social and cultural factors that may have affected the EFL students' views and perceptions regarding the motivational affordances of iPads and their apps for ELL. Providing a thick and rich description of these affordances offers a deeper understanding of the motivational affordances of iPads and their apps for ELL. Researchers who wish to compare my findings with their own are advised that the results obtained in my study are applicable (transferable) only to the case-study school and similar schools. As Lincoln and Guba (1985) note, transferability (internal generalisation) is governed by the extent of resemblance between the sending and receiving contexts.

In addition, the purpose of conducting this exploratory case study was to illuminate the collective phenomenon of the uses and motivational affordances of tablets and their apps for EFL learning by children. Therefore, I sought to expand and develop a theoretical framework for the use of iPads and their apps in MALL settings by young learners, which may offer insight into other cases or situations (Ragin, 1987; Yin, 1994). As this research focused on a relatively new research area, it may yield rich findings that can be generalised theoretically, with significant implications for other researchers, teachers and policy makers; hence, it offers a prelude to extended research from which statistically generalisable results can be drawn.

#### **4.8.2 Researcher's Positionality and its Impact on Research**

Qualitative case studies and social-constructivist research are criticised for their lack of objectivity and rigour; researchers depend on subjective stances and procedures to conduct research in which personal bias may distort the findings (Yin, 2009). As noted by Robson (2011), “issues of bias and rigour are present in all research involving people” (p. 157). In this case, the trustworthiness of the study was enhanced by means of self-reflexivity, thick, systematic description (audit trail), and crystallisation (triangulation).

Researchers in the social sciences, especially those conducting qualitative research, are broadly believed to bring their own baggage (subjectivity) to the research table when searching human experiences (Cousin, 2010, p. 9). Subjectivity is described as “the inner state of the self-constituted by thinking, experience, emotion, belief, intentionality, self-awareness of others” (Jupp, 2006, p. 293). The biographies of researchers may affect the way the data is collected, interpreted and reported, by affecting their positionality. This is asserted by Wellington, Bathmaker, Hunt, McCulloch and Sikes (2005), who claim that “the methodology and methods selected will be influenced by a variety of factors, including the personal predilections, interests and disciplinary background of the researcher” (p. 99). Furthermore, the various dimensions of positionality, including race, social status, gender and history, are complexly intertwined, and together play an important role in shaping researchers' position and affecting their production of knowledge (Scheurich, 1997). Additionally, a researcher's positionality should be clarified “in terms of philosophical position and fundamental assumptions concerning social reality, the nature of knowledge and human nature and agency” (Sikes, 2004, p. 18). The position of the researcher can be defined using self-reflexivity, a concept which Guba and Lincoln (2005) define as “a

process of reflecting critically on the self as researcher” (p. 210) or ‘turning back on oneself, a process of self-reference’ (Aull Davies, 1999, p. 4). Reflexivity is described as “a mode of consciousness” (Doane, 2003, p. 99). Finlay (2003) describes this as a process that entails direct, on-going, active and subjective self-awareness (p. 108). Reflexivity has two significant aspects that may affect the researcher’s production of knowledge: personal and interpersonal (Hesse-Biber & Leavy, 2006).

#### **4.8.2.1 Personal Reflexivity**

Personal reflexivity is “the process through which a researcher recognises, examines, and understands how his/her own social background or assumptions can intervene in the research process” (Hesse-Biber & Leavy, 2006, p. 146). My interest in resuming postgraduate studies in the area of English learning by young EFL Saudi students was influenced by my personal experiences and perceptions. As a learner, I found the traditional teacher-centred and behaviourist environment demotivating. Opportunities to use English outside the class were rare. My ELL was structured by a receptive LL model until university. The environment there was much better, as my colleagues were eager and motivated to practise the English language as a part of their daily lives. Years passed, and the issue became even more obvious to me when on arriving in the United Kingdom my children felt pressurised to learn the language to communicate effectively with their teacher and peers at their English primary school. I found that intensive reading in English played a crucial role in their improvement in English, and so conducted my Master’s research on young EFL students’ English reading. Furthermore, my children’s daily use of educational iPad apps provided meaningful opportunities to exercise and practise the language in a way that suited them as digital

natives. These past and ongoing personal experiences equipped me with considerable knowledge of the struggles young EFL Saudi students have when learning English and the potential of mobile devices, such as tablets, as educational tools for learning English.

#### **4.8.2.2 Interpersonal Reflexivity**

Interpersonal reflexivity is defined as the “sensitivity to the important situational dynamics between the researcher and researched that can impact the creation of knowledge” (Hesse-Biber & Leavy, 2006, p. 146). According to Cousin (2010), typical reflexive questions might focus on the power relationship between the researcher and the research subjects, and determine whether participants are researched ‘on’ or researched ‘with’. I was aware that I held an insider-outsider position in my study. I had some common ground with the participants, as we shared common cultural norms and lived in the same city (Riyadh), which situated me as an insider. However, I had never studied nor worked at the school, and had no personal connections with anyone in the school, which positioned me as an outsider. Such positionality should be considered to potentially shape the data and thus the quality of the study. For example, attention should be given to the ways in which researchers introduce themselves and build a rapport with their participants, their appearance and its appropriateness to the research context (Hennink, Hutter & Bailey, 2011). It was important for me to introduce myself to the participants properly and adapt my appearance to the school setting. In addition, I had to work hard to build a rapport with the participants, as mentioned earlier in the observation section, by engaging with their activities and games during the introductory week.

Following a social-constructivist perspective, I aimed to research *with* the children, making it inappropriate to separate myself fully from the study (Coffey, 1999). However, using a self-reflexive approach, which required me to describe my subjective standpoint explicitly and continuously (Creswell, 2003; Hopkins, 2002), it was important to record and interpret clearly and thoroughly the children's experiences as they occurred, and to separately record my personal reflections, thereby enhancing the objectivity of the data.

#### **4.8.3 Audit Trail and Thick Description**

To further ensure the trustworthiness of the findings, I used an audit trail to keep a full record of the procedures used and data obtained in the case study, including raw data (audio recordings and transcripts of interviews and focus groups, observational field-notes, snapshots of the data and materials used) and details of my data interpretation and analysis (Robson, 2011). Using an audit trail to explicitly account for all theoretical, methodological and analytic decisions and processes enables others to audit the researcher's choices, influences and actions and thus confirm his or her findings, enhancing the study's trustworthiness (Koch, 2006; Lincoln & Guba, 1985). As Robson (2011) indicates, establishing trustworthiness entails conducting research in an honest, thorough and careful manner and showing readers that one has done so. Following this advice, I systematically conducted the data collection and analysis and used audit trails to help reduce potential bias and encourage repetition of the research.

According to Yin (1994), it is crucial in a case study to develop and follow correct operational parameters to provide an objective definition of the research components (e.g., setting, participants, and procedures). This is especially important when

conducting a high-quality research study. In this study, I endeavoured to enhance the trustworthiness of my study by providing full, detailed records of the research process. Providing a thick and transparent description of the trajectory of my study from the beginning of the research project to the development and reporting of the outcomes not only added to the accuracy of the research, but also provided the audience with clear and adequate interpretive descriptions of the study, enabling them to engage with the experiences reported (Stake, 2005). I clearly described each stage of the research process, including the research design, the data-collection methods and the steps I followed to organise, analyse and report the data, as well as a rationale for all of the decisions I made during the study. Additionally, I maintained the accuracy of my data collection and analysis by keeping records that included all of my descriptive field-notes and reflective notes.

#### **4.8.4 Crystallisation**

The trustworthiness of the study was further enhanced by crystallisation, whereby multiple sources of methods (participant observation, interviews, focus groups and a blog) are used to collect and analyse data. This process “deconstructs traditional idea of ‘validity’ (we feel how there is no single truth, we see how texts validate themselves); and crystallisation provides us with a deepened, complex, thoroughly partial understanding of the topic” (Richardson, 1997. P. 92). Richardson’s use of this metaphor to address validity helps researchers “to see the interweaving processes in the research: discovery, seeing, telling, storying, re-presentations” (Guba & Lincoln, 2005, p. 208). These accounts of crystallisation suggest that crystallisation is more than triangulation. The researcher crystallises data collected from various sources such

that they tell the same story (Richardson, 1997). As noted by Ellingson (2009), however, crystallisation is not simply a form of triangulation wherein researchers examine discourse from multiple standpoints in pursuit of a single truth; rather, numerous truths present themselves through multiple methods of inquiry. In this study, the use of crystallisation helped me not only to produce thick descriptions and achieve data saturation, but to provide a robust, comprehensive and well-developed account of the phenomenon under study, thus enriching and deepening understanding of the findings.

#### **4.8.5 Peer Debriefing and Support**

Researchers also suggest that peer debriefing is a helpful means of enhancing the trustworthiness of qualitative inquiry (Creswell & Miller, 2000; Lincoln & Guba, 1985; Merriam, 1998; Robson, 2011). Lincoln and Guba (1985) define peer debriefing as “the process of exposing oneself to a disinterested peer in a manner paralleling an analytic session and for the purpose of exploring aspects of the inquiry that might otherwise remain only implicit within the inquirer's mind” (p. 308). My peer debriefing involved engaging routinely and systematically in discussion with peers not contractually involved with the study to evaluate and review the data-collection methods and process. I shared my data-collection methods and procedures, raw data, descriptive records, data analysis, inferences and coding decisions, including the development of categories, with supervisors and peers familiar with qualitative research, who helped me to identify any inconsistencies and uncover any biases that I might have retained as researcher. I received valuable feedback, which I kept in my records. I also took into account and where necessary implemented their comments

and suggestions regarding areas they agreed with and areas they advised me to re-check. To further ensure the trustworthiness of my study, I compared some parts of my thematic analysis with another qualified researcher's analysis of the data (Silverman 2001). This process encouraged me to articulate and verbalise any implicit thoughts or tacit information. These peer-debriefing procedures helped me to keep in mind the idiosyncrasy of both the participants' views and my own inferences as researcher, which helped to safeguard my study from bias.

In this section I outlined and discussed the trustworthiness of this study. In the following section I present and discuss the procedures used to analyse the data.

#### **4.9 Data Analysis**

The data-gathering methods discussed in Section 4.6 allowed me to collect a very wide range of data, as summarised in Table (4.4).

**Table 4.4: Outline of data sources**

| <b>Data sources</b>                     | <b>Description</b>  |
|---|---|
| Participant observation                 | 16 participant observations (2-45 minutes a week).  |
| Post-lesson focus groups                | 16 post-lesson focus groups with the eight students being observed (2-30 to 40 minutes a week).   |
| Post-study focus groups                 | 3 summative focus groups at the end of the study with the whole English class (6-8 students in each group). Each focus group lasted for one and a half hours. |
| Face-to-face-semi-structured interviews | 8 summative one-to-one-semi-structured interviews with the eight students. Each interview took 30-45 minutes.   |
| Blogging                                | 82 student posts<br>208 student comments  |

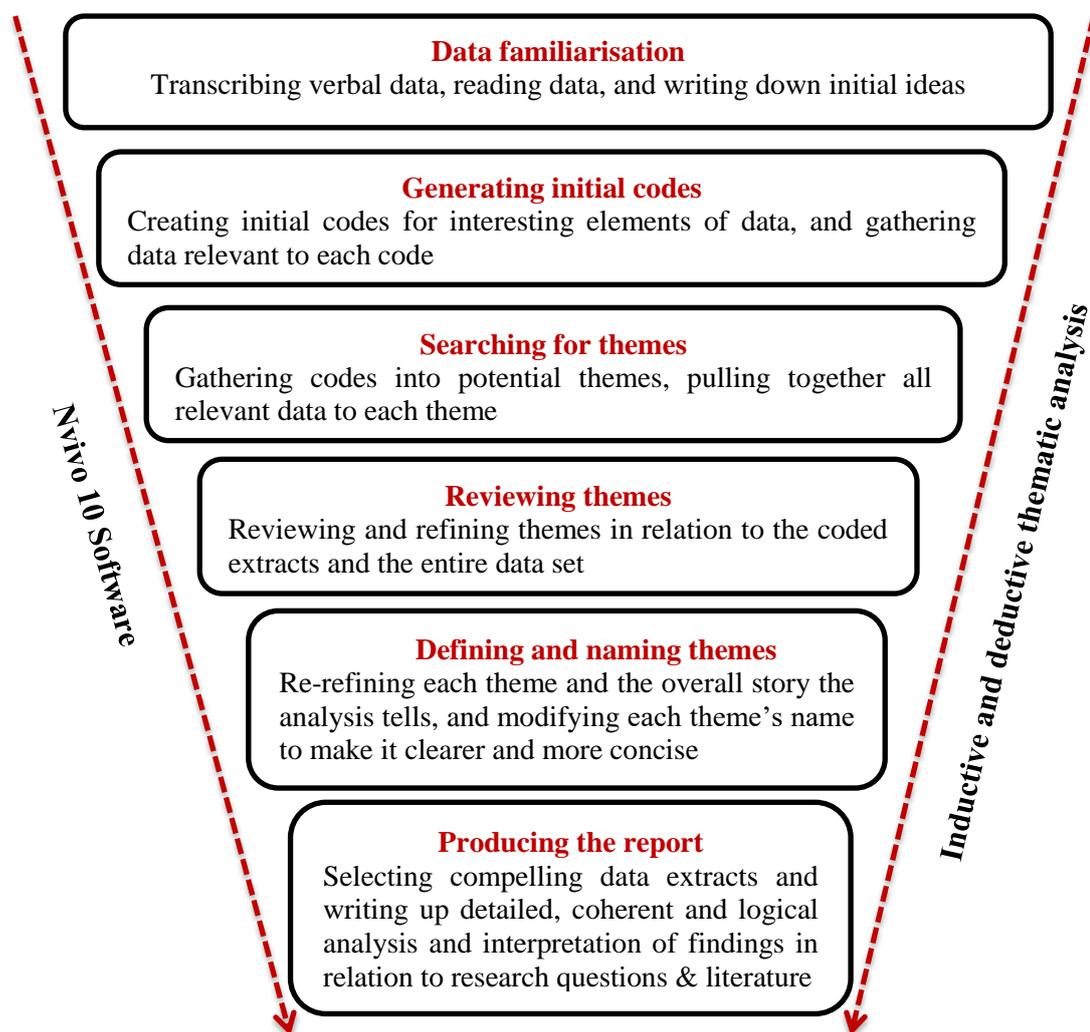
The data analysis process started concurrently with the process of data collection in this study because “the analysis of qualitative data is an ongoing process that is best begun early, as soon as the data collection begins” (McQueen & Knussen, 1999, p. 239). This is asserted by Hesse-Biber and Leavy (2006) who indicate that the qualitative researcher “often engages simultaneously in the process of data collection, data analysis and interpretation of the research findings” (p. 355). Qualitative research analysis involves “working with data, organising it, breaking it into manageable units, synthesising it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (Bogdan & Biklen, 1982, p. 145).

I first analysed the data inductively, using Nvivo 10 software. ‘Motivation’ emerged from the analysis as the key theme. Therefore, I returned to the literature and spent a considerable time searching for and examining theories of L2 motivation. I found that SDT (Deci & Ryan, 1985; Noels et al., 1999, 2000) best fitted the data, and thus coded and analysed the raw data both deductively and inductively. During this process, I applied elements of grounded theory. According to its founders, Glaser and Strauss (1967), grounded theory is a systematic methodology in the social sciences involving the discovery of theory through the analysis of data. It has been also described as “a qualitative strategy of inquiry in which the researcher derives a general, abstract theory of process, action, or interaction grounded in the views of participants in a study” (Creswell, 2009, pp. 13, 229). Grounded theory is suitable for case-study research (Strauss, 1987). Using this theory to collect and analyse the data provided valuable insights into the multiple meanings, views and perceptions of the children regarding their own use of tablets and their apps for ELL, which was the central focus of this case study. In comparison with instruments based on preconceived views of the world and its meanings, grounded theory provided a more accurate representation of

the children's world. It was thus helpful to use grounded theory with the case-study approach, as these collectively formed an inductive tool for discovery that enabled me as researcher to develop a theoretical account of the general aspects of the theme of motivation, grounding this account in the empirical data (Glaser & Strauss, 1967). As explained earlier in this section, however, I used elements of grounded theory rather than applying this methodology in its pure form (Holton, 2009). First, I conducted open coding (substantive codes) by breaking down the data (Glaser, 1978) obtained from the transcripts, observational field-notes and blog posts. This helped me to inductively discern the theme of motivation (Strauss & Corbin, 1998). I then returned to the literature and searched L2-motivation theories for the most appropriate model. SDT (Deci & Ryan, 1985; Noels et al., 1999, 2000) best fit the data. This phase was tedious and somewhat overwhelming, as it took a long time to find a relevant theory. I then went back to the data and carried out deductive 'theoretical coding', wherein theoretical codes are used to "weave the fractured story back together again" (Glaser, 1978, p. 72) into "an organized whole" (Glaser, 1998, p. 163). Theoretical coding can be understood as applying a theoretical model to the data. In this case study, I coded and analysed the raw data deductively following the SDT model (Deci & Ryan, 1985; Noels et al., 1999, 2000). I thus used an SDT framework to ground and conceptualise the use of tablets and their apps for EFL by children. This approach seemed particularly useful here given that the objective of the study was to explore and understand the impact of the affordances of tablets and their apps on children's use of such devices for EFL learning.

To maintain and foster the exploratory nature of this study, I carried out inductive (data-driven) thematic analysis at the same time as the deductive analysis. I thematically analysed the data in six phases, as recommended by Braun and Clarke

(2006) to ensure efficient data analysis (Figure 4.7). The use of thematic analysis in qualitative research has its own merits, including flexibility, the provision of a ‘thick description’ of the data set, and the ability to highlight similarities and differences across the data set, allowing social interpretations of data and possibly generating unanticipated insights (Braun & Clarke, 2006, p. 97). The six phases of analysis are outlined below.



Adapted from Braun and Clarke (2006)

**Figure 4.7: Process of data analysis and interpretation**

## **4.9.1 Process of Data Analysis and Interpretation**

### **4.9.1.1 Familiarising Myself with the Data**

The first step involved familiarising myself with the collected data. During this stage, I transcribed all of the audio-recorded data verbatim into Arabic, typed the transcripts up and stored them separately in a Microsoft Word document. First, I converted all of the audio-recorded data from the iTalk app into audio files on my laptop. Next, I downloaded a free software package called Listen 'n' Write to facilitate the transcription process. Subsequently, I transcribed all the verbal and non-verbal data (e.g., laughing, nodding) myself. Although this task was time-consuming and boring due to the huge amount of data obtained in my study, it familiarised me with the data, providing a thorough understanding of the data that informed the early stages of analysis (Braun & Clarke, 2006). After completing the transcription, I listened again to the audio-recorded interviews and focus groups several times, comparing them with the transcribed texts to check the accuracy of transcription. Listening to the verbal data in their original form and reading and rereading the transcribed texts carefully along with the field notes and the participants' blog reflections encouraged immersion in and deep engagement with my data, in turn facilitating brainstorming, the creation of ideas and the identification of potential patterns relevant to my research questions and objectives.

### **4.9.1.2 Generating Initial Codes**

One of the limitations of qualitative case study research is its generation of a large volume of data, which are challenging and time-consuming to manage and analyse. In this study, I used Nvivo software to manage and analyse the data. I uploaded the entire

data corpus (both the transcribed data in the participants' source language, Arabic, and the field-notes) to the software, which generated the initial codes. I coded all of the interesting features of the data set by organising them into meaningful groups (Tuckett, 2005). The coding process was based on and informed by my previously developed typology of the uses of iPad apps for learning English (Alhinty, 2015a), as well as the SDT model (Deci & Ryan, 1985; Noels et al., 1999, 2000). Both models were used deductively during the coding process. Braun and Clarke (2006) describe this deductive type of thematic analysis as 'theoretical' or 'top down'; coding is guided by specific theories or questions established by the researcher. My coding was driven by the two abovementioned models as well as the research questions. My typology of the uses of iPad apps for ELL (Alhinty, 2015a) guided my investigation of the young EFL students' preferences, attitudes and motivations regarding the uses and affordances of the apps for ELL. I chose the SDT model (Deci & Ryan, 1985; Noels et al., 1999, 2000) as my analytic lens, as this theory best suited the generated data. In addition to the deductive approach, I employed inductive thematic analysis with the emergent data. This kind of thematic analysis is also known as 'data-driven' or 'bottom up' analysis; coding depends on the data and is not linked with particular pre-existing coding frames (Braun & Clarke, 2006). I decided to use the inductive approach to maintain the exploratory nature of this case study, enabling me to conduct more detailed analysis of the data and to present a full and rich account of the data. This would not have been possible if I had used deductive analysis alone. I carried out the coding carefully, systematically and recursively, using the deductive and inductive approaches simultaneously to code all of the raw data and then collating them within each code (a code map is available in Appendix 4).

#### **4.9.1.3 Searching for Themes**

During this phase, I grouped related codes under potential themes and sub-themes. I began this process by analysing my codes, thinking about the relationships between them and examining how different codes could be combined to create overarching themes (Braun & Clarke, 2006). I followed this process by writing the first chapter on the findings, which is concerned with the motivational aspects of iPad tablets. However, in relation to the motivational factors of the preferred iPad apps, I initially formed and labelled the themes and sub-themes using SDT (Deci & Ryan, 1985; Noels et al., 1999, 2000) to guide the deductive analysis. Data triangulation helped me to bring the data together. This process, facilitated by the Nvivo software, allowed me to look across the data sets, thus comparing my observations with the interviews, focus groups and blogs and crystallising the data obtained under different themes. The process of crystallisation enabled me to consider the data from various angles, as different aspects of the data were highlighted in different phases of the analysis.

#### **4.9.1.4 Reviewing Themes**

According to Braun and Clarke (2006) this phase involves two levels of analysis, each comprising two processes: reviewing and refining the themes. First, reviewing occurs at the level of the coded data extracts. This is done by reading and rereading all of the coded data extracts for each theme and refining them to ensure that they constitute a coherent pattern (i.e, all of the data extracts fit well within a theme). Second, a similar process is applied to the entire data set to examine the validity of each theme in relation to the data set as a whole and to code any missed data (ensuring the ‘accurate representation’ of meanings in the entire data set by thematic mapping). I reviewed

and refined the themes in these two stages, starting with a review of the coded data extracts. I examined the similarities and differences between the participants' perspectives on the same issues. The opinions of the young EFL students were compared and contrasted to generate sub-themes or analytical dimensions of identified topics or elements. I also ensured that all of the data extracts fitted appropriately within each theme. Then I reviewed and refined each theme in connection with the entire data set. I made sure that all of the themes, sub-themes and sub-categories that emerged from my deductive and inductive analysis accurately represented the meanings in the data set.

#### **4.9.1.5 Defining and Naming Themes**

This phase involves defining and re-refining the themes to be used in the analysis, ensuring that each theme and the overall set of themes are clearly defined and named. I went back to each theme and read its data extracts carefully to identify and define the central meaning ('story') of its content. I repeated this process until I had examined all of the data, ensuring that the emerged themes and patterns were meaningful and could be accurately articulated and substantiated. I arranged the themes, sub-themes and sub-categories in coherent and internally consistent patterns, making sure that each one fitted into the overall 'story' I was telling about the data and suited the research questions (for a code map see Appendix 4). Before moving to the final phase, I looked back at the original names I had given to all of the themes, sub-themes and sub-categories at the beginning of the analysis and modified them where necessary to make them clearer, more concise and more punchy (Braun & Clarke, 2006).

#### **4.9.1.6 Producing the Report**

According to Braun and Clarke (2006), the last phase of thematic analysis involves writing up the analysis in detail to offer “a concise, coherent, logical, non-repetitive and interesting account of the story the data tell within and across themes” (p. 93). While writing up my data analysis, I selected the data extracts for each theme that best exemplified and supported the topic I was reporting and discussing. It was not possible to discuss all of the themes I generated. According to Ryan and Bernard (2003), “in theme discovery, more is better. [However] it is not that all themes are equally important. Investigators must eventually decide which themes are most salient and how themes are related to each other” (p. 103). Therefore, I identified themes with large clusters and high numbers of categories as well as those that were theoretically interesting. Table 4.5 below outlines the themes and subthemes that emerges from the data.

**Table 4.5: Outline of themes and subthemes**

| <b>5.3 Motivational Affordances of Tablets for ELL by Young EFL Students</b> |   |
|--|---|
| <b>Themes</b>  | <b>Subthemes</b>  |
| 5.3.1 Technological Aspects of Tablet-based LL                               | 5.3.1.1 Mobility of Tablets<br>5.3.1.2 Accessibility of Tablets<br>5.3.1.3 Multi-functionality of Tablets                 |
| 5.3.2 Social Aspects of Tablet-based LL                                      | 5.3.2.1 Collaboration<br>5.3.2.2 Friendship and Family Connections<br>5.3.2.3 Sharing Generated Digital Works with Others |
| 5.3.3 Positive Learning Experience   |   |
| 5.3.4 Demotivational Aspects of Use of Tablets for LL                        | 5.3.4.1 Technological aspects<br>5.3.4.2 Social aspects   |
| <b>6.2 Motivational Factors of Apps Preferred by Young EFL Students</b>      |   |
| <b>Themes</b>  | <b>Subthemes</b>  |
| 6.2.1 Intrinsic Motivation (IM)  | 6.2.1.1 IM-Accomplishment<br>6.2.1.2 IM-knowledge<br>6.2.1.3 IM-Stimulation   |
| 6.2.2 Extrinsic-Motivation (EM)  | 6.2.2.1 EM-Identified Regulation  |

As all of the interviews and focus groups were carried out in Arabic, I translated the transcribed data extracts from Arabic to English. I preferred to translate the data extracts during rather than before the data analysis to ensure the authenticity of the findings, as the study was to be published in a different language (English) (Suh, Kagan & Strumpf, 2009). Retaining the source language (Arabic) for as long as possible helped to reduce the potential limitations associated with conducting the transcription before the analysis (Van Nes, Abma, Jonsson & Deeg, 2010), such as losing the meaning of a participant's implicit expressions (Larkin, de Casterlé & Schotsmans, 2007). I carried out the translation myself not only because I speak the same language as the participants but due to my philosophical stance as a social-constructivist researcher who believes that the social world affects the translator's standpoint and influences how he/she interprets and translates the data (Esposito,

2001; Temple & Young, 2004; Twinn, 1997). Another reason for carrying out the translation myself was to maximise the consistency of the translation and thereby enhance the reliability of the data analysis, as highlighted in earlier research (Twinn, 1997). For these reasons, I preferred to undertake this task by myself; however, I also asked my children (13 and 14 years old), who are bilingual (speaking Arabic and English) and have a socio-cultural background similar to that of the participants, to check the accuracy of my translation. Researchers are advised to solicit the assistance of independent reviewers in reviewing and checking the accuracy of the translations to enhance the trustworthiness of the translated qualitative data (Squires, 2009). I chose to ask my two children rather than an adult reviewer to check the accuracy of my translation because they were of a similar age to the participants (9-10 years old) and shared the same language and socio-cultural background, and were thus potentially better able to understand and interpret the participants' informal language and compare it with my translations. This was very important, given the necessity of accurately representing the participants' expressions and meanings, as "translation between languages involves interpretation as well. The message communicated in the source language has to be interpreted by the translator (often the researcher him or herself) and transferred into the target language in such a way that the receiver of the message understands what was meant" (Van Nes, Abma, Jonsson & Deeg, 2010, p. 314). When differences arose between my translation and my children's translations of the participants' language, especially slang words, we tended to discuss possible wordings to decide on the best translation.

Next, I embedded the selected data extracts within the analysis. I compared, contrasted, described and interpreted the themes and patterns in relation to my research questions and the literature review to assist in drawing meaningful

conclusions. I did not conduct visual analysis of the photos or videos posted by the students on the blog, or the photos taken during the observation, as these were used mainly to elicit the children's experiences.

#### **4.10 Chapter Summary**

In this chapter, I explained and justified my decision to use the social-constructivist approach as the epistemological and methodological paradigm underpinning my case-study research. In accordance with my research objectives and questions, I chose a qualitative case study design to most fully explore and understand the motivational affordances of tablets and their apps for EFL learning as perceived by young students at beginner level. This qualitative approach enabled me to construct a rich description of the young EFL students' experiences, and to conduct an intensive exploration and gain a deep understanding of their perceptions and attitudes regarding the motivational aspects of tablets and tablet apps. I discussed in detail how the qualitative nature of case-study research (and thus of the chosen research sample, data-collection methods and process of data analysis) allowed me to compile a multi-faceted account of the participants' views and my own interpretations as the researcher. To gather the relevant data, I carried out focus groups and one-to-one semi-structured interviews as well as participant observations and blogging. To understand and examine the data gathered, I conducted deductive and inductive thematic analysis of the verbal transcripts and observational field-notes using the Nvivo 10 software package. Additionally, to ensure the trustworthiness of the research, I employed a number of measures to meet the quality criteria, such as crystallisation, peer debriefing, an audit trail, thick description and self-reflexivity. The study's ethical considerations were

also reported and discussed in the chapter. In the following chapter, I comprehensively describe, analyse and discuss the study's findings.

## CHAPTER FIVE

### Findings

#### Tablets' Motivational Affordances for EFL Learning by Children

##### 5.1 Introduction

As I showed in the previous chapter regarding the methodology underlying the study, this research was an attempt to explore the effects of the affordances of both tablets and their apps on young EFL students' self-determination to use such devices for ELL. In the previous chapter, I presented and discussed the research methodology, data-collection tools and the methods I used to analyse and discuss the collected data. In this part of the thesis, therefore, I present the findings and discuss the data generated from the study. I report on data collected from interviews and summative focus group discussions carried out with the 4<sup>th</sup>-grade beginner EFL students. I corroborated the data obtained from focus-group discussions and interviews by observing the children's dynamic interactions with the tablets in the classroom, which I recorded in descriptive and reflective field notes. In this chapter, I also report on data collected on a daily basis from the children's mobile blogging to explore the children's experiences of using tablets and their apps for ELL outside the classroom. As discussed in Chapter Four, I examined the data in relation to the research questions using deductive and inductive thematic analysis. As I outlined in Section 4.9.1.6, since it was not possible to discuss all of the themes I generated from the data, I identified themes with large clusters and high numbers of categories as well as those that were theoretically interesting. I present and explain the themes in separate sections along with their subthemes, supported by an appropriate number of data extracts and verbatim

quotations that are particularly illustrative of the students' views and experiences. Following the ethical guidelines for the study, pseudonyms are used throughout.

## **5.2 Categories Identified and Emerging Themes and Subthemes**

To clearly and coherently present and discuss the analysed data in relation to the research questions and the theoretical and analytical frameworks, I have divided the section on findings into two chapters. In the first chapter (Chapter 5), I describe and analyse the aspects of iPad use that the children found were motivating to ELL, using data-driven analysis. These include technological factors, social factors, positive iPad learning experiences and demotivational factors encountered when using the tablets for ELL.

In the second chapter on findings (Chapter 6), I present the results of the deductive (theoretical) and inductive data analysis, starting with the categories of iPad apps preferred by the children for ELL. Next, I explain the students' reasons for preferring these categories by describing the motivational factors of apps in these groups: intrinsic motivation (IM-accomplishment, IM-knowledge and IM-stimulation) and extrinsic motivation (identified regulation). In both chapters, the motivational aspects of using iPad and iPad apps in MALL contexts are analysed in terms of the antecedents that elicit, maintain or develop students' self-determined and self-motivated behaviour. In other words, the motivational aspects of both the iPad (Chapter 5) and iPad apps (Chapter 6) are discussed in connection with their role in satisfying the students' need for competence, relatedness and autonomy, and how this role affected the students' motivation to use the iPad and its apps for ELL. Table 5.1

below outlines the themes, subthemes, categories and subcategories that emerged from collected data.

**Table 5.1: Emerging themes, subthemes, categories and subcategories**

| <b>5.3 Motivational Affordances of Tablets for ELL by Young EFL Students</b> |   |  |
|--|---|--|
| <b>Themes</b>  | <b>Subthemes</b>  | <b>Categories and Subcategories</b>  |
| 5.3.1 Technological Aspects of Tablet-based LL                               | 5.3.1.1 Mobility of Tablets<br>5.3.1.2 Accessibility of Tablets<br><br>5.3.1.3 Multi-functionality of Tablets             | 5.3.1.2.1 Tablets' Ease of Use<br>5.3.1.2.2 Personal Ownership of Tablets  |
| 5.3.2 Social Aspects of Tablet-based LL                                      | 5.3.2.1 Collaboration<br>5.3.2.2 Friendship and Family Connections<br>5.3.2.3 Sharing Generated Digital Works with Others |  |
| 5.3.3 Positive Learning Experience   |   |  |
| 5.3.4 Demotivational Aspects of Use of Tablets for LL                        | 5.3.4.1 Demotivation Caused by Technological Issues<br>5.3.4.2 Demotivation Caused by Social Interaction                  | 5.3.4.2.1 Challenges of Sharing Tablets in Class<br>5.3.4.2.2 Challenges Faced when Using Tablets Outside School   |
| <b>6.2 Motivational Factors of Apps Preferred by Young EFL Students</b>      |   |  |
| <b>Themes</b>  | <b>Subthemes</b>  | <b>Categories and Subcategories</b>  |
| 6.2.1 Intrinsic Motivation (IM)  | 6.2.1.1 IM-Accomplishment   | 6.2.1.1.1 Optimal Challenges<br><i>6.2.1.1.1.1 Students' Past Experiences</i><br><i>6.2.1.1.1.2 Use of Pictures, Sounds, and Multimedia (Multimodality)</i><br>6.2.1.1.2 Human and Technical Scaffolding<br><i>6.2.1.1.2.1 Instructional Support and Scaffolding Provided by More Capable Others</i><br><i>6.2.1.1.2.2 Technical Scaffolding</i><br>6.2.1.1.3 Feedback and Rewards<br>6.2.1.1.4 Sense of Empowerment |
|  | 6.2.1.2 IM-knowledge  | 6.2.1.2.1 Incidental and Intentional ELL through Apps<br>6.2.1.2.2 Exploration and Discovery of New Apps and App Features  |
|  | 6.2.1.3 IM-Stimulation  | 6.2.1.3.1 Multi-Sensory Pleasure<br>6.2.1.3.2 Increased Personal Relevance of Learning<br><i>6.2.1.3.2.1 Drawing</i><br><i>6.2.1.3.2.2 Recording</i><br><i>6.2.1.3.2.3 Embedded Mini-Games</i><br><i>6.2.1.3.2.4 Stories</i><br><i>6.2.1.3.2.5 Multimedia</i>  |
| 6.2.2 Extrinsic-Motivation(EM)   | 6.2.2.1 EM-Identified Regulation  |  |

### **5.3 Motivational Affordances of Tablets for ELL by Young EFL Students**

This chapter is centred on the affordances of tablets that the young EFL students found were motivating to learn the English language, the extent to which the iPad-assisted language-learning environment satisfied their need for relatedness, competence and autonomy, and the influence of this satisfaction on their motivation to use the iPad for ELL. The chapter addresses the first research question, as follows:

**What are the motivational affordances of tablets for ELL learning by Saudi children learning EFL as beginners?**

I observed the children's experiences and interaction while using the tablets both during the English lessons and via their blogging, as well as obtaining their own self-reported perceptions through interviews and focus groups. I found that the students were highly motivated to learn the English language through using tablets despite experiencing some challenges and problematic issues. Specifically, four themes concerning the motivational affordances of the tablets for ELL and factors that may undermine students' motivation to engage in tablet-based ELL emerged. First, the technological affordances of the tablets appeared to motivate the children to take advantage of them to learn the English language. Second, the children appeared to be motivated by the social interactions and collaborative learning mediated by the iPad tablets. Third, the children's positive learning experience with the iPad tablets seemed to encourage the children to use these devices for ELL. The fourth and last sub-category is concerned with features that the students found demotivational when using the tablets for ELL.

### **5.3.1 Technological Aspects of Tablet-based LL**

To address this theme, I report and explain the technological affordances of the tablets that appeared to motivate the children to use them for ELL, as voiced by the young language learners and reflected in my class observations. I identified three key categories of factors that potentially motivated the children to use the tablets for learning: first, the mobility of the tablets and their role in enhancing students' sense of autonomy; second, the tablets' ease of use and accessibility, and their contribution to the children's sense of ownership and control over their learning; and finally the tablets' multi-functionality, which helped to satisfy the students' need for competence. These categories are discussed next.

#### **5.3.1.1 Mobility of Tablets**

The mobility of the tablets enabled by their lightweight design and wireless connectivity was identified as one of the most significant features encouraging young language learners to use them for ELL. The data suggested that the tablets' portability encouraged the children's independent learning and enhanced their sense of personal ownership and control over their learning, which supported their innate need for autonomy. Accordingly, the children felt motivated to use the tablets for ELL, which is consistent with earlier research on mLearning (Ahmed, 2012; Henderson & Yeow, 2012; Jones & Issroff, 2007; Kukulska-Hulme & Shield, 2008; O'Mara & Laidlaw, 2011; Pachler et al., 2009; Pilar et al., 2013). When I asked the children about their experience of using the tablets for ELL, the majority expressed their preference for iPads due to their portability, and tended to compare them with PCs to illustrate their

point. Being light and wireless, tablets were easier to carry than heavy and wired computers, as explained by Sarah:

*The iPad is better for learning either at home or at school. If it was a computer it would need to have its wires connected to the plug, and the laptop is so heavy, it might fall down. But the iPad – though true it has its own charger, it's still very light and small. I can connect it and work on it when I need, and as it's very light I can easily carry it and use it anywhere.*

Lana also agreed that the size of the iPad allows her to move it around freely when taking photos:

*Laptops and computers are big and heavy to carry everywhere but the iPad is better I can carry it and take it everywhere; I lift it up high and take a photo or put it near the floor and shoot the bag [points to her bag on the floor].*

The mobility afforded by the tablet encouraged the students to move around while using the tablet in class. During the English lessons, the students regularly connected their devices with the projector to share their digital output with their peers:

*The students today connected their devices to the projector; when one pair finished and showed me their work, I gave them permission to connect it to the projector and share their work with the rest of the class. (Field-notes, lesson 10)*

The children seemed to enjoy the freedom and flexibility afforded by the mobility of the tablet; they were able to carry their tablets wherever they went and use them at different locations in and outside the classroom. This finding is supported by Sandvik et al. (2012), who reports that the mobility of iPads encouraged very young language learners to use them in different areas of the classroom, such as on the floor, at tables and on chairs, which increased the flexibility of learning. This affordance provided the children in the current study with opportunities to develop their autonomous decision-

making skills, giving them greater choice in their learning and encouraging them to take control of the learning process (Jones et al., 2006). Some students, for example, found that using the tablet outside the class was more convenient, with better voice-recording results, and thus decided to use their tablets outside the class to improve their output, as reflected in the following observation:

*One pair told me that they wished to make their voice recording in the corridor outside the class, as this would improve their recording (they said it would be clearer and without background noise). Some of their peers liked the idea and started doing so every now and then. (Field-notes, lesson 7).*

However, the mobility of the iPads was most beneficial when the students were using the tablet's camera to complete their learning activities. The tablet's portability, coupled with the built-in camera, appeared to encourage the children's active and independent learning:

*The students were working with the letters on the floor, on the desk and on the chairs. I noticed Hana took a photo of a sponge shaped like the number 4 hanging on the wall, and then went and asked her partner Sarah, "What's this?" And Sarah said, "It's number four." Hana then asked what colour was it. And her partner said that it was green. (Field-notes, lesson 15)*

The mobility of the tablets seemed to excite the children and give them more control over their own learning; I observed the pairs carrying their devices and moving around the class hunting for suitable objects to film and use in their digital work. I heard one pair laughing excitedly when they found an apple in another student's lunchbox and were thus able to take a photo of it to illustrate the letter A on their digital sheet (in the English alphabet digital book activity). Another pair, who were assigned the letter E, chose to take their iPad to the school kitchen in search of an egg to photograph; they

came away happily with the egg and several pictures of it to use and share with their friends:

*The pair (Yara and Dana) allocated the letter E decided to take a picture of the word “egg” from the pictures hanging on the walls; however, they changed their mind and decided to fetch a real egg from the school kitchen. They found a boiled egg, took photos of it and lent it to other pairs who were working on the same letter... (Field-notes, lesson 5)*

Throughout the project, the children were largely independent in carrying out their classroom activities. This was partly stimulated by the tablets’ portability, which encouraged them to be more engaged, more purposeful and active in their learning rather than passive, which led to a significant shift (Butcher, 2014) in their learning style. Instead of sitting in their chairs for most of the school day passively receiving their teacher’s input, the mobility of the tablets allowed the children to access new dimensions of learning by ‘learning on the move’ across locations. The children were also able to use their tablets to access or create learning materials outside the school premises; they used their personal tablets for learning at home, while visiting friends and relatives, and sometimes while shopping. The children were not physically restricted to using their tablets in certain spaces but were able to carry them and use them mostly anywhere. The mobility the tablets afforded thus enhanced the opportunities to learn at nearly any time and anywhere, in a range of contexts (Butcher, 2014). Lana, for instance, reported as follows:

*I take the iPad with me every time I go out but not the laptop; it’s heavy and makes me [feel] heavy.*

The mobility of the tablets also appeared to expand and enhance the children’s connectivity, as they were able to connect to their peers through social media on the move, as noted by Hana:

*On Wednesdays, when I sleep over there [her grandmother's house], I take the iPad with me so I can talk to you through the blog.*

Additionally, the tablets' mobility appeared to encourage the children to use the tablet on the go and make the most of their time by playing or accessing language apps while visiting friends and family or shopping with their parents:

*I always use it [the tablet] at home... even if we go shopping I use it while mum is shopping... I sit waiting for my mum... I play or practise English.*  
(Sarah interview)

In sum, the mobility of the tablets seemed to foster a sense of agency among the students, and enabled a greater degree of “anytime, anywhere” control over their learning (Wankel & Blessinger 2013). This, according to Ryan and Deci (2000), enhanced their need for autonomy as learners, which motivated them to take advantage of the tablets for ELL. Control over one's learning and a sense of ownership and autonomy have been identified among the important motivational factors in the context of mLearning, as suggested by Jones et al. (2006). In the context of LL, Ushioda (2013) indicates that “autonomy, flexibility, freedom and choice are intrinsic features of mobile learning” (p. 2). The feelings of choice and ownership stimulated by mobile technologies are considered important means of increasing students' intrinsic motivation and engagement with mLearning tasks (Jones & Issroff, 2007; Sha et al., 2012).

### **5.3.1.2 Accessibility of Tablets**

The data obtained in this study revealed that the accessibility of the tablets significantly motivated the young language learners to use them for learning. The key

tablet affordances that enhanced their accessibility were found to be their ease of use and personal ownership, which increased the children's freedom to access learning materials at various times and in various locations, and thereby increased their autonomy and ownership of learning.

#### **5.3.1.2.1 Tablets' Ease of Use**

The data indicate that the children were generally positive about the tablet's ease of manipulation, which increased their use of the tablets and encouraged their independent ELL. This concurs with Butcher (2014), who describes students' positive perceptions of tablets as potential learning tools due to their ease of use, among other benefits. In this study, several affordances of the tablet seemed to facilitate its ease of use and thus increased its accessibility for ELL, including the instant and easy tactile interaction offered by the multi-touch screen, a relative lack of technical problems and the capacity to independently and easily fix any problems that did arise, the instant opening and closure of the tablet, and the ability to rapidly adjust volume. All of these factors helped the children to independently use the tablets and download the apps.

The instant and easy tactile interaction offered by the multi-touch screen was cited by many of the students as one of the most appealing and useful affordances of the tablet, which facilitated its smooth use and provided quick and easy access to LL content. This in turn appeared to enhance the students' interest in using and motivation to use the tablets to learn the new language. Many of the children agreed that writing with one's finger on the touch screen was more convenient, easier and better than writing

with a pen. This was illustrated by Nada when I asked her for her opinion on using the iPad for learning:

*Nice, the best thing is learning by touching... beautiful... iPad instead of a book... I just touch the iPad but the book I have to carry it that way... no touching just like that... only turning the pages [holding her English textbook and demonstrating how she uses it] the iPad is not like this... I write, I draw and I create things by touching.*

Some students, for example, found that their handwriting improved as a result of writing with their fingers:

*Hana: I feel that my writing of numbers started to become more beautiful.  
Mona: How?  
Hana: My finger... I mean my handwriting became better.  
Sarah: Writing with a finger is better and easier. (PL FG 4)*

Nouf added the following:

*I liked drawing with my finger instead of a pen... your focus is better when you draw with your finger. (PS FG 3)*

The majority of the students felt that writing with their fingers helped them to finish their tasks more quickly, which seemed to add more enthusiasm and excitement to their learning experience. Lena, for example, indicated that using the tablet's touch screen saved her time and increased her enjoyment of the task:

*It's so exciting because if it was a book we would be writing all the time... I mean writing takes a long time but with the iPad it's only touching.*

This was much more evident when the children were engaged in class games; the interactive touch screen appeared to increase their engagement with the content and

smoothed their experience of playing the games, as illustrated in the following transcript:

*Nada and I both felt that this was a real challenge [the 'numbers race' game], but it [the tablet] is better than the whiteboard because our finger is our pen. (Lana, PL FG 4)*

For some of the children, the touch screen offered a more comfortable alternative to writing with a pen and paper:

*Also the student learns better, because writing with a pencil hurts the hand but with the iPad just writing like this [moving her finger on the screen] is more comfortable for the hand. (Rana, PS FG 2)*

In addition, the tablet's interactive touch screen seemed to offer a solution for young students with sight problems, as they could easily use their fingers to enlarge the screen to read content more easily. This affordance was highly appreciated by one young language learner, Lana, who felt that this feature made the tablet a better learning tool:

*I prefer to use the iPad for learning. I am short-sighted so it's better than a whiteboard for me... I have to get closer to the whiteboard to see but the iPad is in my hands. I can easily make anything larger, not like a book. (PS FG 3)*

The above data extracts suggest that the children's experience of the tactile interaction enabled by the tablet's multi-touch screen was positive. The user-friendly touch screen facilitated their use of the tablets and smoothed their access to and interaction with the learning content, which thus increased their motivation to learn and interest in learning and enhanced their engagement with the content. This is also consistent with the findings of Henderson and Yeow (2012), who indicate that children's use of the multi-

touch screen enhanced their motivation to learn and interest in learning and increased the time they spent on learning tasks.

Additionally, tablets have been viewed as an easy-to-use technology due to their relative lack of technical problems. The children expressed a stronger preference for the tablet than for other computing devices such as laptops and PC computers, which experience frequent technical problems and breakdowns that frustrate the young language learners:

*When I started learning English last year it was OK... I was in a course... but this year it's different, we're more excited. Before it was laptop and we were only watching and did nothing and the teacher was always saying it doesn't work it doesn't work it doesn't work, we have to fix them, but the iPad works pretty well and doesn't stop a lot like the computers and the laptops... with the iPad we felt it was more exciting to learn English, not like before, and [we] want to learn more I just wish all the lessons were English. (Lana, PS FG 3)*

The ease of navigation and use of the tablets seemed to encourage the children to independently fix and resolve their technical problems:

*When something stops working they say they'll take it to someone to fix it [referring to her cousins]. At the beginning I wasn't good with the iPad but after that I became very good with it... I only had an iPod but I learned very well from using it. Now I am the one who fixes their devices; for example, Albatol told me the other day that whenever she put her device on its charger, the battery went backward and backward [indicating battery reduction]. I took it and put it on my charger and it charged very well, so she said, "I will buy a new charger, then"; they were about to take it to the shop to fix it. (Yara interview)*

My observations of the children's in-class use of tablets suggested that the majority of the children independently solved their own tablet and app issues or asked each other for tips or help, as reflected in the following extract:

*No questions today. I noticed that the students were helping each*

*other whenever they encountered a problem; mostly with the apps they were using but occasionally with the tablet as device. (Reflective notes, lesson 10)*

Most of the technical issues the children faced when using the tablet seemed to be easily handled by the children (e.g., a sound issue or a freezing app). The ability to independently operate and solve tablet-related problems appeared to foster the children's autonomous learning and enhance their self-confidence. This finding is in line with those of Lynch and Redpath (2012), who report that children benefit from iPads and iPods' relative lack of technical problems, which strongly motivates students to use them for learning. The students often reported that closing and re-opening an app solved technical issues, whereas problems with laptops and desktop PCs required them to ask repeatedly for the teacher's help, causing frustration.

Furthermore, the ability to instantly open and close the tablet and rapidly adjust sound volume helped to facilitate its use and thus enhance its accessibility. This was illustrated by Yara, who expressed her satisfaction with the iPad experience due to the instant and easy kinaesthetic operation of the tablet:

*It's so quick. Just touching... I mean I don't have to go to the sound settings to raise the volume or lower it... Just directly from here [pointing to the side of the tablet], and close it and open it from here [pointing to button].*

The tablet's ease of use also seemed to encourage the children to independently download apps and test their usefulness for ELL:

*When you gave us the papers [referring to handouts of the app recommendation list] I downloaded all the apps. I allocated time to every app to make sure I tried them all and didn't forget any. Then I went back to what I liked and used them. (Salma, PS FG 1)*

Some of the children felt that their experience of using the tablet for learning enhanced their self-confidence in independently using the iPad and downloading apps, as they realised that the tablet could be easily navigated:

*Lana: We became more interested in downloading the apps. Before, my brothers and I didn't know how to do so and used to ask Dad to do it for us... We would wait till the evening until Dad came back from work to download for us.*

*Mona: But I didn't tell you how to download the apps.*

*Lana: No, but you made it easy. We thought it was very difficult. We used the iPad in every lesson with you. We started downloading new apps. For example, you told us if you want to access the blog do this and do that... You gave us things to do.*

*Mona: Ah... You mean the instructions?*

*Lana: Yeah... by that time we knew the iPad well. I mean I feel that we could search, download and try things instead of asking others to do it to us. (Lana interview)*

The instant tactile interaction with content enabled by the tablet's multi-touch screen, the relative lack of technical problems, the independent operation of the tablet, and the ability to easily manage technical issues and download apps all increased the tablet's usability, which thus enhanced its accessibility, encouraging instant and quick access to learning resources and motivating the children to independently and confidently use these devices for ELL.

### **5.3.1.2.2 Personal Ownership of Tablets**

In addition to the tablet's ease of use, personal ownership of tablets emerged as another factor that probably enhanced the accessibility of the tablets when used outside school, and in turn increased the children's freedom and flexibility to access learning materials, encouraged their autonomous learning and enhanced their sense of choice and control over their ELL. All the children participating in the study either had their own personal tablet devices or shared them with other members of the

family. Their ownership of the tablets seemed to increase the flexibility of their access to learning resources. This finding does not support Ushioda's (2013) claim that mobile devices are regarded as one's personal property and used mainly as personal and social tools, and that language learners may consider their mobile devices as "private space" that should be "kept clearly separate from their 'studying space'" (p.3).

When I asked the children how much time they spent learning or practising the English language on their tablets, the majority indicated that they used the tablets daily, but that the amount of time spent using the tablets varied depending on their homework load, the type of apps they were using and their family commitments. The flexibility afforded by tablet ownership was appreciated by Lana, who described her 'any time' access to and flexible use of the tablet as follows:

*I don't use it for a specific amount of time. I use the iPad all the time. If Mum calls me and asks me for help I leave it and then come back to it when I've finished helping. I use the iPad most of the time: almost half of the time for English learning and the other half for playing games. Sometimes when we visit my cousins I can't practise English because they insist that we all play on the iPad. I try to use the iPad to learn English as much as I can.*

Similarly, other students indicated that they used the tablets at any time. The children apparently viewed the tablets as nearly 'always-on' technologies (Butcher, 2014; Fisher et al. 2013) that could be accessed at most times and in most locations for learning. Yara, for example, was unable to specify the time she spent on her tablet, as follows:

*I don't know, it could be one hour at noon, one hour in the afternoon, one hour in the evening – something like that.*

Similarly, Sarah indicated that she spent about two to three hours on her iPad per day, but that this depended on the apps she was using:

*Sarah: Roughly two hours [referring to her daily use of the tablet for learning]*

*Mona: Do you think two hours are enough for learning or do you think you need more time?*

*Sarah: In one hour I can use more than one app, but there are apps that take a long time to use, like Toonastics.*

As well as spending time on the tablets learning English, some students routinely accessed the blog to send or check others' posts or comments, as described below:

*Nada: About two or three hours every day [referring to her use of the tablet].*

*Mona: But you write a lot and post all the time on the blog.*

*Nada: Yeah, I use the iPad a lot to write on the blog, but I work on English for about two hours or a bit more. (Nada interview)*

These findings suggest that the children's personal ownership of the tablets facilitated their flexible access to ELL content. Ownership of the tablets combined with the devices' ease of use appeared to increase their accessibility, allowing the students to use them for learning and practising the English language at almost any time they wanted. Both mobility and accessibility emerged as significant affordances that enhanced the children's sense of agency and autonomy in using the tablets for learning, encouraging more learner-centred learning, as indicated by Kukuska-Holmes (2013b).

The accessibility and portability of the tablets enabled the students to instantly access LL materials that supplemented their real-time classroom learning (Henderson & Yeow, 2012). In accordance with the present findings, previous studies have demonstrated that mLearning in MALL contexts improves motivation to learn, as it offers advantages such as ease of access to language materials, immediacy and ease of

use (Cooney & Keogh, 2007; Hung, Young & Lin, 2009; Hwang et al., 2011; Mileva, 2011; Wong & Looi, 2010). I also found that these affordances extended the children's classroom learning to other settings, consistent with other research indicating that mobile technologies extend learning beyond the classroom (Kukulska-Holmes, 2013b; 2014; Pilar, Jorge & Cristina, 2013). The continuity between learning contexts afforded by the portability of mobile devices has been identified as one of the key motivational factors in the area of mLearning (Jones et al., 2006). Instead of waiting for their two English classes per week to access and learn the language, the children in my study were able to use the tablets to access and learn the language at almost any time and anywhere they wanted. This helped to increase their exposure to and use of the English language. These findings match those observed in earlier studies (Chin et al., 2010; Rosell-Aguilar, 2013), which highlight the role of mobile technologies in facilitating increased exposure to and use of the target language. This finding is also in agreement with Norbrook and Scott's (2003) findings, which indicate that portability and immediacy are the most significant characteristics of mobile LL. The data suggest that the accessibility and mobility of the tablets provided the students with "control over the place (physical or virtual), pace and time" of learning (Kearney et al., 2012, p. 4), and offered them greater freedom to self-regulate their learning (Sha et al., 2012). The tablets' mobility and accessibility, enabling flexible and instant access to educational apps and language resources, appeared to intrinsically motivate the children to pursue regular LL. This may be due to the children's daily access to and use of the tablet for learning English. This finding confirms the hypothesis that the affordances of mobile technologies can motivate language learners to carry out informal learning (Kukulska-Holmes, 2013b; 2014).

The findings reported in this section suggest that the mobility and accessibility afforded by the tablet devices supported the students' need for autonomy and enhanced their sense of choice and control over their learning, which in turn increased their self-regulation and intrinsic motivation to use the tablets for ELL. This is consistent with SDT (Deci & Ryan, 1985; Noels et. al., 1999, 2000), according to which students' self-determined and intrinsic motivation can be enhanced by providing them with a supportive learning environment that fulfils their need for autonomy.



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**English-Language Learning at  
their Fingertips:  
Educational and Motivational  
Affordances of Tablet Apps in  
Children's EFL Learning**

**Mona Alhinty (BA, MA)**

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### 5.3.1.3 Multi-functionality of Tablets

In addition to mobility and accessibility, the multi-functionality of the tablets emerged as a key factor motivating the young language learners to use the devices for learning. The students expressed greater satisfaction with their educational use of the tablets due to the devices' multiple functions, which allowed them to undertake a variety of learning and entertainment activities on only one device. As noted by the students, a built-in camera, voice recorder, multimedia, social media, e-books and a vast range of apps for entertainment and education were all accessible using a single tablet.

In response to my question regarding their experience of using the tablets to learn English, the majority of the students voiced a greater preference for the tablet than for other means of learning, such as books. One student, however, indicated that although she preferred the tablet for learning, she felt that she could learn equally from tablets and books. Interestingly, her response elicited further comments from another member of the focus group, Sarah, who explained in more detail the multiple functions that made the tablet a good learning tool, as follows:

*Sarah: The iPad and books are both useful for learning, but the iPad is different from the book, for example, its touch screen... it's a device like a slate, unlike a book, which has many pages... it also has apps the book doesn't; it has recording, drawing and colouring, searching and maps [apps or tools] – a lot of things that are difficult to find in one book. But what makes me sad is that unlike the textbook, [the iPad] might break if it falls on the floor.*

*Mona: Perhaps this could be solved by using a strong protective cover, don't you think so?*

*Sarah: Yeah. (PS FG 1)*

Similarly, Lena was very excited about using the tablet for learning because it included all of the tools that she might need when undertaking an English-language activity:

*Everything is on the iPad... if I want drawing I can draw, if I want recording I use the camera, if I want images I find them on Google or in the [inbuilt] photo album, if I want to search [for something] I can search the Internet.*

The tablet was also regarded as a tool for both entertainment and learning. This was acknowledged by many of the children, who reported that they regularly used the tablet for both broad purposes:

*I use the iPad to search for information on our lessons and I also download games and puzzle apps. (Huda, PS FG1)*

In discussion of the same issue, Yara added the following:

*There are also a lot of games that we can download to the iPad, we can watch YouTube any time we like and we can use Safari to search... we can draw, take photos and record stuff.*

Sarah agreed, indicating her preference for the tablet's games and highlighting its integrated camera as a handy feature that improved her photography:

*The games on the iPad are much better and recording is easy, as well as making videos or taking photos. I can do these things everywhere, even while sitting down. I can take photos of things far away and then make them closer using the zoom function.*

The built-in camera was one of the most frequently cited affordances of the tablet; the children found it both useful and easy to use. Photography facilitated by the mobility and usability of the tablet was perceived as advantageous, as indicated in the following transcript:

*What I also like about the iPad is using it to take photos. My cousins say that it's too heavy to take photos, but it's light for me. I can't carry the computer and take photos with it at school, it's heavy and I might drop it,*

*but the iPad is easy – I just hold it like this [holding the tablet] and simply take photos. (Lena interview)*

This finding is broadly in agreement with Butcher's (2014) findings, which indicate that adult students regarded the tablet's integrated camera as an easy to use tool for capturing learning information, and a better method than taking notes. This finding is also supported by mLearning research indicating that built-in capture tools such as cameras offer useful means of recording notes or images on the board during lessons and PowerPoint presentations to be viewed later at the students' own pace (Beatty, 2013; Kukulska-Hulme et al., 2015; Van Praag & Sanchez, 2015).

Other students indicated that taking photos helped them to create more suitable materials that more accurately reflected their understanding of the language tasks, in comparison with other digital tools, as suggested in the following extract:

*Mona: Why do you think taking photos was popular today?*

*Yara: Because it suited today's lesson.*

*Nora: Yeah, that's what I think too.*

*Dana: It suits the idea of 'near and far' better than drawing.*

*Mona: Better than drawing?*

*Nora: If you go to Google to get an image and make the image look far away, it won't work well [she seems to mean making the image smaller], but if you film it, it's better. (PL FG 13)*

This finding concurs with the results of an earlier study conducted by Wong and Looi (2010), who highlight the usefulness of the camera built in to mobile devices in illustrating newly learned items. In their study, the L2 children used the integrated camera to take photos and make videos to reflect the correct usage of L2 vocabulary and grammatical structures in real-life settings.

In addition to the built-in camera, the tablet's audio-recording feature was positively reviewed by the children, who considered its use both enjoyable and helpful for ELL:

*Fatimah: I can talk in English and record my voice and play it back in a different voice like a dog or a cat.*

*Mona: Ah, like the Talking Ben app?*

*Fatimah: Yeah, like Talking Tom and Talking Ben, and there are parrot and cow voices [the whole group laughs] – my voice changes to sound like them, it's so funny. (PS FG 2)*

The audio-recording affordance of the tablet enabled by either built in or downloadable apps appeared to encourage the students to use the tablets to practise the pronunciation of new English words and phrases. It offered them the opportunity to record their spoken English, save their recorded clips and listen back to them:

*I use the iPad for recording the stuff we say in English... and while Mum is working I come to her and let her listen to my recording. (Amira, PS FG 3)*

Using the integrated features of the tablet such as the camera and voice recorder seemed to empower the students to create their own language artefacts and increase their use and practice of the English language, which helped to enhance their sense of competence. The children in this study frequently expressed their pride and satisfaction with their audio and visual productions such as animated films or audio-visual flashcards, and these accomplishments in turn enhanced their self-esteem. These findings are consistent with those of other studies, which suggest that photography and voice-recording tools integrated in tablets and other mobile technologies encourage language learners' authentic audio and visual production and facilitate and improve their practising of the English language, which in turn enhances their feelings of competence (Lys, 2013; Wong & Looi .2010).

The availability of a massive array of educational apps also made the tablet an attractive tool for learning, as the children had the freedom to choose apps that suited their needs, proficiency level and personal preferences. This was explicitly indicated by the students, who preferred to use the tablets for ELL because they found using the apps enjoyable and productive. The students' sense of accomplishment and competence appeared to be enhanced by this affordance, possibly because the various functions of the apps enabled them to undertake and accomplish multitasking activities enjoyably and constructively, as reflected in the following transcript:

*Nora: The apps are so exciting... I mean I have become so excited to [attend] the lessons.*  
*Mona: Nora, you said something before about the book being awful.*  
*Yara: The book is awful.*  
*Dana: Awful.*  
*Sarah: Yeah, the book is awful and boring.*  
*Mona: Why?*  
*Nora: If it had apps it wouldn't be boring...you can find an app for everything.*  
*Yara: The best thing is that you can find anything you want, anything, translation, stories, games and English apps... you can learn and do amazing things. [All nodding to indicate their approval] (PL FG 14)*

The ability to download apps that offer ELL was highly appreciated. Hana, for example, recognised that using these apps could improve her ELL:

*The iPad is awesome because we can download English apps and learn better.*

The tablet may also have been perceived as a favourable tool for learning English due to its audio features, which, along with its visual and tactile features, seemed to enhance the children's ELL experience. Although this feature is provided by other technologies such as PCs and projectors, the tablet enabled the children to listen to various sounds, ranging from sound effects to songs and spoken words/text, while

physically interacting with the learning content. This seemed to increase their enjoyment. It was also beneficial for their ELL, as they were able to listen to spoken English and discover the pronunciation of new words at the same time as reading a text or looking at an image. This multimodal learning tool was likely to have enhanced the children's engagement with the learning content, motivation to learn and immersion in the ELL experience, as indicated in the following:

*Nada: But the nicest part is listening to things.*

*Mona: Like what?*

*Nada: Listening to songs, sounds, new words, letters, numbers, colours in the apps...*

Sarah added the following:

*It's better than a book; when using the iPad we were so excited, I mean the sounds were funny and when we listened to our voices they were different [laughing]. (PL FG 3)*

Among the huge range of apps available in the tablet's App Store, e-books were considered to play a particularly significant role in facilitating ELL. The students were able to download and use educational materials such as subject textbooks in the form of e-books. The ability to access their own e-textbooks through their tablets seemed to reinforce their perception of tablets as a useful tool for ELL, especially among the children who were used to learning mainly from physical textbooks:

*... iPads are for playing and learning; I downloaded my Arabic and English textbooks (Lana, PS FG 3)*

Yara agreed:

*The iPad was not only for playing but also for learning... one app has all the textbooks, Year Four, Year Six, Year Five, it has all the textbooks, I downloaded all my textbooks. When my sister Lina lost her Figh textbook, we searched the Internet and found an app from which to download [the textbook] for her and all our other textbooks.*

In addition to the affordance of e-books, accessing and watching multimedia content on the tablets were popular activities among the young language learners. The majority of the children indicated that they frequently used their tablets to watch cartoons and English-learning videos to improve their understanding of the English language:

*Farah: I use the iPad a lot for watching YouTube, usually English videos.  
Yara: I watch the Cartoon World app cartoons in Arabic and English. (PS  
FG 2)*

The communicative (social media) apps available on the tablet were less popular than the multimedia tools. However, a number of students described socialising and interacting with their friends through social-media platforms. Nada, for example, indicated that she most enjoyed using the tablet to interact with her class peers by blogging about the ELL apps:

*The best thing is that we can write in the blog... we write what we do and our friends tell us what they do with the iPad... I feel like we're living in one house. (Nada, PL FG 14)*

The findings addressed in this section suggest that the multi-functionality of the tablets empowered the students, increased their self-confidence and helped to fulfil their need for competence by enabling them to undertake a variety of ELL activities using only one device.

When talking about their ELL experience using the tablet, the students frequently used the phrase “I can” to describe their ability to learn the English language or accomplish a language task. Encouraged by the multi-functional features of the tablet, the children produced creative digital output such as animations, comic strips, multi-media flashcards and audio-visual books. This appeared to enhance the students’ sense of

accomplishment and competence; the children felt proud of and empowered by their digital language artefacts. These findings are consistent with those of Brown et al. (2012), who report that the multi-functional capabilities of the iPad helped to empower adult students to create presentations, record audio clips and videos, copy and save images, and search and view websites on one device in one classroom session.

In accordance with previous research (Ali-Khan & Siry, 2014; Brown et al., 2012; Gromik, 2012; Henderson & Yeow, 2012; Lou et al., 2012; Lynch & Redpath, 2012; Lys, 2013; Martí & Ferrer, 2012; Selwyn, 2013; Wang & Smith, 2013), tablets, a form of mobile technology, seemed to empower language learners by enabling them to capture and store their learning experiences (using built-in cameras and audio and video recorders). This experience seemed to increase the children's motivation to use the tablet for ELL, which supports Wang and Smith's (2013) claim that constructing language materials has the potential to increase students' motivation to learn. Indeed, the children involved in my study explicitly expressed feelings of pride when talking about their digital output, as illustrated below:

*The one I like most is Toontastics [an app] because you can create a fabulous story. It's better than Puppet Pals 2 [another app] because you create the cartoon from the beginning to the end all by yourself as if you were the director or a famous artist. You design your backgrounds, invent the characters and things and decorate them and move them around, and for example if others watch the films and like them, they say, "Oh, I wish I were older and knew how to make them." This [using these apps] makes you an artist easily. (Nora interview)*

The confidence and pride generated by the students' increased digital and linguistic competence were also evident when they described the use of their digital creations to

teach others. For example, Dana, felt that the comic strips she had created could be used to teach new English vocabulary:

*You can use it to teach others who don't know the words. You can draw or find an image and add the word and then hang it up for them like we did with 'kite' [a new word the students were learning]. (Dana, PS FG 2)*

Nora agreed, indicating proudly that her digital works could be used to teach students new digital or linguistic information:

*The app is so amazing... so amazing. It's like you create something and show it to others. For example, [if] you have students and you want to teach them how to write a word, add an image and so on, you can create like this and show them [pointing at her comic strip]. (Nora, PL FG 8)*

This finding chimes with those of Lynch and Redpath (2012), who report that young students' creation of digital content on iPads enhances their sense of accomplishment and pride and thus empowers them to feel that their digital artefacts can be used to teach others.

The data presented and discussed in this section suggest that the availability of a wide range of LL materials in the form of English-specific apps, e-books and multimedia content provided the children with multiple platforms for learning and practising the English language. The sheer variety of language resources encouraged the children to choose and use content that was comprehensible and within their zone of proximal development. At the same time, the multi-functionality, accessibility and mobility of the tablets seemed to increase the personal relevance of the LL materials, as the students were able to find what they wanted or needed at nearly any time and anywhere. This in turn increased their exposure to the language and enhanced their confidence and competence in using tablets for ELL. This finding supports the idea

that mobile devices can provide language learners with greater opportunities to practise the target language, which can improve their confidence (Lys, 2013). It is also consistent with the results of previous studies indicating that the accessibility of iPads empowers primary-school children by enabling them to access an extensive range of information (Henderson & Yeow, 2012). The use of mobile technologies has also been reported to facilitate the selection of relevant information (Koole, 2009), thereby empowering students and increasing their self-confidence (Butcher, 2014; Selwyn, 2013).

The findings reported and discussed for this sub-theme suggest that the multi-functionality of the tablet significantly enhanced the students' sense of accomplishment and supported their need for competence. Accordingly, the children were intrinsically motivated and self-determined to use the tablet to learn the English language. These findings are consistent with SDT, according to which satisfying students' need for competence is a crucial means of encouraging their self-determination to learn (Deci & Ryan, 1985).

### **5.3.2 Social Aspects of Tablet-based LL**

The study reported in this study, carried out with 4<sup>th</sup>-grade primary-school children (9-10 years old), offered interesting insights into the role of collaborative LL, social interaction and social relationships in motivating young language learners to use tablets for ELL. The data suggested that the iPad's affordances (such as its mobility, large multi-touch screen and multi-functionality) indeed enhanced children's collaborative learning in the classroom and supported their social interaction beyond the school context, which thus increased their motivation to learn the English

language. These findings are consistent with the results reported in the mLearning literature (Alm-Lequeux; 2006; Kearney et al., 2012; Kukulska-Hulme, 2009, Kukulska-Hulme & Sharples, 2009; Sharples et al., 2007; Valdivia & Nussbaum, 2007) and research on tablet-based learning (Brown et al., 2012; Butcher,2014; Chen, 2013; Ciampa, 2013; Cochrane et al.,2013; Davies, 2014; Falloon & Khoo, 2014; Fayed et al.,2013; Henderson & Yeow, 2012; Hutchison et al, 2012; Kucirkova et al., 2014; Pellerin, 2014; Sandvik et al.,2012; Sullivan, 2013), which indicate that tablets and other mobile technologies have the potential to encourage collaborative learning and increase social interaction. The findings suggest that the students' need to feel related to significant others was satisfied by their use of the tablets, which mediated their interaction and communication with friends, family members and classmates within their community of practice and thus motivated them further to use the tablets to learn the English language. This finding is consistent with both Deci and Ryan's (1985) SDT framework and the findings reported by Noels et al. (1999; 2000), which show that providing students with opportunities to satisfy their need to feel valued, secure and closely connected to significant others, such as teachers, parents and peers, plays a crucial role in eliciting, fostering and sustaining their motivation to learn. Parts of the data analysis presented in this section have previously been published (Alhinty, 2015b).

This theme consists of three sub-themes concerning the social components of tablet-based learning. I identified three main forms of social interaction: collaboration, connections with friends and family, and sharing digital works with others. These sub-themes are comprehensively discussed in the following sections.

### **5.3.2.1 Collaboration**

One of the most striking findings to emerge from the data regarding the motivational affordances of tablets for ELL was the importance of collaboration. Although the English curriculum was based on a communicative approach to learning, the English teacher seemed to be more comfortable with the traditional style of teaching, emphasising techniques such as drill and practice. This was also the case for most of the other subjects taught at the school. Traditional teaching methods – teacher-centred, with limited opportunities for students to communicate and collaborate, focusing instead on individual learning and memorisation – were still predominant in Saudi Arabia at the time of the study. Accordingly, the students were used to working and learning individually and silently, and were normally instructed not to speak or leave their seats unless they were given permission to do so. However, my classroom observations, as well as the outcomes of the focus group and individual interviews, indicated that the children engaged in considerable collaboration and communication while using the iPad. I observed the children collaboratively creating and producing the required digital tasks, planning their tasks, discussing their choices, taking turns, solving problems and helping each other. Obviously, this is likely to be due in part to the shared use of the tablets, as each device was shared by two students (randomly paired by the teacher). The affordances of the tablets, such as their large screen, multi-touch ability, multi-functionality, mobility and rotation, as well as the powerful capabilities of some of their more open-ended apps, all encouraged the shared use of the tablet and the co-production of English-language materials via different forms of collaborative learning such as assigning tasks, taking turns, scaffolding and peer support. These forms of learning are discussed next.

The tablet's large screen seemed to enable and encourage the shared viewing and use of the device, as illustrated in the transcript below:

*Nora: For example, in this game, the iPad is excellent, but the iPad Mini doesn't work because its screen is small, and even the iPhone is not [big] enough for two to play and draw together, so iPads 2, 3 or 4 are better.*

*Dana: This iPad works for two, for me and my sister or for me and my friend, this is much better but the iPad Mini's screen is too small for both of us to use.*

*Yara: The Mini only works for one person. (PL FG 11)*

This finding is consistent with the results reported by Henderson and Yeow (2012), Fisher et al. (2013), Brown et al. (2012), Sandvik et al. (2012) and Falloon and Khoo (2014), who all indicate that the tablet's wide and clear screen allows multiple students to use it at once, which encourages collaboration and supports communication throughout their learning activities.

The children's collaborative and communicative interaction while using the iPad also seemed to be enhanced by the multi-touch feature of the tablet's screen, which enabled the students to use some apps together at the same time. This kind of app was preferred by the students as it allowed them to work together on the screen:

*The thing I liked most is the game you showed us in Doodle because it is so fun and exciting as two can draw and write at the same time! (Farah, PS FG 2)*

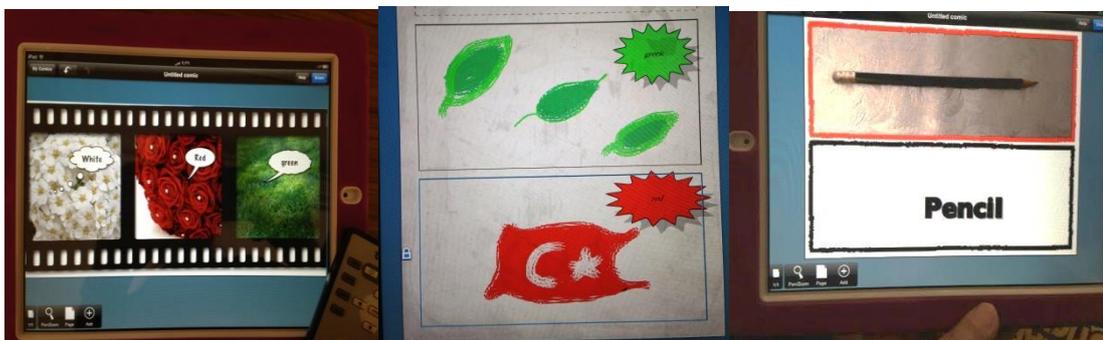
Compared with apps that allowed the students to take advantage of the multi-touch feature of the tablets' screens, single-user apps were unpopular, as they prevented the children from playing with the tablet together:

*Here, for example [pointing to the iPad's screen, with the Doodle app open], if I wanted to play on its screen I could whether there are two or*

*three of us, unlike the Blackboard app that allows only one person to use the screen. (Lena interview)*

The prevalence of collaborative, communicative and interactive activities encouraged by the concurrent use of the multi-touch screen is supported by many studies, such as those of Hutchison et al. (2012), Sandvik et al. (2012), Falloon and Khoo (2014), Fisher et al. (2013) and Brown et al. (2012).

The process of data analysis enabled me to identify various forms of collaborative and communicative interaction that were almost certainly attributable to the use of tablets. One of the most frequent types of collaborative activity was the co-production of digital works. During the English lessons, I noticed the students' delight and excitement every time they used the iPad to socially construct language materials. These observations were further confirmed by the students' interviews, as they expressed feelings of enjoyment and excitement when talking about co-producing digital artefacts with their peers. Empowered by the multi-functionality of the tablet and the powerful capabilities of some of its apps, the students actively co-created their own digital works (Figure 5.1).

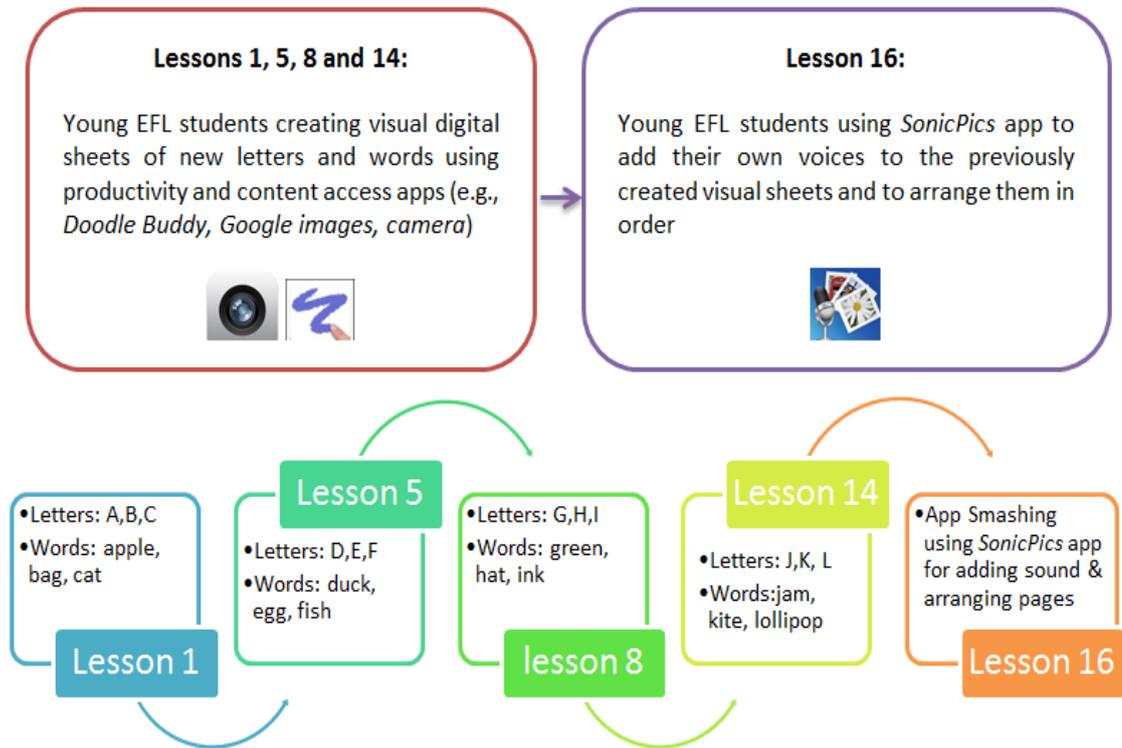


**Figure 5.1: Examples of students' work co-created using apps**

Indeed, the multi-functionality of the tablet, which enables users to take photographs, record audio and video clips, conduct online searches, download images, draw, write and save their work, encouraged the students to create digital artefacts with their partners. This finding is consistent with those of Brown et al. (2012) and Davies (2014), who highlight the role of the tablets' multi-functionality in supporting adult students' social construction of classroom presentations and group collaboration. These findings are also supported by mLearning research (Cochrane, & Bateman, 2010; Kukulska-Hulme & Sharples, 2009; Lan, Sung, & Chang, 2013; Rogers & Price, 2009; Sandvik et al., 2012) emphasising the relevance of collaborative-learning and social-constructivist principles to the integration of tablets and other mobile technologies with learning.

In addition to the multiple capabilities and integrated functions of the iPad, the availability of various open-ended apps with many built-in features and options appeared to enhance the children's social development by motivating them to co-produce LL content with their partners. During the project, the children exploited the affordances of the tablet to produce a range of collective digital works on a single device; these included animations, theatrical scenes with digital characters, recordings, audio-visual flashcards, comic strips and coloured e-sheets. In almost all of the 16 iPad-based lessons I designed, the children were required to create digital works to reflect their understanding of the topics under study. The tasks varied according to the subject of the lesson and the type of apps they were using.

One of the iPad learning activities that took advantage of the tablet's open-ended apps was the class multimedia alphabet book, which the students began on the first day of the project and continued until the final day of the study. The process of creating the digital book is illustrated below, in Figure (5.2).



**Figure 5.2: Process of creating class digital alphabet book**

In every lesson in which new letters and new vocabulary were introduced, I asked the children to go to the ‘productivity’ category on their iPad desktop (specifically containing note-taking, drawing and audio- and video-recording apps) and use the app Doodle Buddy to continue working on their visual alphabet e-sheets. They had the option to use the iPad camera to take photographs, search for images using search engines such as Google Images, choose photos from the tablet’s photo album, use Doodle Buddy or another drawing app to draw objects representing the letter/s they were learning, or simply use some of the built-in feature of the app, such as digital stickers. When the children completed their e-sheets, they saved them to the iPad photo gallery for later use:

*The first pair to finish was Yara and Dana: they designed an e-sheet for the letter ‘g’, and instead of using the word ‘green’, a word that they have just learned, they chose the word ‘gift’ and added stickers depicting gifts. I*

*noticed that they had learned this word from a poster on the wall. When they showed their work to me they were so happy and eager to explain how they had done it. (Field-notes, lesson 9; see Figure 5.3.)*



**Figure 5.3: Example of students' co-created works using apps**

The children enjoyed working with their partners. One of the students reported that she and her partner enjoyed the experience of planning, creating and saving the digital sheets:

*Salma: The app I liked most is Doodle from the group... group...*

*Reem: Writing and drawing.*

*Salma: Yeah, every time we are excited by the challenge, Reem and me, what letter will we get? How we will do it? Will we draw or take photos or use Google?... What stickers will go with it? We enjoyed it so much because we were able to do awesome things and save every work we did together.*

*(PS FG 1)*

At the end of the project, I introduced the students to the concept of 'app smashing', during which they learned how to transfer the visual e-sheets created using Doodle Buddy to another app, enabling them to add their own audio recordings and organise the sheets in alphabetical order. All of the children recorded themselves pronouncing the newly learned letters and words using an app from the 'productivity' category called SonicPics, and added the recordings to the e-sheets created using Doodle Buddy to form multimedia alphabet books.

During the summative interviews and focus-group discussions, the young language learners expressed great satisfaction with the experience of regularly creating these digital sheets in pairs, as well as with the whole class's final design and production of the multimedia alphabet book. When I asked Nora to give her opinion of the class's final digital book, she commented as follows:

*It's very nice and very exciting [pointing to SonicPics app]; this is much better than the games, because they are sometimes boring, this one lets you see all of the hard work you have done with your friend every lesson.*

Yara agreed:

*I like it so much... It's not only my work with Dana but with all the girls together.*

Another interesting example of the children's socially constructed digital output is provided by the artefacts generated during the lesson on the words 'this' and 'that', as illustrated in the extract below:

*The iPad activities today were about learning the difference between 'this' and 'that'. The students were encouraged to show their understanding of the difference between the words by either drawing or taking photos and then creating sentences using 'this', 'that' and the words for classroom objects they have learned, such as 'desk', 'chair', 'computer', 'rubber', 'apple', 'bag', 'pencil', 'ruler', 'book' and 'pen'. The app that the students used to perform this activity was Strip Designer... I asked them... to use the two structures 'this is a(n)...' and 'that is a(n)...' to talk about the objects. I gave the students the choice either to take photos using the camera and then write very short sentences to describe them, or to draw pictures (using drawing apps such as Doodle Buddy) and then describe them in single sentences.... Each pair decided which object in the classroom to describe; they carried their devices around the class looking for an object to capture. I noticed one pair (Nora and Salma) pick up a ruler from a table and take two photos of it; one photo was of one of them holding the ruler, and the other one of a ruler far away on the floor. They then created two sentences describing the two photos, one using 'that' and the other 'this'. Another*

*pair carrying their iPad came to me and asked my permission to take a photo of my bag, and I agreed; they picked up my bag and took it to the other side of the class where they could take photos of it without being disturbed by the other students. They took two photos of the bag: one near the bag and the other far away from the bag, and wrote two short sentences describing the two photos, such as 'this is a bag'/'that's a bag'. Observing only the eight students in my group was difficult, as most of the class left their places looking for something to capture with their integrated cameras. While observing another pair (Hana and Nada), Nada picked up a rubber and Hana took a photo of it in her hand. They then built up a sentence describing it: 'this is a rubber'. In the second strip they drew (both Hana and Nada love drawing) a picture of a small rubber and something that looked like a hand pointing to it, and wrote using bubble speech 'that's a rubber'. I noticed that when the students wanted to show that an object was close to them (to use 'this'), they either enlarged the photo or drew a large object, and when they wanted to show that an object was far away (to use 'that'), they drew a small object to give a sense of distance or walked several steps away from the object and then took a photo of it. I also noticed that some students (Dana and Yara) took a close-up photo of an object in one strip, such as a pencil ('this is a pencil'), and in the second strip chose another object such as a rubber, put it on the floor several steps away from them, took a photo of it and made a sentence ('that's a rubber'). One pair didn't leave their desk to take photos (Shahd and Nouf); when I came over to look at what they were doing, I found that they were drawing a computer (the classroom has no computer) and a hand pointing to the computer, with the sentence 'this is a computer'. For the second strip, they imported a photo of an egg from the iPad photo album (taken during a previous lesson), drew a hand pointing to it and wrote 'this is an egg'. So they created different pictures to illustrate the single concept of 'this'. They also wrote the sentences differently, as instead of using bubble speech, like most of the students, they used effect text (a feature in the app). The two love drawing so much. The students were so excited by this activity... (Field notes, lesson 13)*

As evident from this extract, the mobility of the tablet seemed to play a considerable role in enhancing the students' social construction of their tasks. Consistent with the literature on tablet-based learning (Brown et al., 2012, Chen, 2013; Falloon & Khoo, 2014; Fisher et al., 2013; Sandvik et al., 2012), the mobility of the tablet (due to its small size and lightweight design) seemed to motivate the students to engage actively

in various collaborative and social-constructivist activities, as it enabled them to use the tablets in different locations in class. When using English-specific apps and some open-ended apps (e.g. animation, screen-casting and drawing apps), many of the children held their iPads on their desks or on their laps. The majority of pairs placed the tablet on the desk between them, using the fold-back case to enable them to share the display, interact with the content and easily take turns whenever they wished, as shown in the following transcript:

*We put the iPad in the middle between us, and then we can use it in turns, one time me, one time her.* (Farah, PL FG 3)

Sarah agreed:

*There were no problems between me and Hana, it [the tablet] was in the middle and we used it [together].* (PL FG 7)

On a number of occasions, I noticed that some students seemed more comfortable using the tablets on their laps instead of placing them on the desks, as illustrated in the following extract:

*Lana and Nada seemed to prefer using the iPad on their laps. I asked them why, and they said, "When it is on the table it slides off easily, whereas when we use it on our laps it is more comfortable and we can play games and draw faster."* (Field notes, lesson 10)

In addition, the children took advantage of the rotation feature to obtain a wider view of the content. The data analysis suggested that the children preferred the landscape mode to the portrait mode, as the former provided a larger viewing display, helping the students to see and use the tablet together. They were obliged to use the portrait mode when it was the only option available for a particular app:

*I noticed that the students tended to use the iPads in the landscape mode (while using Doodle, for example). However, when using the tracing app, they could not remain in the landscape mode as the app allowed only portrait mode. (Field notes, lesson 9)*

The focus-group interviews with the students confirmed the finding reported in my field-notes, as the students described in detail their preference for the wider view of the tablet screen enabled by the choice of landscape mode:

*Yara: I think it is better that way [changing tablet to landscape mode].  
Dana: So we can both use it together. (PL FG 4)*

Nada added the following:

*When we were holding it [the iPad], me and Lana, it wasn't easy for us to draw, but when we put in the middle on the stand [attached to the iPad case] and like this [putting the tablet in landscape mode] it was better. (Nada, PL FG 4)*

These findings support the idea that the tablets' wide viewing angle, enabled by their display rotation, and the ability to use them in different positions and places (e.g., flat on tables or attached to stands), have the potential to encourage students to use them as public work spaces, which in turn supports collaborative learning (Falloon & Khoo, 2014).

The students' collaborative and social-constructivist activities were significantly enhanced by the tablet's built-in camera, which encouraged the students to take advantage of the mobility of the tablet to actively co-construct language materials. In most of the lessons in which the children were asked to create digital artefacts that showed their understanding of newly learned words, I observed many students walking in pairs with their tablets in search of suitable items to capture and insert in

their works. In one of the lessons, I made the following observation:

*I noticed that one of the students (Nora) was standing in front of the projector and creating the shape of a duck using two hands; she was watching the shadow created on the whiteboard while her partner took a photo of it. (Field notes, lesson 7)*

This extract is an interesting example of the opportunity to use the tablet's integrated camera to actively and authentically co-construct knowledge. The camera appeared to encourage the students to co-produce interesting and creative works that might not otherwise have been possible. This affordance also heightened the students' enjoyment of the process of social construction. For instance, Dana offered the following opinion on the task of creating multimedia digital flashcards, for which taking photos was one option:

*So exciting... We all go and all the girls are excited, everyone is looking, we all want to take good photos.*

I noticed that when the children were engaged in socially constructed activities, various extended forms of collaborative interaction also emerged. For example, when I assigned the pairs a language task to complete, they started by planning the task and thinking of ways to collect or produce the required work. The planning part, as well as the subsequent stages needed to complete the task (e.g., data creation and presentation), involved negotiation, discussion, problem solving, task assignment, taking turns, scaffolding and peer support. These different forms of collaborative activities were mostly facilitated by the shared use of the tablet device. These findings are broadly similar to those of Sandvik et al. (2012), who indicate that bilingual young children's shared use of tablet apps encourages their collaboration, discussion, exploration and expression of emotions.

When analysing the data, I noticed that the children developed their own ways of sharing the tablet, specifically taking turns and assigning tasks. At the beginning of the project and during the introductory week, I introduced the children to the iPad class rules, including respect for others sharing the tablet and the need to take turns. These rules were also briefly presented in a large poster which I hung on the classroom wall to serve as a reminder to the children of the ‘dos and don’ts’ of iPad use. Although these rules helped to raise the children’s awareness of the importance of sharing and taking turns when using the tablet, they did not dictate specifically how the children should share their tablets. I provided them with clear guidelines but left them to manage their shared usage of the tablet in the classroom, and encouraged them to consult me whenever they needed.

Their joint experience often went smoothly; they managed sharing the iPad by negotiating convenient ways to take turns and assigning tasks that both agreed on. For example, when the children used interactive English-specific apps such as tracing apps and apps that allowed them to practise newly learned letters, words or numbers, such as the Starfall ABCs app, I noticed the following:

*The students were comfortable in sharing the iPad and taking turns without argument. Using separate sets of headphones perhaps helped to smooth this process. They were very cooperative, and I didn’t notice any students dominating the use of the iPad and excluding others. (Field-notes, lesson 1)*

More specifically:

*I noticed that the students made decisions on choosing who would start and how. For example, Lana and Nada decided that one of them (Nada) would do of all the numbers, and when she had finished, the app would be used by Lana. They seemed comfortable with this method. The rest of the group worked together on the numbers (for example, one practised ‘0’ and the second practised ‘1’, and then alternated roles) using the interactive app. (Field-notes, lesson 3)*

Other pairs shared the use of the interactive app differently, as shown in the following extract:

*I also noticed that some students were touching the same letter or the same word more than once to listen again to the sound or pronunciation. One pair was doing this so that both students could touch the screen before moving on to the next page, while others took turns in touching the screen not according to the page but to the letters (when one student finished touching a letter the other one touched the next one, and so on). (Field-notes, lesson 5)*

These observations were also supported by the children's focus-group discussions, in which they illustrated their preferred ways of carrying out their task while sharing the tablet, as indicated in the next transcript:

*Dana: When I used it [the Starfall ABCs app] with Yara, we didn't use it at the same time... no... everyone got one letter... then the second one got another letter, that way is nicer, but touching the same letter together is I mean less good. (PL FG 5)*

However, some students appeared to find the task of sharing the use of the interactive apps somewhat confusing in comparison with the productivity apps, which allowed them to plan their tasks in advance:

*Nora: When we use the tablet together, Lena's fingers and mine overlap when we touch the screen together in the Starfalls app, but in Doodle we used to decide on our tasks so our work was organised.  
Lana: Nada and me both like drawing but we decided to work in turns.  
Nada: I draw and write letters and Lana writes the words, then Lana draws and writes letters and I write the words. (PL FG 5)*

When using the productivity apps to create digital cards, comic strips, animated films or coloured e-sheets, the children seemed to be more organised. This may be due to the various sub-tasks included in each iPad language task, which required the children to think carefully about how to complete them together. For example, when Dana and

Yara were creating a comic strip to illustrate the words ‘this’ and ‘that’, they planned and agreed on separate tasks, as illustrated in the following transcript:

*Yara: We took photos; we took a close-up photo and a distant photo... I took the photos and Dana held the rubber.*

*Mona: Are you always the one who takes the photos, while Dana holds the object?*

*Yara: No, each time we change, one holds [the object] and the other takes the photo. (PL FG 13)*

The same pair seemed also to be also organised and confident in managing their roles during their co-creation of digital sheets:

*Dana: In Doodle, we first took a picture then wrote [the name of the captured object and its first letter], and then when we finished we showed it to you, after that we did a different letter, for example we took a photo of a fish...*

*Yara: We took the photo from here [pointing to a poster hanging on the wall].*

*Dana: She took the photo and I wrote. (PL FG 5)*

The data also suggested that the children occasionally tended to assign tasks according to their individual interests and skills. For example, if one of the pair liked drawing, she was more likely to be the one who drew, and if the other preferred taking photos or was good at searching the Web, she did that. This apportioning of tasks is illustrated in the next two extracts:

*Lana: I like drawing but Nada loves drawing more than me so in her turn she always chooses drawing and I sometimes take photos or search for a picture on Google, me then Nada, and Nada then me and so on.*

*Yara: We also do this when taking turns. (PL FG 11)*

*The students then started designing their own comic strips; I noticed that some started by inserting all of the images, photos or drawings that represented the colours they were learning then added the text to the images, but the majority designed one strip at a time. For*

*example, one pair (Dana and Yara) chose to draw their own comic strips and started with a red bag. Yara likes drawing and Dana doesn't, so they decided that Yara would draw and Dana would add the text. I then suggested that they switch so Yara could write the text and Dana could add a photo or image if she preferred not to draw. I noticed that Yara drew a green cake, a white bird and a red bag. (Field-notes, lesson 8)*

Sharing the tablet with their peers in the classroom seemed to encourage the students to learn the principles of sharing with others and how to manage any challenges that emerged, as shown in the following transcript:

*At home everyone has his own iPad or iPod... my sister has an iPod... me and my brother have our own iPads... everyone has his own... but here two people have one iPad... me and Nada, I mean, each one of us used to pull it over to her side but we agreed to put it in the middle and each of us does our own task; Nada, for example, draws and I take the photo, she fixes the headphones and I write, so we tried to cooperate with each other in rolling the tablet (i.e. rolling the earphones around the tablet), finishing [the task] and putting it [the iPad] back in its place. (Lana, PL FG 5)*

One of the most interesting findings to emerge from the data regarding the students' behaviour when sharing the iPads was the students' extensive peer support, which was prominent throughout the study. The affordances of the tablet seemed to considerably enhance the children's peer support; more specifically, the portability of the iPad and the large multi-touch screen encouraged the students to offer scaffolding, assistance and evaluation. The observed role of these affordances in encouraging and facilitating students' peer support is consistent with the findings of Sandvik et al. (2012), who suggest that tablets' portability and large shared screen encourage young bilingual children to engage in extensive pair and group support; the children in their study helped each other, asked for and offered information and jointly solved problems. Throughout my study, the children provided their peers with assistance and feedback, and helped each other to complete problem-solving activities. As well as bringing the

tablet to me when they encountered a problem, the children sought help from their more capable peers. The children often took their iPads to other students for help with a linguistic or technical problem. Indeed, the students' peer support was almost habitual in most of the tablet-based lessons, as acknowledged in most of the interviews and focus-group discussions and observed in class. The children indicated that the support they received from their peers and from me helped them to overcome the challenges that might interrupt their tablet ELL. As Sarah said:

*The apps became easy because I used them with my friend; I mean she taught me and you taught me... and you gave us instructions... and I ask Hana and if Hana doesn't know we ask those next to us and if they don't know we ask you.*

Unsurprisingly, while learning a new language and working with new apps, the children faced linguistic or technical challenges. Although the young participants owned and used iPad tablets and other computing devices at home, their level of technological competence varied. The young EFL students frequently brought their iPads to me or others for technical assistance. The children seemed to turn to each other whenever they encountered a technical problem, such as difficulty resizing an image, saving an in-app recording or resolving a sound issue, as illustrated in the following extract:

*Farah and Sarah told me that they were both unable to hear their recording. I asked them if they had checked the volume and the headphone connection, and they said they already had, so I brought them a spare set of headphones and they were still unable to hear. I thought that there was a problem with the app itself, but the problem had already taken a really long time and I wanted to focus on the rest of the group, so I asked them to wait two minutes for me to come back to them. Once I left, the pair next to them (Yara and Dana) took their device and checked the volume and found that it was too low, so they called me over to tell me about their discovery. I told them that the pair had said the volume was fine. (Field notes, lesson 6)*

The large tablet screen allowed better viewing, enabling the children, especially those sitting next to each other, to notice any problems their peers were experiencing and give them instant help or work with them to solve the problem. Sarah, for example, indicated that she sought help from the pair seated next her when she did not know how to start creating a digital flashcard:

*I didn't know how, I didn't follow your instructions, I was busy with the earphones, trying to fix them, then I pressed something that took us somewhere, I was afraid that I had gone to the wrong settings so I touched the 'back' arrow twice... then I asked the group next to me, I guess Nora, she told me press this first, then the fifth choice [demonstrating on the tablet] and it became easier. (PS FG 1)*

In addition to the technical support the children received from each other, they helped each other with linguistic challenges. For example, the children turned to each other when they wanted to check the spelling of a word on the iPad screen or a pronunciation recorded on the device. The lightweight design and mobility of the tablet made it easy for the students to hand it to each other whenever they needed help, consistent with other studies indicating the roles of tablet mobility and lightness in enabling the smooth passing and sharing of devices between students whenever needed (Brown et al., 2012; Falloon & Khoo, 2014; Fisher et al., 2013). The extract below shows how the students provided each other with help during the guessing game, in which they had to ask questions using the structures they had learned and guess the name of classroom objects drawn using the iPad:

*The students were helping each other a lot today. For example, a student drew a pencil and asked her partner, 'What's this?' Her partner was not sure whether it was a pen or a pencil. She was saying 'pennn...', 'pennnnn...', and her partner helped her by saying 'pencil'. The same happened between pairs: I was watching a pair and noticed one drew a book and her partner guessed it by saying it was a bag and wrote it down (Sarah and Farah); however their classmates (Yara and Dana) discovered the mistake and told them that it was a book not a bag. ... Yara finished her*

*activities early with Dana and volunteered to help other students; I noticed that she was helping even those on the other side of the class with the spelling of the new words. Two pairs came to her carrying their iPads and I noticed they were showing her something on their screens. (Field notes, Lesson 11)*

The above transcript presents an example of the scaffolding provided by more capable peers and facilitated by the use of the tablet. The data analysis indicated that the children's extensive peer assistance and scaffolding was greatly mediated by their shared use of the tablet and its affordances. Hutchison et al. (2012) also report that the children in their study engaged collaboratively in problem-solving activities when they used the iPad, which enhanced their interaction during the learning tasks. In addition, Ciampa (2013) pointed out that using the tablet collaboratively for learning promoted peer support and encouraged helping behaviour. These collaborative tablet-based activities seemed to satisfy the children's need for relatedness and connectedness to their community of learning, which in turn motivated them to use the tablets for ELL. The data reported here are in line with those presented by Vesey (2013), indicating that the use of an iPad helps to motivate adult students in group-dance activities by encouraging them to interact closely, support each other, collaborate and hold group discussions, which support their need for relatedness with their peers and in turn motivate them to undertake learning tasks.

The children's enormous engagement in collaborative and communicative activities while using the tablet, including their extensive provision of support for each other, was one of the most surprising findings to emerge from the data, given the traditional, non-communicative teaching and learning approaches to which they were accustomed. The students were used to passively receiving information from the teacher, who took the role of the main provider of information and the only evaluator and assessor.

Interestingly, however, the shared use of the tablets by the young English language learners appeared to encourage a shift from a teacher-centred approach towards student-centred and collaborative learning. This observation is consistent with the findings of Cochrane et al. (2013) and Sullivan (2013), who report a shift from lecture-based environments to more collaborative learning environments following the introduction of tablets; the students in their studies participated more actively and increasingly interacted with peers and teachers. In the current study, although I had designed the tablet-based English language activities to enable the students to share the tablets fairly, their active collaboration, interaction, social construction of learning materials and assistance and support for each other were unanticipated, given their traditional educational system. On some occasions, the students resisted collaboration and preferred to work individually, monopolised the tablets and/or were too vocal in expressing their own ideas, imposing them on their partners (see Section 5.2.4.2). However, these instances were individual cases that did not have a substantial effect on the children's peer collaboration and communication. Despite occasional disagreements or conflict, the students stressed their preference for sharing the tablets with their fellow students, as this encouraged their collaboration and communication and cultivated their friendships with others in the class.

### **5.3.2.2 Friendship and Family Connections**

The use of the tablets for ELL seemed to develop and foster the students' friendships. The study took place at the beginning of the school year, and although the majority of the students knew each other from the previous year, they were not all in the same class as their close friends, as they had been randomly allocated to the two 4<sup>th</sup>-grade classes. Sharing the tablets with their peers during the English lessons seemed to

increase the students' inclusivity, encouraging them to engage in more positive peer relationships. This has also been observed by Ciampa (2013), who reports that the use of mobile technologies, including tablets, enhances intergroup relations. In the current study, the data reflected the students' tendency to refer to each other as 'friends' rather than, for example, 'classmates', which may suggest the students' strong sense of friendship despite the recent start of the school year and the allocation of students from different groups to the same 4<sup>th</sup>-grade class. For instance, when the children were asked to give their opinion of sharing the iPad with their classmates, the majority expressed a strong preference for sharing the tablet with their friends, despite the challenges that might occur as a result, and commented that it was more enjoyable and fun than working individually. Nora, for example, remarked as follows:

*I like to use the iPad with my friend. I don't like to use it on my own at home. When I want to play a two-player game I have nobody to play with... My brother is much younger than me.*

Similarly, Sarah asserted that sharing and using the tablet with her friend in class was more exciting and entertaining than using it by herself at home:

*We use iPads at home, but using them with our friends is more fun. At home I'm lonely... But in school Hana and me touch the same letter together and laugh oh no no [the group giggles]. (PS FG 1)*

Not only did the children have fun and enjoy using the tablets with their friends, but their collaborative iPad activities seemed to encourage those who were shy, less engaged and less willing to participate due to learning difficulties such as stuttering and stammering:

*While I was observing the group, a pair came to show me the screen-casting of their game. They were the first to finish; they drew all of the objects and asked and answered the questions correctly. These two girls are usually slow at carrying out their English tasks, but I have recently noticed a huge improvement; they have more self-confidence, and Rana seemed so*

*excited about showing her work with Aiysha. Today she was the one who explained the process of filming; I was so impressed with her, she seemed to forget about her stammering and expressed herself so confidently.* (Field-notes, lesson 12)

This observation was also confirmed by the student's active participation in the final focus groups; Rana was very confident in describing and discussing her experience with the other members of the group. The role of tablet-based collaborative learning in encouraging students to overcome their shyness and increasing their participation has been highlighted by Ciampa (2013), who indicates that students' peer support resulting from their shared use of tablets improves the inclusion of academically challenged students.

Furthermore, the students carried out various types of paired iPad activities during their English lessons, ranging from simple interactive activities to content-generated ones. This variety offered the children ample opportunities to play with their partners, which they hugely enjoyed and appreciated. For example, during the second final focus group interview, I asked the children about their experience of creating their own animations as a way to orally practise their newly learned English structures and dialogue. The majority enjoyed using PuppetPal 2, as it allowed them to play with their friends, as noted by Yara:

*I used to hide from Dana while she was looking for me [referring to the animated characters] [they both laugh].*

Similarly, Aiysha said:

*I like this so much [pointing to Socket Poppet app]; it's so cool. I speak with Rana, and our voices become so funny [they imitate the voices and all laugh].*

My observations of the children's interaction while using the tablet in the class revealed their increased excitement and enjoyment as a result of sharing the tablet and playing together:

*The students today were again so collaborative and enjoyed playing the games together; they were laughing, giggling, sharing the images they found using Google, and sharing their paintings. (Field-notes, lesson 14)*

These findings are similar to those of Gasparini and Culen (2012), who report that primary-school children enjoyed sharing their iPads in the classroom while playing and pursuing other activities.

Another interesting finding obtained from the data concerns the transformation of the children's relationships from competitive to supportive and co-constructive, specifically during their game playing, as indicated in the following extract:

*Although the students were playing a game, taking turns and recording their scores, I was surprised to see that they were also helping each other to create a word using the 3D letters the teacher gave them. Their task was to take a photo of an object and then for one to ask the other a question about the object. They seemed to forget about their competition and that one of them should choose an object, film it and then ask her partner a question about it. Instead, they both seemed immersed in co-creating a word and helping each other to film it. For example, Huda and Ward together formed the word 'apple' using the 3D letters, took a photo of it, and then one of them asked the other, "What's this?" Her friend answered, "It's an apple." Then they exchanged roles and created the word 'cat'. The one who had answered in the previous game was the one who asked her friend in the following game. (Field-notes, lesson 15) (See Figure 5.4 below.)*



**Figure 5.4: Transformation of students' relationship from competitive to supportive and co-constructive during game playing**

The previous extract shows that the affordances of the tablet, such as its mobility and its built-in camera, encouraged the students to engage in supportive behaviour and strengthened their friendships. The change in the pairs' relationship from competitive to affirming and critically constructive of each other is consistent with the findings of Falloon and Khoo (2014), who point out that such a change is encouraged by the iPad's large screen. In their study, this affordance enabled 5-year-old students to concurrently view and interact with the content.

Interestingly, the students' in-class iPad ELL practices were extended to their homes, where the students visited each other and engaged in tablet activities:

*I used Doodle and TinyTab with Amira, Nouf and Nada, we're neighbours, we used them to practise the English letters, even the ones that we haven't learned yet; they taught me and I taught them as if we were teachers, they drew and wrote the letters and I took photos for them and wrote the letters and words we are learning (Reem, PS FG 1)*

In the same vein, Huda excitedly described a visit from a friend during which they played a letters race:

*Yesterday Salma came to my house and we played in Doodle the game of who can finish writing the English letters first. (PS FG 1)*

As well as developing and enhancing the students' friendships, the use of the tablets for ELL seemed to strengthen the children's family connections. The students reported that they regularly showed their parents, siblings and relatives the iPad activities and apps they were using in school. Amira, for example, indicated that she frequently showed her mother her digital works on the iPad:

*I benefited from the iPad in recording the stuff I'm learning in English, also I go to the English games and I have fun playing them and after a number of days I find that I have memorised them, and when I show what I made to Mum she asks, "What's this?" And I tell her in Arabic. While Mum's working in the kitchen I come to her and let her listen to my recordings and she asks, "What's this?" and I tell her. (PS FG 3)*

Another student, Nada, described her happiness when her family enjoyed her animation show:

*Nada: I let this dog talk here with the girl [pointing at the Socket Puppet app], I loved it so much, I made a comic film at home and everyone was laughing [she laughs].*

*Mona: Your family?*

*Nada: Yeah, Dad, Mum and my sisters.*

As well as showing their family members their iPad activities, the children enjoyed playing iPad language games with them. They mainly used the apps they worked with in the English class, but seemed to invent their own games, as illustrated in the next transcript:

*I like it [the iPad] so much. I have learned a lot of things, like Doodle and other drawing apps; at home when I finish my homework I play on the iPad. I play with my sister Anood as if we are at school. Anood is 11 years old. Sometimes she's the student and sometimes I'm the student, and sometimes she's the teacher and sometimes I'm the teacher, I teach English and she teaches Arabic and so on. I tell her that 'spoon' means milakah ['spoon' in Arabic]. I pick up words and teach her. Sometime I write words in the dictionary, and if I know their meaning then I teach her. (Salma, PS FG 1)*

The majority of the students enjoyed creating professional animated films with their siblings or other young relatives using creative apps (such as Toonastics): they created their own characters and settings (or used ready-made ones) and then recorded their own imaginative stories using the structures and vocabulary they had learned in their English class, as indicated in the following transcript:

*I have wanted to make my own animations for a long time. I only used to create them on paper or paint them on the iPad, but now I am able to create animated adventures and beautiful stories with my sisters. (Nada interview)*

Additionally, the children were able to save their digital language output and show them later to others. Screen-casting apps (such as Showme) were regarded as enjoyable, as they enabled the students both to record their productions and drawings while using the app and to save and show them to their significant others. This was pointed out by Lena, as follows:

*For example, I wanted to show my cousin what I had done but she left early before I had time to show her, so I saved it and was able to show her my work [later]. For example, when she came the following day I showed her my work from the beginning to the end.*

The various capabilities, multimodality and multi-functionality of the tablets helped to enhance the students' pride and self-efficacy by allowing them to demonstrate and

share their digital productions to and with significant others, such as close friends and family. This is confirmed by Henderson and Yeow (2012), who report that the use of the iPad to create and share digital work with peers, family and teachers develops students' feelings of empowerment and pride in their output, and increases their engagement with the learning activities, resulting in higher-quality work. The students in this study frequently reported showing their family members their digital language output. They expressed feelings of pride and empowerment each time they shared with others their animated films, digital flashcards, comic strips, and audio recordings of English songs, or their digital drawings representing the new letters and words they were studying. They were eager to show their creative works to impress those close to them and were thus happy to receive praise and compliments. For instance, Nora indicated how proud she was to show her family her personal digital flashcards:

*When making a flashcard, I record the new word with my voice... when you show it to your family they feel proud of you... I feel I did something... So my family will be proud of me and they will know that I can make amazing things... I choose images with beautiful colours and then I choose the words that we are learning so when they open the flashcard they are surprised to hear my voice.*

Similarly, Yara indicated proudly that her young relatives regularly ask her to download them apps from the list I gave them:

*On Thursdays [the equivalent of the weekend in Saudi Arabia] my cousins bring their iPads to me and ask me to download Puppet Pals 2 and this and this and this [points at each category of the productivity apps]. They choose them from the list. (Yara interview)*

Lana was pleased that her cousins turned to her whenever they had a school project because of her expertise in using Google:

*When you gave us the list [of recommended apps] Google was among them, I downloaded it, and I didn't only benefit from it for English but I also started helping my cousins with their school project whenever they needed to search on Google Images.*

Additionally, many of the children reported that they enjoyed teaching their younger siblings (and even adult members of the family) new English words, and showing them how to create animations, mini-digital stories and educational games. A number of children, for example, expressed a preference for the iPad Blackboard app, which improved their performance by allowing them to play the role of teachers helping younger students (their siblings) to learn the English language. Nada, for instance, said the following:

*Nada: I used to have a blackboard and chalks and we used to draw on it but here [pointing to the Blackboard app] I'm like the teacher who teaches her students with the iPad, I write '7' and Amira writes '7', I teach my students numbers and colours.*

*Mona: Who are your students?*

*Nada: Amira and Nouf.*

Lana's experience was similar:

*I use Blackboard a lot; I choose for example a lot of colours [demonstrating on the app], here for example I drew lines and here I drew in white, here in green, here in red, here in yellow, each one has a painting and then I play with my brothers the game of colours, I draw, I ask and they learn from me ... I teach my brothers what I have learned at school.*

These findings were confirmed by Gasparini and Culen (2012), who report that primary-school children were delighted and proud to demonstrate their skills on the iPad to family members, and enjoyed teaching their younger siblings how to use easy apps. In this study, the English-language skills the children acquired during the tablet project gave them opportunities to transfer these skills to significant others in their families, even older and adult relatives. Nada, for instance, happily and proudly

indicated that whenever she learned something new she taught it to her mother, as shown in the following transcript:

*I search for stories in English [using the iPad]. I try to memorise them and then I tell them to Mum... Mum and Dad only know how to speak French, they don't know English well so Mum always says anything you learn in English come and teach it to me so when I learn something or watch a story [means visual e-books] I say it to Mum, she knows little English, French is a bit similar to English but she wants to learn more.*

The children not only displayed and taught their linguistic and digital skills to adult members of their families, but on many occasions proudly showed me their own tablet discoveries. For example, a student who seemed particularly tech-savvy frequently showed me new features or options in apps:

*Hana: ...here in Doodle if you don't like your drawing you can simply shake it like this and it can be deleted [demonstrating excitedly].*  
*Mona: Wow, awesome. (Hana interview)*

The children seemed so proud and empowered when they showed me something I didn't know. Taking the role of a teacher or technological expert enhanced the students' pride and self-esteem and encouraged them to teach and impress me further with their digital skills and expertise in using the tablet, as reflected in the next extract:

*Yara called over to tell me that she had discovered a new feature that changes image effects. I asked her to show me, and she pressed –page– then pressed –page FX–. She was extremely happy and proud that she had taught me something new. (Field-notes, lesson 8)*

These findings show that tablets allow adults to take the role of learners while young students take the role of experts. This chimes with Ciampa's (2013) finding that the integration of tablets in a classroom of young learners reversed the role of the students

and teacher, as the students taught their teacher about the new functionalities of the tablet and some new apps.

The use of the tablets for ELL appeared to enhance the young EFL students' sense of friendship and strengthen their family connections. The data analysis revealed that the children's sense of connectedness and relatedness to significant others such as their friends, family and community of practice increased as a result of their tablet ELL experiences, which in turn motivated them to use these devices to learn the English language, as this experience satisfied their need to belong. This is in agreement with SDT (Deci & Ryan, 1985; Noels et al., 1999; 2000), according to which supporting such feelings of connectedness and relatedness is necessary to enhance students' intrinsic motivation and facilitate their internalisation of extrinsic motivation to learn.

### **5.3.2.3 Sharing Generated Digital Works with Others**

In this sub-theme, I report on and discuss the ways in which the young EFL students used the tablets to share their digital output with others, and how this mediated and enhanced their social interaction and collaborative learning and as a result motivated them to use these technological devices to learn the English language. The entire English class shared their digital language artefacts through two main channels: in-class projecting and tablet blogging outside school hours. In most of the English classes, especially those involving the creation of digital artefacts, the students were encouraged to share their tablet productions with their peers through the projector, as illustrated in the following extract:

*Those who created comic strips that successfully reflected their understanding of the school objects they were learning had my permission*

*to share their work with the rest of the class using the projector. (Field-notes, lesson 11)*

At the beginning of the study, I connected the students' tablets to the projector so every pair could share their work with everyone else in the class. Later, however, the students learned to do this by themselves, so as soon as I had checked their artefacts they were able to connect their devices to the projector (Figure 5.5).



**Figure 5.5: Students sharing their digital productions with the class using a projector.**

The students were very excited by the opportunity to project their works and share them with their peers. The mobility of the tablet not only allowed the students to connect their devices to the projector but encouraged them to move around the class showing and sharing their created digital content to and with the others. My recorded observations suggested that sharing their creations with other students in the class enhanced the young EFL students' interaction, discussion and peer feedback. When projecting their work to the rest of the class or sharing their productions with each

other, the children often received compliments and praise such as “Wow, look at this,” “I like it,” and “Beautiful!” They were also asked questions such as “How did you do this?” or “Where did you get this image from?”, or were given suggestions and advice on, for example, a faster way to save images created in apps or how to improve handwriting by making the font thinner. This experience motivated the children to work hard to produce creative artefacts to impress their friends. One of the most interesting artefacts the students produced using their tablets was the class English alphabet digital book, which was shared with the rest of the class using the projector. This activity was evaluated extremely positively by the students, who were very excited about sharing their work with their classmates. Lena, for example, cherished this experience, indicating that the saving feature enabled the students to collectively store their memories and share them with each other:

*I like it so much... the best thing is that it saves all our works as an English book, so that we can turn its pages but here I can hear my voice and the voices of my friends... it saves all our effort and everything we did from the beginning and shows it to us.*

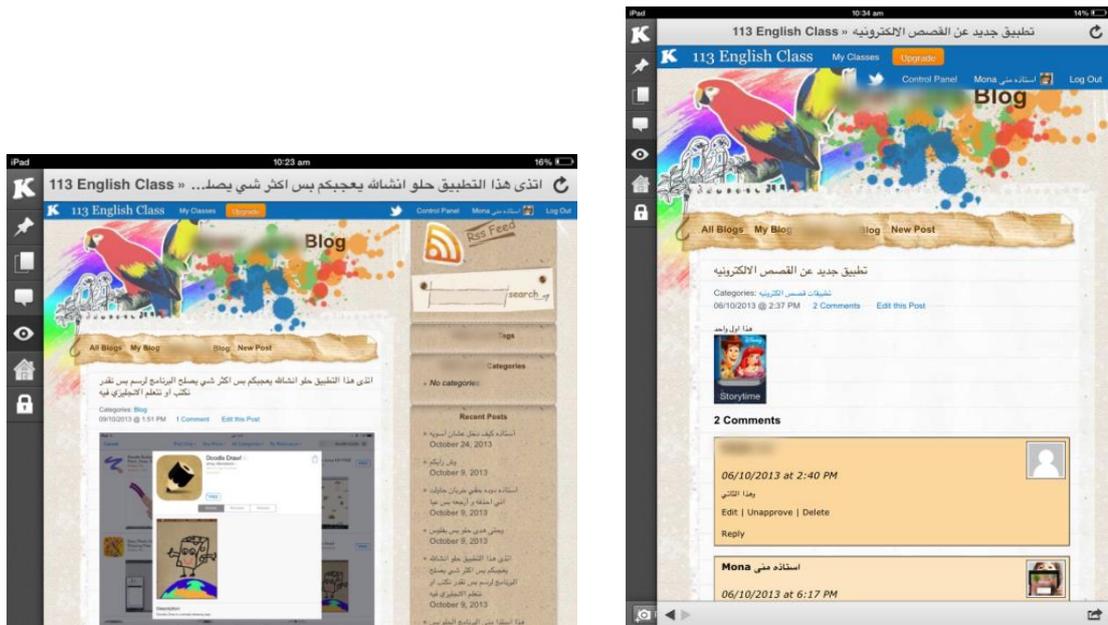
This finding is broadly in agreement with those of Sandvik et al. (2012), who report that projecting young children’s activities by connecting their tablets to a large wall display enhanced the children’s collaboration and increased the interaction between the child controlling the iPad and displaying the app and the rest of the group, who offered suggestions and advice.

In addition to disseminating and sharing each other’s digital output in class, the children also engaged in tablet blogging outside school. This allowed them to interact virtually with their peers and share their iPad ELL experience outside the classroom. Although (due to technical and social challenges) the students were less interactive in

their blogging than I had expected, this new experience introduced them to a novel learning platform that extended the limited hours of their language classes (Betts & Glogoff, 2004) and enabled more asynchronous and synchronous interaction with their peers, as indicated in the literature (Alm-Lequeux, 2006). Benefiting from the mobility, instant accessibility and immediacy of information sharing provided by tablets and other mobile devices, these face-to-face and online group activities seemed to enhance collaborative learning by encouraging active and meaningful interaction and spontaneous communication between learners (Kearney et al., 2012; Kukulska-Hulme & Sharples, 2009; Sharples et al., 2007). Huda, for instance, expressed her appreciation of the iPad ELL project because it introduced her to blogging as a new means of interacting with her friends, as she indicated below:

*I love the programme, because we have learned a lot about using the iPad, one of these things is that there is an app called Blog, we can chat with our friends even during the holiday, it's better than other stuff like texting. (PS FG 1)*

The tablet-based blogging seemed to encourage the students' educational use of the tablets, as it enabled them to share language and digital resources such as newly discovered apps (Figure 5.6) with their peer group.



**Figure 5.6: Use of blog to share language and digital resources**

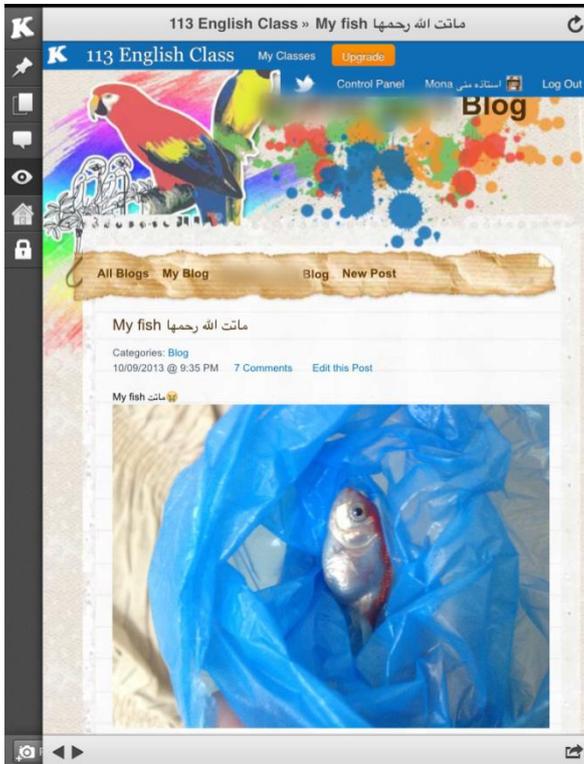
Many of the students with open access to the Internet regularly posted their digital work (Figure 5.7) on the blog and frequently checked the blog for comments on their posts or for their peers' posts, even if they visited family or left town at weekends. This eventually seemed to result in increased peer interaction and collaboration, consistent with Davies' (2014) findings that adult students' collaboration and interaction was improved by the use of tablets to create learning materials and then upload them to a Wiki page on which they could all discuss and provide feedback on others' work.



**Figure 5.7: Use of blog to share digital productions**

The multi-functionality of the tablet, including its built-in camera, facilitated the children's authentic creation of language works, while the blog encouraged them to share these works with their community of practice. One interesting post was Amira's response to the death of a pet fish: she took a photo of the dead fish using her tablet

and shared this sad news with her friends using English words she had learned ('my fish'). However, she had to use the Arabic word ماتت (died) to convey her full message (Figure 5.8).



**Figure 5.8: Example of authentic language production in blog post enabled by tablet camera**

The data analysis suggests that the students enjoyed the tablet blogging experience because it introduced them to a new channel for sharing their works and ideas, meeting their friends, and receiving feedback. As Sarah put it:

*I can chat to my friends on the blog... I mean by writing... if I don't know something I ask my friends and they straight away tell me. There is always one of my friends to answer my question.*

This is in line with Davies (2009) who indicates that social elements of the Web are perceived as a means of extending existing relationships, offering an extra channel for the development of friendships, and a context in which important socialising occurs.

On a number of occasions, the students encountered problems while using the tablet or one of its apps, and shared their problems with their peers by posting illustrative snapshots (Figure 5.9). In response, several comments were posted by classmates containing suggestions or solutions.



**Figure 5.9: Blogging about problems with apps**

The students' blog-based interaction seemed to extend their face-to-face communication and promote more collaborative learning, as it increased interaction, peer feedback and access to language and digital resources. Although the students' engagement in tablet blogging was limited, the data suggest that even this modest experience fostered the students' sense of belonging to a community of practice and thus motivated them to use the tablets for ELL. These findings are confirmed by Chen (2013), according to whom adult English students successfully used tablets to blog

about their work in progress, exchange comments and discuss their learning tasks. This enhanced their interactive and collaborative LL and encouraged them to value each other's productions. Lynch and Redpath (2012) also suggest that sharing digital iPad productions with significant others on schools' Twitter pages and YouTube channels increases their feelings of excitement and pride. Mobile devices offering Web 2.0 tools such as blogs and Wikis have also been proposed to support language learners' sense of belonging and relatedness to significant others (Alm-Lequeux, 2006) by offering learning platforms that encourage social relationships, improve peer interaction and promote socially constructed forms of learning (Cochrane & Bateman, 2009).

The findings reported so far for this sub-theme suggest that the use of tablets by young EFL students promoted and increased their collaborative and socially constructed forms of learning, developed and enhanced their friendships and strengthened their family connections, and facilitated the face-to-face and online sharing of their digital creations with significant others. This social aspect of the tablets' use seemed to satisfy the students' need for relatedness and thus motivate them to use the tablets for ELL. The sense of relatedness and connectedness generated and developed from students' engagement in socially constructed and collaborative activities was significantly mediated by the tablets' distinctive affordances, such as their mobility, large rotatable multi-touch screen, integrated camera and provision of a variety of open-ended apps. The students' use of the iPad for ELL appeared to develop and foster a community of practice whose members collaboratively created an ecological environment in which they intensively socialised, communicated, exchanged ideas and hence learned (Palalas, 2011). The findings of this study are supported by SDT (Deci & Ryan, 1985; Noels et. al., 1999; 2000) and other studies applying SDT (Alm-

Lequeux, 2006; Comanaru & Noels, 2009; Deci & Ryan, 1991; Ryan, 1993; Ryan & Deci, 2000), according to which providing students with opportunities that satisfy their need to feel valued, secure and closely connected to significant others can cultivate and sustain their intrinsic motivation to learn. LL is a social process, and the young language learners appeared to take advantage of the opportunities provided by the tablet's affordances to socially interact and meaningfully communicate with significant others (e.g., their learning community in the class and family members), which supported their innate desire for relatedness and accordingly facilitated and motivated them to use the tablet for LL (Alm-Lequeux, 2006; Goldenberg, 2013; Vygotsky, 1978).

### **5.3.3 Positive Learning Experience**

One of the themes to emerge from the data analysis regarding the motivational aspects of using the tablets for ELL was the children's positive learning experience; the children expressed positive attitudes towards using tablets for ELL. These positive attitudes can be generally attributed to the motivational qualities of the tablets discussed earlier in this chapter (i.e., the technological affordances of the tablets and the social interaction encouraged and mediated by their use), which seemed to enrich the children's ELL experience and motivate them to use these devices to learn English.

Despite the children's ownership of and familiarity with tablets prior to the study, there were some concerns about the sense of novelty created by using tablets for the first time in class as a learning tool. The risk of this sense of novelty diminishing over time or what Davies and Merchant (2014) describe as "the allure of the new and

‘shiny’”, is one of the main concerns raised in previous studies of the introduction of technological devices, especially tablets, to educational settings (Ciampa, 2014; Davies, 2014; Gasparini & Culen, 2012). However, the summative focus groups and individual interviews conducted with the children at the end of the two-month study indicated that the use of tablets resulted in both better and more enjoyable English learning. This is consistent with earlier research indicating that the use of tablets in educational settings is practical and enjoyable, and in turn enhances students’ engagement and motivation (Dundar & Akcayır, 2014; Ward et al., 2013).

Interestingly, at the end of the study and during the summative data collection, the children continued to show great enthusiasm for the use of tablets for ELL. The children’s positive reports (and their ongoing enthusiasm) may have been due to their belief that the tablets offered them a better and more effective ELL experience. The children appreciated the new ELL opportunities made possible by the tablets’ affordances. When I asked the children to describe their perceptions of the use of tablets for ELL, they indicated that using tablets improved their ELL:

*Yara: The iPad helped us a lot in learning English, like I knew how to sing in English, how to talk in English, how to pronounce good English letters [sic] and also how to write them.*

*Dana: It’s wonderful because at the beginning we didn’t know English and we didn’t know how to write anything in English but now we’re better we can sing, some apps have songs, and we can pronounce the letters very well.*

*Yara: Sometimes there is a song for each letter.*

*Fatimah: The experience is awesome. Before I used the iPad only for playing, but when you came I started downloading the important apps that I could learn from. I started practising English better. The iPad wasn’t important to me [before] but now it is very important, like when you asked us to download English apps I downloaded them and also I downloaded apps with English songs and apps for letters like ABC you can play, memorise and colour.*

*Aiysha: The programme [i.e., the project] is very nice, you can study using it [the tablet]. Before I wasn’t able to write in English – I used to ask Mum to write letters for me – but using the iPad now and with Rana’s help I have started to understand how to write letters...it made learning English easier*

*for me, like it sings the letters and repeat them, memorising became easier.*  
(PS FG 2)

On the same lines, Nada pointed out that practicing conversation using the tablet helped her to speak English confidently with others and thus encouraged more authentic language use in real-life situations:

*I learn better this way: I can memorise and talk better in English and if I meet an English man or woman I can say 'hello' or 'hi'. Yesterday our new neighbour visited us, she speaks English, and she said "hello" to me, I said "hello" then she said, 'What's your name?' I said, "My name is Nada" and I said, "What's your name?" She answered, "My name is Jana." Like I do in the cartoons [i.e., the animation apps].*

Sarah agreed, arguing against the claim that using tablets may hinder learning by immersing children in playing games:

*Some people don't like iPads; they think they waste our time and make us forget what we learn and that playing a lot in some apps destroys the memory and makes one stupid, but I think, I remember, it's the opposite, I learn with it. (PS FG 1)*

The previous extracts suggest that the children's ELL was improved as a result of using tablets in the classroom and beyond. This is particularly interesting given that the children were beginner-level students still learning the basics of English, and yet expressed feelings of confidence and achievement as a result of their experience. This positive experience in turn appeared to enhance their self-determination to use the tablets for ELL. These results differ from one of the findings reported by Kinash et al. (2012), but are broadly consistent with the authors' other results: the participants provided neutral feedback on the efficacy of the iPad in improving their learning, but reported a positive experience of using iPad apps and were highly motivated to use

them for learning. The findings of the current study also chime with those of Butcher (2014), in whose study adult students reported enhanced learning in and outside the classroom as a result of the use of tablets.

In addition, learning in a fun and enjoyable way emerged as another factor that seemed to enhance the children's positive learning experience. This is supported by earlier research by Jones et al. (2006) and Jones and Issroff (2007), who identify fun and enjoyment among the most motivational aspects of using mobile devices for learning. Using the tablets seemed to increase children's intrinsic motivation and self-determination to learn, as well as improving their engagement with the LL content, as they found using them both enjoyable and useful. This was illustrated by Lana, who indicated that using tablets made her more excited and enthusiastic about learning English:

*I like it, we usually study in a normal way: we study, write, go home, eat, sleep. It wasn't like this, I mean I used to hold the book and memorise and repeat several times like what I do now with the other subjects. I sit for hours I have to memorise memorise memorise and I make mistakes and sometimes forget. But when we have a lesson with the iPad I go and pick up an app and practice with no trouble, [it's] not boring or anything; I learn quickly and use it whenever I want; like if I want to talk in English I can speak and record [my voice].*

Nora shared Lana's opinion, indicating that using the tablet helped to reduce the boredom of routine studying at home:

*It's very useful, I mean I forget a lot because I get bored quickly from studying at home and I don't like to study from textbooks but now I am more excited about studying English because I like the iPad.*

According to Nora, the fun and enjoyment added to her learning experience by the tablet was due to its multiple affordances, which offered her a greater variety of more personally relevant choices for learning:

*I like it because it's refreshing. If you don't like drawing you can take a photo and if you don't like taking photos [you can] search for something using Google. You can find whatever you like. (PL FG 9)*

Additionally, using tablets to learn English appeared to reduce the children's anxiety about learning a new language, as indicated by Farah:

*The programme is awesome, I like it so much. I was confused and nervous before starting the English lessons, I didn't know what the capital letters are or what the small [lower-case] letters are, I didn't know them but I know them now and I know how to say the words and write the letters on the iPad. It's easier and more fun. (PS FG 2)*

Anxiety about learning a language has been identified as one of the main challenges faced by language learners, especially FL beginners and intermediate students (Tamara et al., 2008). This anxiety may increase their affective filter and thus reduce their willingness to learn the language (Krashen, 1982). However, using tablets to learn the new language seemed to reduce the children's anxiety. A possible explanation is that the children were learning with tablets in pairs, so making errors was less embarrassing than making them in front of the whole class. In addition, the children enjoyed the tablet activities and found them to improve their language skills, which probably enhanced their competence and confidence and thus reduced their anxiety and motivated them to learn the language. These findings resemble those of Rau, Gao and Wu (2008), who report that delivering language input via mobile technologies (SMS)

motivated students to learn the language and reduced their anxiety, although it did not improve their performance.

As discussed earlier, the use of tablets seemed to support the students' need for relatedness, autonomy and competence which thus increased their motivation and enhanced their positive ELL experience:

*Dana: Even at home. We are more excited to go home and work on the iPad after doing our homework.*

*Fatimah: I like that even when we go home we learn better; we practise the words, say them and we understand them like when you come and we work on the iPad it's fun.*

*Aiysha: The idea of learning with iPads is wonderful, I wish the lessons wouldn't finish.*

*Rana: I like it because we give each other so much help; everyone shares the iPad with her classmate and doesn't become selfish.*

*Yara: From the first day until we finished Dana and I were very happy to share the same iPad. (PS FG 2)*

Moreover, the children's positive experience made them wish that the tablet-based learning project was used nationally and for all subjects, as illustrated in the following transcripts:

*I wish all schools used tablets instead of books, carrying books hurts my shoulder. It would be better if they used iPads: we could do our homework on the iPads and revise using them, that's better. (Reem, PS FG 1)*

*Sarah: I hope that every school uses iPads because it helps me in a fun way, it's very exciting. We use the iPads at home but using them with our friends is much better. Hana and I touch the letter together and laugh oh no no.*

*Arwa: I like learning with the iPad it's more fun*

*Hana: Me too it's so fun.*

*Huda: We want all schools to know about it so if they have iPads they know how to learn well or they can buy them and learn.*

*Mona: That's a good idea, Huda. (PS FG 1)*

*I've been using the iPad for years [so] it's not something new but learning with it in school is something that we can do all day. (Nora, PS FG 3)*

Other possible factors sustaining the children's motivation and enthusiasm while using the tablets for ELL were the range of tablet-based English-learning activities designed for the children and the diversity of apps introduced in every lesson, as well as the affordances of the various apps. These factors seemed to help maintain the children's sense of curiosity and thus sustain their L2 self-determination (see Section 6.2.1.2 for more discussion of the role of the affordances of the apps for enhancing the students' IM-knowledge).

The motivational aspects of tablets discussed earlier in this chapter, including the technological affordances and increased social interaction offered by the devices, seemed to support the children's need for relatedness, autonomy and competence, playing an essential role in promoting and enhancing their self-determination, consistent with SDT (Deci & Ryan, 1985; Noels et al., 1999, 2000). The children found it enjoyable and useful to use tablets to learn English, and were thus highly motivated and more self-regulated to learn in and outside the class. These findings are also in line with Kukulska-Holmes' (2013b) claim that the authentic communication (social interaction), multimodality and increased personal relevance of learning offered by greater choices (technological affordances) are the most valuable aspects of MALL. Both the usefulness of tablet apps for ELL and the children's enjoyment in using them are discussed in detail in the next chapter in relation to the intrinsic and extrinsic forms of motivation illustrated in the L2 SDT model (Noels et al., 1999, 2000).

The young EFL students' use of tablets, however, was not without challenges or difficulties; the data revealed that the children faced some issues that affected their motivation to use these tablets for ELL. These issues are discussed in the following section.

### **5.3.4 Demotivational Aspects of Use of Tablets for LL**

Under the previous themes, I presented and discussed the factors that appeared to motivate the young language learners to use the tablets for learning. The technological affordances of tablets, the increased social interaction mediated by the devices and the children's overall satisfaction with the iPad ELL experience seemed to encourage the children to use the tablets both in and outside an educational environment to learn the English language. However, despite the positive and encouraging aspects of the tablets' use for ELL, the young language learners faced some challenges. To address this theme, I report on and discuss the factors that may discourage students from using tablets for ELL. The theme has two sub-themes: technological and social demotivational factors.

#### **5.3.4.1 Demotivation Caused by Technological Issues**

Although the technological functionality of the tablets was one of the most significant factors motivating the young EFL students to use these devices for learning, the children reported a number of problematic technological issues that affected their motivation to use the tablets for ELL. These issues included weakness/disconnection of the Internet, an over-sensitive touch screen, the cost of and technical problems with apps, and issues with earphones and recording.

The weakness or disconnection of the Internet when using the tablets outside the school frustrated some of the students, as it prevented them from rapidly logging into apps and interrupted posting and downloading:

*Rana: I downloaded the blog [app] but I had a problem with the Internet: sometimes it gets weak so I can't be [on the blog] all the time.  
Aiysha: I had the same problem because the blog needs the Internet so sometimes when the Internet is weak it disconnects while I'm writing or downloading a picture and I lose all the work I've done.  
Fatimah: My brother told me the Internet becomes weak when many people download films or long videos. (PS FG 2)*

Similarly, Isabwe (2012) reports that adult students encountered technical problems (weakness or loss of wireless Internet connection) while using iPad tablets that interrupted their formative assessment activities. The children's use of the tablets outside their homes seemed to be significantly affected by Wi-Fi coverage, as some apps work only with an Internet connection. Their decision to take their tablets outdoors was subject to the availability of the Internet at their destination. The children tried to deal with this challenge to enable them to use the tablets in a range of locations:

*Unfortunately some apps and games need Internet [access] so I can't make use of them when I go out, like the interactive English apps, these need Internet, but I take my tablet with me when I go to places where I can access the Internet such as my grandparents' or aunties' houses or I play with or use apps that don't need Internet. (Sarah interview)*

The previous extracts show that the students' use of the tablets was determined by their Internet connection, which thus restricted the 'any time anywhere' LL that has been specifically identified as an affordance of mLearning (Demouy & Kukulska-Hulme, 2010; Huang & Huang, 2015; O'Bannon & Thomas, 2015; Pak et al., 2012; Traxler, 2013). This is supported by earlier research on mLearning and MALL

(Kukulska-Hulme & Shield, 2008; Stander, 2011; Wright & Parchoma, 2011), which highlights the difficulty of fulfilling the ‘any time, anywhere’ objective.

Additionally, some children seemed to be annoyed by the tablets’ over-sensitive multi-touch screen, as it led to accidental marks on the e-page while writing or drawing:

*Sometime I write and it wrongly writes from my hand. Later I knew how to do it I just have to put my finger and not let the rest of my hand touch the screen. (Farah, PS FG 2)*

Similarly, Lana seemed annoyed by the sensitive multi-touch screen, as unintentional marks on the tablet screen interrupted her work and wasted her effort. She considered this issue one of the main difficulties involved in using the apps:

*I noticed when I write something it might write other things in another place like when I draw, [illustrating on the tablet screen] another writing or mark appears here. Then I have to wipe it away but if I can’t I have to do a new one [e-sheet] all over again. (PL FG 4)*

This finding is consistent with data obtained by Hutchison et al. (2012), who report that tablets’ over-sensitive touch screens caused children to engage unintentionally with other functions on the screen, such as highlighting text in the iBooks app when touching the screen by a finger to trace the text being read out.

The cost of and technical problems with the apps were also reported as challenges.

The children indicated that they liked some of the paid apps used in the classroom or recommended by other peers but could not buy them due to their limited allowance:

*I searched for English learning apps in the Apple Store but I had to buy some of them... Nora told me about an awesome app for English learning but unfortunately it’s not free. I can’t buy a lot with my money! (Lena interview)*

*StripDesigner is the best app we used in class but I couldn’t download it because it costs money (Nada interview)*

The class blog also included some posts suggesting new apps in which the children used the word ‘but’ to frame complaints about the cost and thus their inability to download them. This is consistent with earlier studies indicating that the cost of tablet apps creates a challenge to the use of tablets for learning by university students (Rossing et al, 2012; Sloan, 2012).

In-app purchases also restricted the children’s open access to learning materials. The students indicated that although many of the free apps they used for ELL were useful and entertaining, some of their features could only be enabled by paying for them (See Figure 5.10):

*Busuu is so fun and has many games. At the beginning Dana and I thought it was only games but we found that it teaches us numbers, colours, and animals. But the problem is that some stuff is locked – we have to buy them to play them! (Yara interview)*



**Figure 5.10: Example of in-app purchase**

Technical problems with some of the apps, such as freezing, were another challenge. The children reported that some apps suddenly froze during use, and some students

posted in the blog seeking help from their peers on this issue, which seemed to frustrate the children and interrupt their learning activities:

*I noticed that the app was freezing for Nora. I stopped next to her and watched how she tried to solve the problem. She pressed the button twice, and then closed the app from the list on the bottom and then reopened the app, the image of the jam she saved from the Web (Google) was still freezing and she was unable to rotate it although the rotating feature was unlocked, she seemed frustrated because she might have to do it all over again. (Field-notes, lesson 14)*

Lana was also annoyed and frustrated by an app's freezing, complaining that she had tried and failed to fix it. These technical difficulties seemed to reduce the children's feelings of digital competence, as resolving the problems was outside their zone of proximal development:

*But I faced a problem with Doodle. It was freezing. I deleted it and downloaded it again but nothing changed.*

These findings broadly match those of Hutchison et al. (2012) who identify problems with resizing pictures or text in some apps faced by young students using tablets for learning; those of Butcher (2014), who reports that students were frustrated by technical issues associated with the use of some tablet apps, such as apps' suddenly shutting down before they had saved their work; those of Rossing et al. (2012), who highlight technical challenges such as unstable apps; and those of Marsh et al. (2015), who report that pre-schoolers were frustrated by apps' freezing, causing them to close the apps, which limited their play and creativity.

Additionally, the children repeatedly complained about the inability to hear audio content through the earphones. As the two sets of earphones used by each pair were connected to their device using a separate connector component, there were often

cases in which the earphones were not properly connected, preventing sound from being delivered to the earphones:

*Today I received many complaints about the headphones. Some students were complaining that they couldn't hear through their headphones. I had to remind them again about the right way of checking them. First, they had to make sure that the volume was high enough. Then they had to check that the headphones were connected properly to the extra cable used to combine the two headphones. In most cases, pushing the extra cable into the headphone cable was enough to solve the problem. (Field-notes, lesson 7)*

Another problem resulting from connecting two earphones to each tablet was tangled wires. In almost every lesson, the children complained that their earphones were tangled into several knots, even though they had wrapped them up neatly. It took a lot of time and effort to untangle the wires, which frustrated the children:

*But the most annoying thing was the earphones when they tangled with each other... it wasted our time to separate them! All the others finished their work while we were still separating them! (Hana interview)*

Unclear recording was another frustrating issue. Using the tablet to record audio content in a class full of students sometimes resulted in unclear recorded clips. Some pairs thus had to take their tablets outside the class to obtain better-quality recordings:

*As the students were sitting next to each other, there were issues of unclear recording. Nora and Lena complained about the background noise caused by the rest of the class, which was recorded in their clip and made their recording unclear, I advised them to bring the microphone closer to their mouths and to raise their voices a little, but they told me they had already done so. They were very excited while recording the animation but seemed a bit disappointed when they listened to the clip. (Field-notes, lesson 6)*

The frustration caused by the interruption to their tablet activities due to the aforementioned issues seemed to reduce the children's efficient use of tablets for ELL. More precisely, the students' inability to access the language resources whenever or

wherever they needed due to Internet weakness/disconnection, the cost of apps, and other technical issues restricted the children's autonomous, flexible and competent use of the tablets, which may in turn have affected their self-determination to use the tablets for learning (Deci & Ryan, 1985). This is supported by the research of Twining et al. (2005), who show that the technological challenges encountered by some students when using tablet PCs are sufficiently problematic to impair their learning. The children may have been demotivated by aspects of the tablet technology that to varying degrees interrupted their learning activities, decreased their engagement and self-regulation and reduced their excitement.

#### **5.3.4.2 Demotivation Caused by Social Interaction**

As discussed earlier in this chapter, the students' increased collaborative learning and enhanced social interaction emerged in this study as significant factors motivating them to use the tablets for ELL. However, despite these positive findings, I observed some challenges and difficulties encountered by the children while sharing the tablets with their peers in the class, namely attempts to monopolise the tablet, disagreements over turn-taking or tablet activities, and the use of the tablets as tools for distraction. Additionally, when using the tablet to learn English outside the school setting, the children faced some challenges and frustrating issues such as others' perception of the tablet as a tool for entertainment rather than learning, and family restrictions on the tablet's use.

#### 5.3.4.2.1 Challenges of Sharing Tablets in Class

One of the challenges occasionally faced by the young EFL students while using the tablet in the English lessons was the monopoly of the iPad by their partners. On a number of occasions, the children complained of their partners' lack of collaboration and tendency to dominate the use of the tablet, giving them no chance to share or take part in the activities. This usually led to arguments or disagreements in which I had to intervene to resolve the issues, remind them of the rules of sharing the iPad and draw their attention to the iPad rules poster on the wall. In most of these cases, the affected student came to me to complain about the dominant partner, as evidenced in the following extract:

*Nada and Lana were working on the letter 'H', but I noticed that Nada was dominating the iPad and drawing (perhaps because Nada loves drawing and wanted to do all of the drawing and painting). This eventually led to a problem between the two, as Lana wanted to share the device and work on the app as well, but Nada did not allow her to (Nada draws very well and might believe that she draws and paints better than her friend). I noticed that Nada was designing and working on the letter 'H' and was drawing a nice Mexican hat with a desert as a background. She drew a small horse to complete the theme, then wrote the word 'hat'. However, I noticed that she also wrote in Arabic (لانا هذا عملي) which means, "Lana, that's my work." Lana is a very calm, peaceful and smart student, and her reaction to the situation was not extreme; she simply came to me and whispered that she had a problem with Nada and needed me to help. I had actually observed the whole thing, and reminded everyone of the rules of the iPad and the importance of sharing fairly. However, I now had to tell Nada personally that the tablet was for both of them; they had to share it and respect each other's turns and negotiate the tasks between them. I instructed them to create another sheet and share the tasks. Lana designed an e-sheet for the letter 'g' with a green background and stickers of green frogs, then they started their third shared e-sheet for the letter 'H'. (Field-notes, lesson 9)*

One of the ways in which some students monopolised the tablets was by pulling them to their own sides of the table, preventing their partners from watching or interacting with the content:

*Nora: I had a problem today with the iPad; she [her partner] always pulls the iPad over to her side! That's a problem because it's light and small so it's so easy for her to pull it while I want to write.*

*Nada: Me too, with Hana today I told her it's better to leave it in the middle so we can both use it. (PL FG, lesson 13)*

Some of the students continued monopolising the tablets even after I had reminded them of the rules for using these devices, and on a very few occasions I had to separate the students and pair them with other children. This may have been due to the leadership qualities of some of the students. This observation was confirmed by the English teacher, who explained that certain students were known for their willingness to take responsibility for tasks and their volunteering to help their teachers on a daily basis. Another possible explanation lies in the confidence and competence certain students felt in using the technology; they may have felt better able to use or navigate the tablet devices than their partners, as indicated in the following extract:

*Some of the students seemed impatient when their partners took a long time to navigate the iPad. For example, when one student working on the iPad was slow the other took her finger away and did the task herself (e.g., moving from one page to another, selecting the background, deleting the green tick from unwanted choices). Lena did this with her partner, who did not seem to mind. (Field-notes, lesson 6)*

These findings are in accord with a study indicating that more proficient users of mobile devices and those with greater natural leadership aptitude are more motivated to monopolise mobile technologies and make learning decisions for those sharing devices with them (Vesey, 2013).

Another problem that resulted from sharing the tablet was disagreement over turn-taking or how best to fulfil certain tasks. Most of these disagreements were resolved by the students themselves, who developed their own ways of assigning tasks and taking turns, as discussed earlier (Section 5.2.2.1). However, although the children

were able to manage these challenges, eventually agreeing on specific choices/tasks and successfully producing work, they were not necessarily content with these decisions and sometimes seemed to feel obliged to accept their partners' choices, as they shared the same device:

*Nora: Today I finished everything so quickly. Faster than usual because I'm working by myself [her partner was absent]. Before, we wasted time saying that's nice that's not nice, I mean we discussed things and decided, like there are things me and Lena don't agree on like sometimes she chooses images that I don't like and I sometimes choose pictures that I like but she doesn't, so we don't agree quickly.*

*Mona: So that takes time.*

*Nora: Yeah and sometimes we finally agree but we're not totally happy about it. (PL FG, lesson 14)*

Although sharing the tablets generally enhanced the students' problem-solving skills and collaborative learning, the data suggested that some of the students were not able to exercise full control over their learning activities, as sharing with a partner meant that they were not free to use the tablet on their own. Sharing the tablet may thus have prevented the students from satisfying their need for agency and control over their own learning, leading them to prefer working on the tablets individually. According to SDT, when students work under pressure or in highly controlled conditions, the feelings of joy, enthusiasm, and interest that usually accompany their learning may be replaced by anxiety, boredom or alienation, reducing their interest in learning and thus undermining their intrinsic motivation, even when they feel competent or connected to others (Niemic & Ryan, 2009)

The tablets were also used as tools for distraction in class. Freely available Web 2.0 apps and apps preloaded for other lessons easily distracted the children from their learning tasks. This was exacerbated when students used the apps to distract others. On a number of occasions, the children were encouraged by their peers to engage in

off-task activities such as collecting dozens of images of Disney characters, saving them in the photo gallery and inviting other peers to watch them in an auto-slide show. Other students distracted others by showing them popular music videos on YouTube, as described below:

*I had to leave her as I heard loud giggles and noise coming from the last table where a group of students about six were surrounding Huda and seemed to be excited about something on her iPad screen. They did not seem to notice me approaching them. I found them watching some kind of trailer for a song on YouTube; they were happy that it had just been released. I asked the three pairs to go back to their seats to complete their tasks. Other students nearby were observing the group but did not join them; they were trying to follow the group's discussion at the same time as working on their devices. I again drew the class's attention to the poster reminding them of the rules for using the tablets. (Field-notes, Lesson 8)*

In some cases, this kind of distraction annoyed the students because it wasted the time available for learning, as indicated by Reem:

*I had a few little problems with Salma; she always opens this app [pointing to Photobooth app] and plays with it and I say to her, "Salma, stop it! You're wasting time!" (PS FG 1)*

These findings are consistent with previous studies in which adult students complained about other students using the tablets to play music, games and videos (Butcher, 2014) or access social media (Butcher, 2014; Hoffman, 2013; Kinash et al., 2012).

However, the concerns and difficulties students reported when sharing the tablets in class, such as the dominance of the tablet by one student, disagreement over turn-taking or choices, and distraction caused by peers, did not appear to undermine the children's motivation to use the tablets to learn the English language. At the beginning of the project, I introduced the children to and familiarised them with the guidelines

for using the tablet in the English classes, including the need to take turns and use the tablets only for the tasks required. These rules were further emphasised at the beginning of each class, when I drew the children's attention to the class poster displaying the rules. Therefore, the students' awareness of these rules, as well as my consistent monitoring, helped to minimize the negative effects of problems caused by sharing the tablets. Setting certain rules and guidelines for the use of tablets by young students, and responding appropriately when students do not follow these rules, have been indicated to overcome such challenges (Henderson & Yeow, 2012).

#### **5.3.4.2.2 Challenges Faced When Using Tablets Outside School**

In addition to the challenges caused by sharing the tablets in class, I identified some social challenges associated with the educational use of the tablets beyond the school setting, which seemed to affect the children's motivation to use tablets for ELL. One problem was others' perception of the tablet as a tool for entertainment rather than learning. Some of the children indicated that tablets were viewed by significant others (such as parents, siblings or cousins) as tools for entertainment rather than education. Therefore, the children may not have received the encouragement to use the tablets for learning that they needed or expected from valued members of their family. For example, Nora was frustrated by her family's lack of support and encouragement when she used the tablet for learning English at home; they believed that studying could only be done through textbooks:

*Nora: Every time I wanted to download an app, my brothers called me so I had to leave it. They made me too busy [to use the iPad].*

*Mona: Do you feel that others at home encourage you to use the iPad for learning?*

*Nora: No, never... never. No encouragement – just studying from books! Like they say, “Hey Nora, you’ve got to study,” they mean with my books, but when I use the iPad they keep interrupting me – they don’t just leave me to study!*

*Mona: Do you mean they don’t think you’re seriously learning?*

*Nora: Yeah. Like... when I have no homework I sit in front of the TV all day. That’s boring. It would be much better if I could learn something new!*

*Mona: OK. You could use the iPad to learn as you did here?*

*Nora: Yeah, but nobody encourages me, they just encourage me to study with the English textbook!*

*Mona: But they don’t forbid you, do they?*

*Nora: No, but when I’m on the iPad they keep interrupting me! They don’t feel I’m learning.*

These feelings of frustration were shared by Hana, who explained that her cousins did not take her learning with the tablet seriously and insisted that she was playing rather than studying:

*But there are some people who say you’re not learning English! One of my cousins, when I showed her how I work on my iPad, she said it was playing! Using the iPad is playing! And when my cousins found out that I use it at school they said, “You’re so lucky, we wish we could too!” They think I play games on the iPad!*

These data excerpts suggest that the children needed their significant others to value and support their tablet-based ELL, as this increased their motivation and encouraged them to continue using these technologies for ELL.

This finding is consistent with SDT, according to which students’ need for relatedness and connectedness to significant others must be satisfied to cultivate and sustain their self-motivated and self-regulated behaviour (Comanaru & Noels, 2009; Deci & Ryan, 1991; Ryan, 1993; Ryan & Deci, 2000).

Similarly, using the class blog to interact with peers and communicate with them regarding their experiences with the tablet and various apps was considered useless

chatting by some of the parents, who thus prevented their children from accessing the educational blog at any time, as indicated by Dana:

*I'm only allowed to use the blog on Thursdays [equivalent of weekends], I'm not allowed during the rest of the week because Mum says that chatting wastes my time.*

Family restrictions on the use of tablets challenged some of the young language learners, as confirmed by Dana:

*I can use it for one hour if I'm done with my homework but if I don't finish my homework early I can't use it!*

According to SDT, providing students with learning environments that enhance their sense of agency and control over their learning is an essential condition for satisfying their need for relatedness to significant others (Deci & Ryan, 1985). Therefore, restriction and control over learners may undermine their motivation to learn. Additionally, such constraints limited the “any time, anywhere” affordance identified in earlier mLearning research ((Demouy & Kukulska-Hulme, 2010; Huang & Huang, 2015; O'Bannon & Thomas; 2015; Pak et al., 2012; Traxler, 2013).

#### **5.4 Chapter Summary**

In this chapter, I reported on and discussed the factors that motivated young EFL beginners to use tablets for ELL, and the factors that reduced their motivation. I identified that two sets of motivational factors – technological and social – resulted in a positive ELL experience, as the children expressed positive attitudes towards using tablets for ELL. However, the use of tablets for EFL learning had some drawbacks that were also related to these two areas (i.e., technological and social).

Despite the challenges and difficulties faced during the educational use of the tablets by the young EFL students, this experience seemed to increase the children's self-determination. The tablets helped to satisfy the children's need for autonomy, competence and relatedness, eliciting and increasing their motivation and their willingness to continue using these devices for ELL both in the English classroom and beyond. According to SDT (Dec & Ryan, 1985; Noels et al., 1999; 2000), satisfying learners' basic need for autonomy, competence and relatedness is an essential condition for eliciting, maintaining and fostering learning.

In the chapter that follows, I explain and discuss the motivational factors of the apps preferred by the young EFL students, following two SDT models (Dec & Ryan, 1985; Noels et al., 1999; 2000).

## CHAPTER SIX

### Motivational Factors of Apps Preferred for ELL

#### 6.1 iPad Apps Preferred by Young EFL Students

To answer the second research question regarding the motivational factors of the apps preferred for ELL, I first identified the children's favourite categories of iPad apps, which most greatly motivated them to learn English. As explained in the methodology chapter, I planned and designed the iPad English lessons using my previously developed taxonomy of the uses of iPad apps for learning English by young beginner EFL students (Alhinty, 2015a). I also used this taxonomy as a guide during the data collection and analysis to determine which categories of iPad apps the children preferred and found most motivating for ELL.

The findings generated from the deductive analysis revealed that the children's favourite ELL apps were the productivity apps and English-specific interactive apps, followed by the communication apps; multimedia, searching, e-book and e-story apps from the content-access category; audio-visual interactive flashcard apps; and finally e-dictionary apps from the content-access category and storing apps, as illustrated in Figure 6.1. The insight offered by these preferences into the young EFL students' motivation (intrinsic and extrinsic) and the apps' affordances are discussed in this chapter.

# Preferred iPad Apps by Young EFL Students

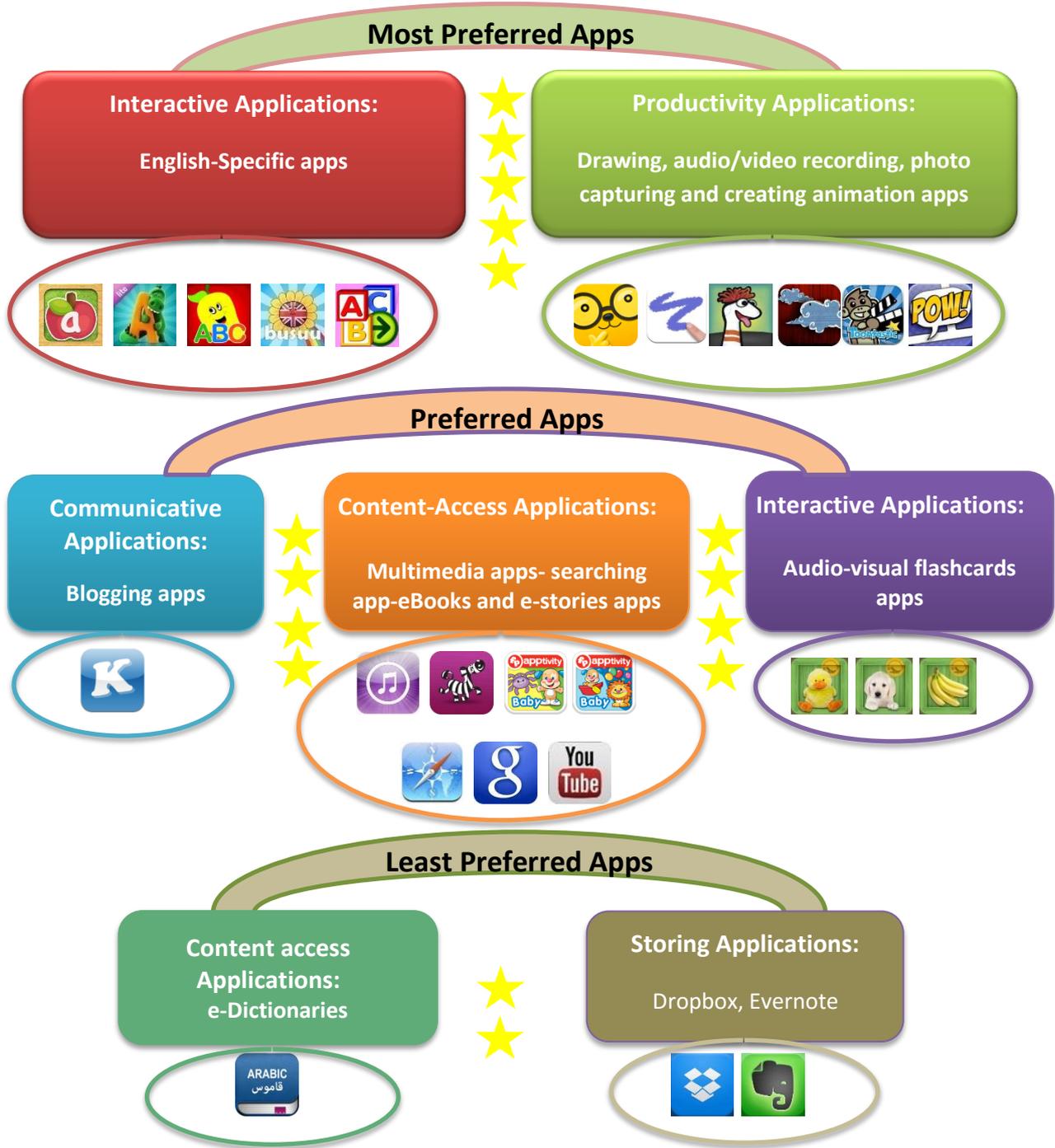


Figure 6.1 iPad apps preferred by young EFL students

## **6.2 Motivational Factors of Apps Preferred by Young EFL Students**

After identifying the children's favourite apps for EFL learning, the second step in the analysis was to classify the transcribed data following the SDT models developed by Deci and Ryan (1985) and Noels et al. (1999; 2000) to determine the motivational factors of these apps for ELL. In other words, I sought to identify aspects of these categories of apps that encouraged and motivated the children to use them for ELL. It was crucial to examine the reasons for the young EFL students' preferences for these apps as reflected in their own experiences and articulated in their own voices to understand their motivation and the factors that affected their motivation. Motivation is deeply embedded in students' personal experience, and is particularly linked with their interest in taking part in learning tasks and the reasons for their decisions (Brophy, 2010). Indeed, this is the essence of the orientations illustrated in the SDT framework, which differentiates between types of motivation (intrinsic motivation and extrinsic motivation) according to the reasons for particular actions (Ryan & Deci, 2000).

The children in this study were highly motivated to use the iPad apps for ELL both inside the classroom and beyond the school setting. Various motivational factors were identified in response to using iPad apps for ELL. More self-determined types, namely identified regulation and intrinsic motivation, were significantly evident in the gathered data. All three subtypes of intrinsic motivation (IM-accomplishment, IM-knowledge and IM-stimulation) were prominent in the data. In addition to these types of intrinsic motivation, one internalised form of extrinsic motivation (identified regulation) was exhibited by the children. These results suggest that the children found using iPad apps to learn English both enjoyable and fun (an indication of intrinsic motivation) and personally meaningful and valuable (an indication of identified

regulation). To clarify these findings, I will present and discuss in detail each type of motivational factors resulting from using the iPad apps for ELL, namely IM-accomplishment, IM-knowledge, IM-stimulation and identified regulation, in the following section.

### **6.2.1 Intrinsic Motivation (IM)**

The three types of intrinsic motivation identified in the extended L2 version of SDT (Noels et al., 1999; 2000) were all exhibited by the children in this study. The children demonstrated their intrinsic motivation to use the iPad apps for ELL in various ways. First, they reported that they enjoyed mastering and accomplishing moderately challenging tasks (IM-accomplishment). They also enjoyed exploring and learning new digital and linguistic items (IM-knowledge). Finally, they reported sensory pleasure, fun and excitement (IM-stimulation) when using different apps. The evidence of all three forms of intrinsic motivation suggests that the young language learners used many of the iPad apps for the pleasure, challenge, and satisfaction they provided, rather than to achieve some practical outcome, such as an external reward or the alleviation of pressure to participate, in agreement with SDT (Ryan & Deci, 2000). I discuss these different kinds of motivation in the following sub-sections.

#### **6.2.1.1 IM-Accomplishment**

In this sub-section I present and discuss IM-accomplishment, which is concerned with the pleasurable feelings connected with accomplishing challenging tasks. More specifically, I report on and discuss IM-accomplishment in connection with the

affordances of iPad ELL apps and their role in encouraging the students to feel more competent, as well as the students' satisfaction with successfully mastering new linguistic items. The findings suggest that the children enjoyed being reasonably competent at undertaking and completing language tasks and activities using iPad apps. Their sense of competence and accomplishment was encouraged by a number of factors, namely the provision of optimal challenges, technical and human scaffolding and feedback and rewards, which all elicited feelings of empowerment. These supportive factors seemed to help enhance the children's sense of accomplishment and satisfy their need for competence, encouraging their intrinsic motivation to use iPad apps for ELL. This is consistent with SDT, according to which it is necessary to support students' fundamental need for competence to increase their self-determination and intrinsic motivation (Deci & Ryan, 1985). However, SDT stresses that fostering feelings of competence is helpful and sustainable only under conditions involving the provision of learning activities that offer optimal challenges, instructional support, and direct positive feedback. In the following sub-sections, therefore, I report on and discuss three themes found to support the students' IM-accomplishment during MALL activities: optimal challenges, human and technical scaffolding, and feedback and rewards, which all led to feelings of empowerment.

#### **6.2.1.1.1 Optimal Challenges**

According to SDT, students' feeling of accomplishment and competence can be enhanced by providing optimal challenges, as students' need for competence encourages them to look for optimal challenges that suit their capabilities (Deci & Ryan, 2004) enabling them to assess and develop their own learning abilities (Niemiec

& Ryan, 2009). Optimally challenging learning activities have a reasonable level of difficulty and can be accomplished through supported effort (Elliot, McGregor & Thrash, 2004). In agreement with earlier studies, I identified a number of factors that made the children's ELL app activities moderately challenging and increased their sense of accomplishment, among other outcomes, intrinsically motivating them to use iPad apps for ELL. These factors are addressed under the sub-themes of students' past experiences and the visual, audio and multimedia content of iPad apps.

#### **6.2.1.1.1 Students' Past Experiences**

The data revealed that the students' prior knowledge of some apps made their app-based language tasks less challenging. An interesting example was students' past experiences of creating animations using other technological devices or different apps. Some of the students commented that their past experiences of creating animations made their tasks moderately challenging and the outcomes more professional, as illustrated in the following group discussion:

*Nora: Before I got the iPad I used to make my own video clips using the MacBook. I used a Japanese program. I created them in Arabic with some Japanese. No one helped or taught me.*

*Mona: That's interesting.*

*Yara: Nora makes videos and records our voices every time we visit her, she always does that. (PL FG 6)*

Nada and Lana described a similar experience:

*Nada: This app is so amazing [PuppetPal HD]. It helped me to practise talking in English and I also learned how to make cartoons, but Lana was so good at making the cartoons.*

*Lana: I'm used to making cartoons. I've downloaded other apps like these and every now and then I make lovely cartoons, not about princesses or squirrels but about other stuff. So I know how these apps work. (PL FG 6)*

The moderately challenging tasks facilitated by the children's prior knowledge of animation apps, for instance, allowed them to focus on their language tasks, which in turn encouraged them to produce more creative language works than expected of EFL beginners. For example, in a lesson revising numbers (1-10), greetings and introducing oneself using a story of two squirrels, Skip and Pip, the children did not stick to the original story in their textbooks but created new stories about a princess and a witch in a castle, a squirrel and crow in a forest or actresses on stage, inspired by the app's ready available characters (see Figure 6.2):

*Although this app [Puppet Pals HD] was new, the students seemed to be familiar with how animation apps work. They became more creative in their clips, instead of imitating the original story; they created their own stories while keeping the same structures. (Field-notes, lesson 6)*



**Figure 6.2: Prior knowledge of animation**

The extracts above suggest that the children's self-efficacy was increased by their prior use and knowledge of the use of such type of apps. This is in agreement with Bandura's (1977) concept of self-efficacy, according to which students' previous experiences help to determine their degree of self-efficacy and in turn their motivation to undertake a task.

#### **6.2.1.1.1.2 Use of Pictures, Sounds, and Multimedia (Multimodality)**

The multimodal features integrated in some educational apps, such as images, sounds, and visual and audio clips, emerged as another significant factor that helped to make the children's ELL moderately challenging. As explained earlier, learning a new language is challenging, especially for EFL beginners, who normally have less exposure to the target language, less language proficiency, and greater anxiety about making pronunciation and grammatical errors (Tamara, Villegas & Freedson-Gonzalez, 2008). The multimedia elements of some apps seemed to help ensure that the young EFL students' activities were optimally challenging, as the English-language input was comprehensible yet demanding (Krashen, 1982; 1985) and within their zone of proximal development (Vygotsky, 1978). For example, the interactive English-specific apps had various multimodal features, such as sound clips, that increased the children's comprehensibility of the new English items they were learning, such as the lower- and upper-case forms of English letters, which were confusing for many of the students:

*One of the students I was observing told me while she was working on this app (Starfall ABCs) that the most interesting part of the app so far was the fact that a woman pronounces the letter when it appears in upper case and a child pronounces the letter when it appears in lower case. The difference between the two forms of the letters seemed to become less confusing and less challenging for her, and more fun as a result. (Field-notes, Lesson 14)*

Audio-visual flashcards, another example of interactive type of apps, had a variety of modality features that seemed to increase the children's understanding of the new English vocabulary. The children exhibited a preference for this type of app, explaining that the combination of audio and visual content and written text used to introduce each word made the task of learning vocabulary more comprehensible and interesting, thus motivating them to learn, as indicated by Nora:

*The flashcards are wonderful. I like them so much. You see... you learn new words and if you read them wrong it says them for you and the pictures tell you the meanings, you don't need a translator. (PS FG 3)*

Some content-access apps such as e-Stories included multimodal prompts or features that increased the comprehensibility of a given story, making it less challenging to read and understand. Huda explained that the provision of animations and images alongside the written text made her reading experience moderately challenging, and thus intrinsically motivated her to use this type of app for ELL:

*I like electronic stories [pointing to Storybook 1, 2 and 3 on the iPad screen] because I can read the letters and words and I know how the story goes... the pictures and cartoons here help me understand the story and the words. (PS FG 1)*

These findings seem to concur with those of Al-Seghayer (2001), who reports that the use of multimedia in language materials enhances the learning of new vocabulary and makes target words more comprehensible, due to mutually reinforcing multimodal cues. These findings also concur with those of Kim and Gilman (2008), who report that the use of multimedia increased adult students' motivation to learn vocabulary.

In contrast with moderately challenging app activities, which increased the students' IM-accomplishment, too easy and too difficult apps were less motivating due to their failure to provide optimal challenges, as illustrated in the following extract:

*Blackboard [an app] is like Doodle [another app], but I didn't like it. I felt it was too easy and could be used with younger kids. There are many better [apps]. (Yara, PS FG 2)*

In the same vein, Hind felt that the e-dictionary was over-challenging due to the unknown English information shown when opening the app, which reduced her motivation to use it:

*I downloaded the e-dictionary, but it's difficult, I couldn't use it. So much stuff appears in English that I feel confused. (PS FG 1)*

This seems to concur with SDT research, according to which too difficult tasks may frustrate students while too easy activities may be perceived as boring. Accordingly, activities should be moderately challenging in order to enhance students' feelings of accomplishment and competence (Agnesia, 2010; Alm-Lequeux, 2006).

The findings illustrated in this section suggest that both the students' past experiences of some apps' uses and the multimodal features of the apps made the children's EFL learning activities moderately and thus optimally challenging. This in turn enhanced the young language learners' sense of accomplishment and competence, as they felt that they could use such apps efficiently to learn and understand the new English language input. As a result, the children seemed intrinsically motivated to use and were interested in using these apps for ELL. These findings are in line with those of previous studies indicating that moderately demanding mobile phone app activities for learning vocabulary and grammar are more appealing to EFL university students than difficult activities (Wang & Smith, 2013).

#### **6.2.1.1.2 Human and Technical Scaffolding**

In addition to the provision of moderately challenging activities, human and technical scaffolding emerged as another supportive factor that enhanced the children's sense of accomplishment and competence. These findings are consistent with SDT, according to which appropriate instructional and environmental support is necessary to enhance students' sense of accomplishment and competence (Deci & Ryan, 1985). The data

indicated that the reasonable level of instructional support and scaffolding provided by more capable others as well as by the apps themselves helped to make the LL content more comprehensible (Krashen, 1982; 1985; 2009), remaining within the children's Zone of Proximal Development (Vygotsky, 1978). Under this sub-theme, I discuss in detail the supportive instructional scaffolding that enhanced the students' feelings of accomplishment and competence. In doing this, I first focus on human scaffolding while using some types of apps then I move to the technical scaffolding offered by other types of apps.

#### **6.2.1.1.2.1 Instructional Support and Scaffolding Provided by More Capable Others.**

The data indicated that the children's sense of competence and accomplishment was fostered by the help and support they received from skilled others while using the tablet apps for ELL. The efficacy of this conventional type of scaffolding has been confirmed in earlier works by Yelland and Masters (2007), who define cognitive scaffolding as a type of scaffolding provided for young learners using technology through teachers' modelling and facilitation of peer collaboration. The young EFL students explained that the instructional support and initial modelling with which I provided them at the beginning of every new app activity made their tasks and activities more manageable and helped them to feel positive about their ability to solve the problems encountered with more challenging apps. For example, Yara and her partner Dana found the task of creating their own interactive audio-visual flashcards over-challenging because the instructions and customisation features in the relevant apps were in English (Figure 6.3). Therefore, the students needed some guidance to accomplish the task:

*Flashcards [My First Words, a flashcard app] was a bit difficult at first, but Dana and I learned so quickly, we remembered what you had said and we went back to the sheet [referring to list of simplified instructions]. (PS FG 2)*



**Figure 6.3: Challenge of using customisation features of some apps**

The use of a projector to deliver clear instructions and modelling for the whole class was highly appreciated by the students, who reported that this not only helped them to share their work with their classmates but facilitated their reception of task instructions. For example, some productivity apps such as Strip Designer offered a variety of choices, with several steps needed to complete the tasks. Therefore, I felt that it would be helpful to demonstrate the use of Strip Designer on the projector before the students began their activity:

*Teacher... Your step-by-step explanation on the projector made it easy... If you had been explaining on your own iPad we would all have been crowded around you and wouldn't have been able to see and we would have got into a fight. (Nora, PL FG 8)*

Additionally, giving the students initial guidance on the use of new apps provided them with the information they needed to construct creative output that reflected their improved skills, which thus fostered their feelings of accomplishment. Some students, for example, benefited from the app list I created for them, which included the basic uses of each app. This guided list offered knowledge essential to the use of the apps, allowing the students to demonstrate their improved skills by carrying out a digital language task such as creating animated stories:

*Lana: Nada and I decided to make this character closer [pointing to a squirrel character and demonstrating her idea in the app], so we made it big because it's close and the other one far away [pointing to the princess] and its size so tiny as if she was lost, then we made the princess like walk towards the squirrel and her size was getting bigger slowly and slowly so that she would look very close at the point at which she met the squirrel... Before I used the app here I read about it in Arabic so I understood exactly how it worked.*

*Mona: Where did you read about it in Arabic?*

*Lana: On the app sheet you gave us before. (PL FG6)*

The use of some apps needed to be scaffolded throughout the lesson because their language of instruction was English. Navigating these apps was challenging for many of the students, who needed more scaffolding than my initial instructions:

*There was a problem with saving their work (in the Doodle Buddy app); a pair needed to be reminded which option to choose to save their work. They knew where the functions were but did not know exactly which one to choose to save their work in the photo album. (Field-notes, lesson 5)*

The previous extracts suggest that initially modelling the app activities, using different modes of instruction such as a projector and instruction sheets, and facilitating and scaffolding the students' use of apps throughout the lesson gave the students the instructional support they needed to feel accomplished and competent. This finding is consistent with the results of earlier research by Milman, Carlson-Bancroft & Boogart

(2012), which indicate that young students' sense of competence in using iPad apps can be enhanced through instructional support including modelling new app tasks and providing well-defined instructions, prompts and scaffolding. The role of teachers in scaffolding and enhancing students' feelings of accomplishment has been confirmed in the SDT research; teachers are advised to design a range of stimulating and moderately challenging activities and to model the procedures and processes involved in accomplishing each task (Wu, 2003).

In addition to instructional support and scaffolding provided by the teacher, the data indicated that the EFL children's use of some apps was supported by more capable peers in the class and by more skilled family members or friends outside school, supporting previous findings (Henderson & Yeow, 2012; Pellerin, 2014; Sandvik et al., 2012). This scaffolding and other help not only supported the children's need for relatedness but enhanced their problem-solving skills and fostered their sense of accomplishment. Sarah, for example, expressed a preference for animation apps such as Toonastic, as she felt more accomplished and competent when using them due to the scaffolding she had received from family members with an advanced level of English proficiency. The provision of support and scaffolding by her skilled family members enabled Sarah to solve problems and encouraged her to carry out and accomplish tasks that might otherwise have been over-challenging:

*The most awesome app is Toonastic. I thought it was wonderful for making conversations between the characters and amazing cartoons. I have my sister or my brother to help me if I don't know something like how to open something or to save clips. They're older and know English. (Sarah interview)*

As reported and discussed earlier regarding the social aspects of tablet use by young EFL students (see Section 5.2.2), the data reflected extensive linguistic and technical

peer scaffolding. For example, the spelling of new English vocabulary often appeared problematic to the students when using productivity apps such as Strip Designer, demanding scaffolding from a more capable peer, as shown in the following extract:

*Nora: I went and helped Aiysha in her writing and saving her work; she didn't know how to write 'this' and 'ruler' and asked me if she had done them right.*

*Yara: I only helped her [Aiysha] with writing this [pointing to the comma in the iPad integrated keyboard] and that [pointing to the apostrophe in the iPad integrated keyboard].*

*Dana: I was asked one question by Arwa about the spelling of 'this' and 'that'. (PL FG 13)*

This finding is broadly similar to that of Pellerin (2014), who describes the peer scaffolding provided by students learning French in pairs using mobile technologies (e.g., tablets), such as telling others the incorrect words for a particular image.

Similarly, some students seemed to be more technologically proficient and thus better able to help their peers with technical problems with the productivity apps, as shown in the following extract:

*Yara seemed proficient in managing technical issues; for the whole lesson, she helped others whenever they encountered a problem with the app [Strip Designer], even though it was new to her as well. I noticed that Nora also helped Farah to save the image they found by pressing on the image and selecting 'save' instead of taking a screenshot. (Field notes, lesson 8)*

Lana's experience was similar:

*At first Doodle was a bit hard... but you used to help us so we knew how to use it and if we forget something Nada tells me or I tell her, now it's very easy. (PS FG 3)*

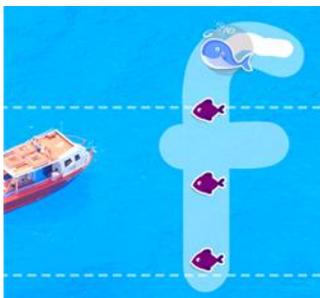
The above data excerpts are examples of the scaffolding the young EFL students received from more capable peers and others when using some of the tablet apps (e.g.,

the productivity apps). These findings concur with those of Milman et al. (2012), who describe young students' frequent provision of peer scaffolding for the use of iPad apps or spelling tasks. Similarly, Lys (2013) indicates that the teacher and peer scaffolding enabled by video discussion on FaceTime (an iPad app) enhanced adult language learners' sense of competence. Scaffolding provided by an adult or a more skilful peer can help students to remain in their zone of proximal development (Vygotsky, 1978), potentially enhancing their learning engagement, persistence, competence and accordingly intrinsic motivation. Cognitive scaffolding (Yelland & Masters, 2007) was most commonly provided for the productivity apps and other apps with open and productive features (e.g., the customisation features of the interactive audio-visual flashcard apps), which often lacked technical scaffolding and thus required the children to seek others' scaffolding. This finding matches those reported in an earlier study (Sandvik, et al., 2012), in which pre-schoolers' use of "constructivist" apps such as Puppet Pals to create narratives is shown to require peer or teacher scaffolding and feedback due to the apps' lack of technical scaffolding and feedback. In the next section, therefore, I discuss technical scaffolding as a supportive factor that fostered the students' sense of accomplishment and competence.

#### **6.2.1.1.2.2 Technical Scaffolding**

In addition to the cognitive scaffolding provided by adults and more capable peers when the young EFL students used the productivity apps, some apps offered technical scaffolding that enhanced the students' sense of accomplishment and self-regulation. I identified this kind of scaffolding mostly in apps based on behaviouristic learning approaches, including drill and practice patterns involving explicit instructions, extensive drills and gamified language tests. The data indicated that the students

greatly appreciated their clear instructions, instant scaffolding and consistent facilitation. The provision of technical scaffolding motivated them to choose the interactive English-specific apps as one of their favourite categories of apps for ELL. For example, almost all of the students expressed a preference for tracing apps such as (Little Writer: The Tracing App for Kids), because they enjoyed writing newly learned English letters and numbers by tracing. The app offered scaffolding features and motivational statements to promote the correct formation of numbers, letters and words in a pleasurable way. The students traced each letter, number or word using their fingers. The tracing was guided by images (e.g., fish, apples, hay) that appeared on the lines shaping each letter or number. At the correct starting point was a picture of an animal or a tractor that the student had to move along the lines to eat food or collect hay (Figure 6.4).



**Figure 6.4: Technical scaffolding provided by tracing apps**

These tracing techniques were perceived as enjoyable and helpful, enhancing the students' sense of accomplishment. This was illustrated by Lena, who found that the multimodal scaffolding elements of the app encouraged her to practise writing and helped her to feel positive about her improved writing skills:

*I like the apple app [Little Writer: The Tracing App for Kids]. Before I didn't know how to write the small [lower-case] letter 'a' but it taught me because I started writing it following the little lines, and even the letter 'b',*

*I learned to write them all small. It's so fun to practise the letters because the cartoons and sounds are cheerful.*

Similarly, Sarah enjoyed using the interactive tracing app because its instructional and scaffolding features were entertaining, motivating her to use the app to learn writing:

*I prefer this app because it's a fun way of learning writing while Starfalls isn't. It teaches me how to start writing each letter in a fun way. All the letters are written differently so it puts these lines from the beginning, so it puts a whale at the start then it puts on the lines tiny fish that I need to eat but there are lines that have no fish because their turn didn't come yet so I shouldn't walk on them [touching these lines]; then later the little fish appear and it's now their turn to be eaten.*

The clear instructions, guidance and direct scaffolding of the writing process provided by these cheerful features were also considered highly enjoyable and beneficial, as explained by Nora in the following transcript:

*Nora: This app [Little Writer: The Tracing App for Kids] is the best because it helps me to practise writing. It's awesome; there are many letters that I don't know how to write because some of them are very difficult, so I trace these lines. It trains your hand.*

*Mona: Trains your hand?*

*Nora: Trains your hand to write. I feel that it [the app] is better than Starfalls because it makes you practise writing whereas Starfalls makes you memorise letters and words. It's very patient and funny in guiding me through the lines, like it says "follow me step by step, trace along the lines, collect this fish and then this fish [writes the letter 'g' in the app] but don't start tracing from here or here" [from between the lines or from the end of the letter]. (PL FG 9)*

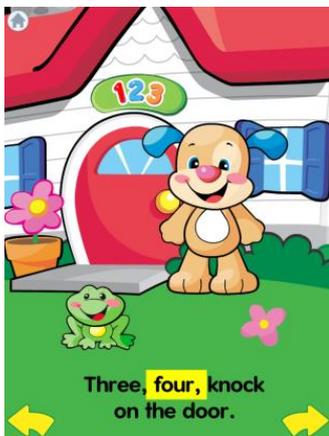
This technical scaffolding seemed to enhance the students' perceived competence and accomplishment:

*If I use it every day I'm sure that I will be perfect [giving a thumbs-up].  
(Nora, PL FG 13)*

Furthermore, the data indicated that the children found the content-access apps, specifically the interactive e-story apps, particularly enjoyable due to their embedded

technical scaffolding features, which supported and helped to improve the students' reading and encouraged them to feel competent. Reading stories is challenging for beginners, even if the stories are simplified. However, technical features such as highlighting the words as they are read may encourage students to read e-stories, especially when they feel satisfied with their progress in reading (Figure 6.5). This was indicated by Hana, who felt happy and confident as a result of the highlighting element, which helped to improve her reading and increased her comprehension of new words:

*I downloaded the electronic-stories group. I enjoyed Storybook 2 and Storybook 3 most. I read English stories I didn't know before and I learned new words from the stories. I don't remember them now but if I heard them I would remember them... but, oh, 'cake', I discovered it's the same in English and Arabic: in both we say 'cake' but their writing is different. When it reads the words it's singing it highlights each word in yellow. I read along and I know each word it sings so I feel I can understand the words. (Hana interview)*



**Figure 6.5: Technical scaffolding provided by highlighting a word as it is read in e-Stories app**

These findings are broadly in accord with the results of earlier studies indicating that language learners' understanding and development of language skills can be supported

by digitally highlighting parts of the target-language input (Doughty & Long, 2003). They are also consistent with Falloon's (2013) observation that word highlighting while a story was read or a song was sung in the iPad e-Stories app, although a traditional and simple technique, was a useful learning scaffold for 5-year-old learners.

Another enjoyable and beneficial technical-scaffolding feature of the interactive e-Stories app was the text-to-speech function. The data indicated that this feature, which was optional for some e-stories, helped the children to read and understand the difficult words they encountered when reading an e-story. The affordance of this text-to-speech feature motivated Lana to read stories in English that initially seemed beyond her proficiency level:

*I found an amazing app that reads English stories; some are free and some you have to buy. The cool thing is that it can read me any part of the story I wish. Like the first time I let it read all the stories for me, then I started trying to read by myself and if I found a word difficult I simply touched it and it reads it for me. I found three good free stories; in one a character who looks like Mickey Mouse reads the story for me...*

The above transcript suggests that the children enjoyed the challenge of engaging in activities that were fairly difficult, driven by their need for competence, and that they enjoyed surpassing themselves. However, enhancing the students' sense of accomplishment would not have been possible without the scaffolding provided by the text-to-speech functionality. These findings are generally in agreement with Falloon's (2013) observation that the automatic or optional text-to-speech features offered by some iPad apps support very young learners' understanding of the instructions or function of the apps, as their reading skills are still not fully developed.

In addition to the technical scaffolding of English learning skills such as writing and reading, instructional and technical scaffolding helping users to navigate the app itself was identified as a supportive factor enhancing the students' sense of accomplishment. This type of scaffolding was more explicit in the interactive English-specific apps, which supported the students' navigation using multimodal objects that provided appropriate guidance and modelling, as illustrated in the following extract:

*I noticed that the students were using this app [Starfalls ABC] smoothly, without problems or interruptions, by following the arrows and touching the words and letters when they had glitter on them. Once an arrow, glitter or a moving hand appeared, the students touched the object either to hear the sound of the letter or the pronunciation of the word/short sentence or to move to the next page. (Field-notes, lesson 5)*

The children enjoyed being guided by these arrows, glitter or moving hands (Figure 6.6); these technical scaffolds helped them to manage and navigate the app, as indicated by Sarah:

*It teaches all the letters but in a fun and cool way. Like it doesn't show the letter 'a' or any letter, just as the letter itself, like in a boring way – it shows it in a funny way. If I don't know what to touch it get closer and closer, or something like glitter or a hand appears, as if to say 'touch here'.*



**Figure 6.6: Guidance provided by multimodal objects**

In addition to providing guidance and support, the students reported that these embedded scaffolds offered initial models of the learning activities that helped them to understand the purpose of the activities and the correct use of the app. For example, the children indicated that they were unsure how to complete the final activity in Kids Learn English with Busuu (one of the interactive English-specific apps, consisting of multiple learning activities), but understood the purpose of the activity as soon as they noticed a fox demonstrating the listening activity before it was their turn to play:

*First, when I opened it, I didn't know that I had to put the colour inside the book to hear it, but when I saw it [pointing to the fox] going up and picking a colour from the washing line and then placing it inside the book I did like it and I knew how to play it. The game is lovely and not too difficult. (Nada, PL FG 10)*

In contrast, the data revealed that the absence of instructional or scaffolding support when using new apps had a negative effect on the students' IM-accomplishment, causing the students to give up using the app. The students may have felt incompetent and ineffectual, as such challenging apps were far beyond their digital and linguistic capability:

*I downloaded Pic Collage but I didn't understand how it works, and I didn't understand Doceri either. It started with a clip that was a waste of time and didn't give me any clear information about how to use it.*

This seem to concur with the findings of Falloon (2013), according to whom the absence of embedded instructions in iPad apps restricted and thwarted learning, demotivating 5-year-old learners from navigating and using apps.

I inferred from the above examples that the technical scaffolding embedded in some tablet apps, whether guidance, instructions or modelling, was extremely popular with

the students, who enjoyed improving their ELL skills and mastering the activities in the apps with the support provided by these technical scaffolds. These findings are supported by earlier research by Yelland and Masters (2007), who identify technical scaffolding as an important type of scaffolding for mobile technology to guide, assist and facilitate young students' learning. The provision of instructional and scaffolding support either by the apps themselves or by other people appeared to enhance the students' sense of accomplishment and feelings of enjoyment, which made these apps very popular. These findings are in line with SDT research indicating that providing students with necessary instructional and environmental support is essential to enhance their sense of accomplishment (Deci & Ryan, 1985; Wu, 2003).

#### **6.2.1.1.3 Feedback and Rewards**

In the previous sections, I discussed moderately challenging app activities, instructional support and technical scaffolding, respectively, which emerged as factors supporting the students' IM-accomplishment. In this section, I present and discuss feedback and rewards, which I identified as another factor supporting the students' IM-accomplishment. The data indicated that the young EFL students greatly appreciated and enjoyed the positive, direct and corrective technical feedback some tablet apps offered, as this helped to improve the students' performance in the English-language activities and thus supported their sense of accomplishment, which in turn enhanced their intrinsic motivation. This finding is confirmed by earlier research indicating that technological elements (e.g., characters showing young users how to navigate the software or appearing regularly to confirm answers or encourage children to persist with the activity) may provide positive feedback (McManis & Gunnewig,

2012). This finding is also consistent with SDT, which stresses the value of providing positive and direct feedback to satisfy students' need for competence and achievement (Deci & Ryan, 1985). Research has emphasised the importance of positive and immediate feedback to learning achievement and motivation (Johnson, Perry & Shamir, 2010; Kennedy et al., 2012) particularly in MALL contexts (Demouy, Eardley, Shrestha & Kukulska-Hulme; 2011; Li & Hegelheimer, 2013; Ozdamli & Cavus, 2011).

The instant, corrective and mostly positive technical feedback provided by the interactive English-specific apps seemed to improve the students' performance in the English-language activities and thus increase their sense of accomplishment, which in turn enhanced their intrinsic motivation. The card-game activity in Kids Learn English with Busuu, for example (Figure 6.7), was extremely popular among the children because it provided them with positive verbal reinforcement in response to their input, which helped them to feel competent and accomplished, as illustrated by Lana:

*This one is so amazing... Like he says 'green' and we touch it then he says 'blue' and we touch it and if we're wrong he doesn't get angry he's still happy and says 'nearly there' or 'oops' but if we're right he says 'excellent' [imitating the cheerful male voice in the app]. That's cool. I mean we know if we're right or wrong. (PL FG 10)*



**Figure 6.7: Positive verbal feedback offered by English-specific apps**

As well as offering corrective verbal feedback, the app incorporated animated

characters that provided feedback through their facial expressions (See Figure 6.8):

*Then they moved on to the next activity, in which colours appeared consecutively on a wooden sign, accompanied by the pronunciation of the words for these colours. The students had to identify the right colour; if they were successful, the old man depicted in the app (Smurf) smiled and said words such as ‘excellent’, but if they were wrong, Smurf looked confused and the students heard words such as ‘oops’. (Field-notes, lesson 10)*



**Figure 6.8: Animated characters offering feedback through their facial expressions**

Similarly, the students enjoyed the virtual corrective feedback provided by Little Writer: The Tracing App for Kids. The app reinforced the children’s tracing of letters by offering instant motivational feedback in a cheerful female voice. When the children traced a letter correctly they heard positive encouraging phrases such as “Well done!” or “You did it!”, but when they traced the letter incorrectly, they heard the sound of a crash:

*Sarah: What I like most is that if we write it wrong it tells us. Like if you write this way [writing the letter ‘g’ incorrectly, outside the lines], it stops you and this sound... um... like a crash, it says this is wrong [members of the group nod in agreement]*

*Nora: Like it knows so you don’t do it wrong but if you do it correctly the lady says happily “Super!” or “Well done!” (PL FG 9)*

The virtual feedback, however, was not always enjoyable and motivating: Nada, for example, indicated that the sound of the crash in the app was discouraging, as it reminded her of her father when he gets angry:

*Nada: Sometimes it frightened me because of its sound.*

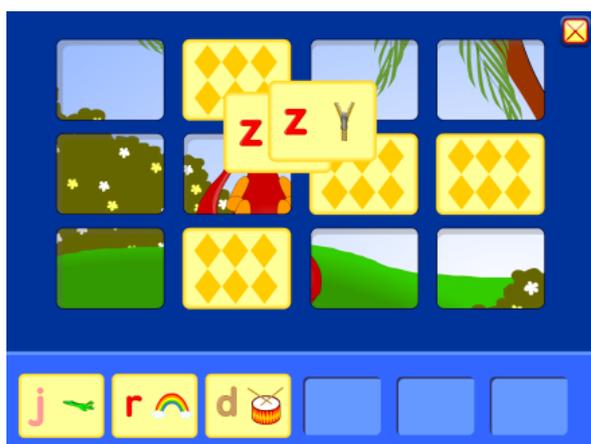
*Mona: Frightened you? How?*

*Nada: Its sound is scary because if I'm wrong it gives me a sound like my dad when he gets angry that I haven't gone to bed.*

This finding concurs with earlier studies based on SDT which indicate that intrinsic motivation can be undermined by the provision of demeaning rather than positive feedback (Deci & Ryan, 2000). However, the instant corrective feedback the children received when playing mini-games embedded in interactive English-specific apps such as Starfalls was highly motivating, as it helped the children to measure their language progress after each learning activity. These findings seem consistent with those of previous studies indicating that immediate corrective feedback offered by mobile devices enables learners to measure their understanding of the digital LL input (Li & Hegelheimer, 2013; Ozdamli & Cavus, 2011). These findings are also generally in line with earlier observations of the potential of mini-games embedded in educational mobile activities to provide instant and corrective feedback (Leemkuil & De Jong, 2011; Mayer & Johnson, 2010) as well as opportunities to master new skills, thereby enhancing students' sense of competence (Ryan et al., 2006). The children indicated that playing the Make a Match game (Figure 6.9) (offered by the interactive app Starfall ABCs after finishing the activities associated with the letter 'd') was enjoyable because it provided direct reinforcement/feedback (opening both cards and saying the letter when correct; directly closing them when wrong) and rewards (e.g., a dancing dinosaur) that encouraged the students to test their progress in learning the letters:

*Dana: The game after letter 'd' (Make a Match) is awesome, if the two cards we open show the same letter, yay... it says the letter to us but if we get them wrong it just closes it. What makes it so fun that we can test ourselves to see if we have learned these letters very well or still need more practice, and when we finish all the cards and win this cute dinosaur appears laughing, singing and dancing [they all laugh].*

*Nora: The last thing... they give us a surprise. Once you finish the whole letter [meaning all of the associated activities], they entertain you and show you something or give you a game to play. (PL FG 5)*



**Figure 6.9: Direct feedback and rewards offered by mini games incorporated in some English-specific apps**

The common finding obtained from the above data was that despite the apps' simple behaviourist ("correct/incorrect") style of feedback (Zhao, 2003), which has been negatively compared with constructive and informational feedback (Sandberg et al., 2011), the EFL beginners were satisfied with this instant, positive and corrective feedback, which seemed to enhance their self-efficacy and LL development. As the children had just started learning the basics of the English language, simple corrective feedback may have been sufficient for their proficiency level. These findings are consistent with those of Sandvik et al. (2012), who indicate that pre-schoolers learning the basics of a language found apps with behaviourist stimulus-response apps (which included positive feedback) to be highly engaging.

Most of these interactive “drill and practice” apps offered digital rewards for success in the language tasks, such as stars, songs and growing flowers. The young EFL students found these virtual rewards motivating and enjoyable, and felt more competent and accomplished after receiving them. For example, the amusing dancing dinosaur that appeared to the students when they successfully completed the matching game in the previous extract (Figure 6.10), and the alphabet song (Figure 6.11) and growing flower (Figure 6.12) illustrated in the following extracts, are examples of virtual (non-tangible) and unexpected rewards that the children immensely enjoyed:

*The letter ‘k’ ended with a game that the students liked a lot: they had to guide an animal (a kangaroo, kitten or koala) through a tunnel of letters to reach the end. The students had to help the chosen animal to go from the letter ‘a’ to the letter ‘z’ in alphabetical order, without touching the images (apple, ball, and star) to reach the end of the tunnel successfully. I noticed that the students were excited about guiding the animal through the tunnel. Some students were afraid that the animal would die if it touched the objects, but it didn’t; it only produced different sounds showing that the user had got it wrong. Each letter that the animal walked through was pronounced and written at the top of the app screen. Once the animal had reached the end of the tunnel successfully, the students were rewarded with a chant of the alphabet. I noticed that all of the class was singing with the app (at different times, as some pairs finished before others). The students were so happy with the chant and many called me over to show me the surprise. Rana told me that she had been rewarded with a chant because she finished the game successfully, and she was extremely happy. (Field-notes, lesson 14)*

Sarah had a similar experience:

*I like the idea of the flower, when we finish each activity a watering can waters the flower [pointing to the flower on the app screen], each time it is watered it grows and gets bigger and finally it becomes a big colourful flower and is so happy. (PL FG 10)*



**Figures 6.10-6.11-6.12: Examples of virtual non-tangible and unexpected rewards offered by English-specific apps**

These findings differ from those of SDT researchers who claim that the rewards embedded in digital games undermine intrinsic motivation due to their arbitrary and controlling nature (e.g., receiving points for completing a level) (Ryan et al., 2006). Instead, my results are consistent with the observation made by Osterloh and Frey (2000) and Garaus et al. (2014) that small, hidden and virtual symbolic rewards enhance students' intrinsic motivation rather than diminishing it. Similarly, Deci et al. (2001) indicate that rewards do not undermine intrinsic motivation if they are not tangible and unexpected, such as verbal rewards, as they are unlikely to be perceived as controlling.

In contrast with the interactive English-specific apps, the productivity apps did not provide technical evaluation and feedback, requiring the students to seek confirmation of their digital language input either from me in class or from older members of their families outside school, as shown in the following two extracts:

*Although the students asked me a lot of questions at the beginning of the flashcard activities (e.g., how to use some of the app's features) they soon became good at using it, and I noticed how excited they were when they finished and called me to see their work. Once I had confirmed that they were correct, they became very excited to start the second one. (Field-notes, lesson 7)*

Similarly, Nora added the following comments:

*Nora: It enabled us to record what we learned... like you learn new words with the English letters and if you're afraid you'll forget them you go to the animation app and make a story and record it, then you listen to it with your family, but there's an important point: when you record you have to let someone hear it, so what if you said it wrong?*

*Mona: Can't you correct it for yourself?*

*Nora: I prefer someone else to watch it. I might think it is right when it's wrong, so the other person should correct it. (PS FG 3)*

In line with these findings, Falloon and Khoo (2014) report that Year 1 students frequently sought others' feedback when using tablets for learning, such as evaluation of written input. Surprisingly, however, the lack of technical feedback in the productivity apps did not reduce the children's motivation to use them. The children still enjoyed the productivity apps and considered them one of the best categories available for LL, perhaps because they empowered the children to create their own digital language materials and thus increased their intrinsic motivation. The students' sense of empowerment elicited by some apps was also found to support their IM-accomplishment. In the next section, therefore, I report on and discuss the students' sense of empowerment, which was encouraged and enhanced by the affordances and functions of some of the apps.

#### **6.2.1.1.4 Sense of Empowerment**

The students' educational use of some of the apps appeared to generate and foster their sense of self-efficacy and empowerment, due to various embedded features and affordances. A significant reason for the students' preference for the productivity apps was the opportunity to create their own digital learning materials and access suitable English resources. The data revealed that the productivity apps allowed the students to

make the most of the affordances of the tablet. As explained in relation to the tablets' digital features (see Section 5.2.1), the multi-functional affordances of the tablets (including the built-in camera and audio-recorder) enabled the students to produce digital language output. The value of these tablet-integrated tools was particularly clear when the students used productivity apps or other apps with constructive features. Productivity apps with various integrated features helped to improve the children's digital skills and enabled them to create their own animated clips, comic strips, digital paintings, and interactive-multimodal flashcards, which elicited feelings of accomplishment and empowerment. The data indicated that the students' motivation was affected by the options and functions afforded by the apps. For example, although the students very much enjoyed using the animation apps, they preferred the ones with more sophisticated features that enabled them to make highly creative animations. Sarah, for instance, used both Toonastics and Puppet Pals 2 to create animated clips incorporating the English words and phrases she had learned, and although she found them both enjoyable, she preferred Toonastics because it enabled her to design and create her own characters, backgrounds and objects, and thus to be more creative and professional:

*I like Toonastics because there is more than one way to create my own characters, like if I want to draw my curtains there are choices of textiles, or the floor could be wooden, and there are so many choices for colours, I can pick what I wish and smudge what I like. I made fantastic cartoons like the ones on TV; I'm the designer and director. (Sarah interview)*

These findings seem consistent with earlier MALL research demonstrating that the multi-functionality of mobile technologies, including tablets, empowers language learners by enabling them to create their own learning materials (Gromik, 2012;

Hasegawa et al., 2008; Joseph et al., 2005; Martí & Ferrer, 2012), which may in turn increase their motivation to learn (Wang & Smith, 2013).

Conversely, the data revealed that some of the elements of the apps (e.g., Puppet Pals 2) may have restricted the children's learning and frustrated them due to certain time limitations on their activities, preventing them, for instance, from recording the stories they wished:

*In this category [pointing to the productivity apps] I really enjoy making cartoons and speaking with others in English but the problem with Puppet Pals 2 is that I only have a limited time to record the cartoons. I feel that it's too short. (Sarah, PS FG1)*

This seems to corroborate Falloon's (2013) finding that some features of iPad apps, such as time limitations on app tasks, restrict or thwart young children's learning, which may reduce their motivation to use the apps.

Additionally, the data indicated that the students' sense of accomplishment was enhanced as a result of successfully mastering the moderately challenging English items they were learning when using the apps, such as the ones in the interactive category:

*When I started [learning English] I thought 'a' was like 'e' and I didn't remember how to write them, then I practised writing them and listening to them here [pointing to the interactive English-specific group on her iPad screen], now they are not new letters to me they became familiar after I learned them and memorised them. Before they were tricky but now I'm happy that I know them all. (Nouf, PS FG 3)*

Similarly, the students seemed to feel empowered and competent as a result of the improvement of their English-language skills when using other apps such as e-

dictionaries (in the content-access category) to translate difficult English input and make it more accessible and comprehensible:

*In the past I used to receive many English messages on the iPad [pointing to the screen]. I didn't understand anything, then I started using the translation [app] and translate and translate every time. Now I feel wonderful. I can understand each time I translate. (Yara, PS FG 2)*

In the light of the above findings, I conclude that the provision of optimal challenges, instructional and scaffolding support, positive and corrective feedback and digital rewards helped to elicit and enhance the students' IM-accomplishment when using tablet apps for ELL, consistent with Deci and Ryan's (1985) SDT model and the L2 SDT model developed by Noels et al. (1999, 2000). A supportive classroom environment in which young learners are provided with instructional support, feedback, praise and compliments on their schoolwork has been argued to foster their competence and in turn their motivation (Kennedy et al., 2012). The appropriate scaffolding features offered by some apps, such as navigation objects, word highlighting, verbal reinforcement and positive feedback and rewards, have been highlighted as motivational affordances that promote younger children's creativity and play (Marsh et al., 2015).

In this section, I discussed the young EFL students' IM-accomplishment elicited and encouraged by some tablet apps. In the following section, I discuss the impact of some apps' affordances on the children's IM-knowledge.

### **6.2.1.2 IM-Knowledge**

As well as significantly influencing the young EFL students' IM-accomplishment in the ELL setting, some of the tablet apps were found to elicit and enhance the students' IM-knowledge, intrinsically motivating them to explore and learn new things. The data indicated that the students greatly enjoyed exploring the ELL opportunities offered by the tablet apps, and were pleased and satisfied with the apps' assistance in developing their linguistic and digital knowledge. IM-knowledge, a subtype of intrinsic motivation, was frequently reported by the students as a result of using the apps. This is consistent with the model of L2 SDT (Noels et al., 1999; 2000), according to which IM-knowledge is mainly concerned with the feelings of enjoyment and satisfaction associated with exploring and discovering new things about a language or engaging in novel experiences. To gain a better understanding of the apps' impact on the students' IM-knowledge, it is vital to identify and discuss the types of apps and their features that enabled the young EFL students to satisfy their curiosity and seek new experiences. In relation to this theme, I report on and thoroughly discuss two sub-themes: the incidental and intentional ELL encouraged by the apps, and the exploration and discovery of new apps or app features.

#### **6.2.1.2.1 Incidental and Intentional ELL through Apps**

The findings of my classroom observation, as well as the outcomes of the interviews and focus-group discussions, revealed high levels of IM-knowledge associated with the children's pleasure in learning new English items during their ELL app activities. More specifically, the students explained that they enjoyed learning new English words or phrases either incidentally or intentionally while using the interactive

English-specific apps. For example, when using the interactive Starfall ABCs app (Figure 6.13) to learn and practise letters of the alphabet, the app offered the students words beginning with the letters learned (such as ‘apple’, ‘astronaut’, ‘boy’, ‘bear’, ‘bee’, ‘cat’, ‘cow’) along with their pronunciations and singular and plural forms (e.g., ‘apple’, ‘apples’). Some of the new words were also introduced as a part of short sentences (e.g. ‘I am a boy’, ‘bouncing ball’). The data indicated that the students perceived the new linguistic items introduced in the app along with the letters to be interesting and enjoyable.



**Figure 6.13: New linguistic items offered by English-specific apps**

The method of regularly introducing new bite-sized English input along with each letter appeared to motivate the students to use this and similar apps (e.g., ABC Fruit, I Love ABC). They did so because of the pleasure and satisfaction associated with learning new English items, not because it was a school requirement:

*Sarah: The most interesting thing about this app [Starfall ABCs] is that we always learn new words that we haven't learned yet at school.*

*Saud: New words and new letters appear each time. It feels refreshing. (PS FG1)*

In the same vein, Lena indicated that she liked the Starfall ABCs app because in addition to teaching her the letters she was learning in the English class, it introduced new sounds and letters, thus encouraging a better understanding of the language:

*It says the letters and I say them too and even the letters [i.e. sounds] we hadn't learned yet, like for the letter 'f' it showed me 'elephant', we hadn't learned this yet. ... Like 'ball'. We hadn't learned this but here [pointing to an image of a ball in the app] I learned that it's a ball, and a fox too [pointing to an image of a fox in the app]. Also I knew 'dog' before but here I learned how it's written. All these are new words I learned.*

The above data excerpts suggest that the new language knowledge the children gained incidentally when using some interactive English-specific apps to practise English motivated them to continue using these apps. They may have felt satisfied by the apps' encouragement to learn new vocabulary and find out new things about the language (e.g. singulars, plurals). These effects were probably due to the apps' multimodal elements, such as animation, graphics and sound effects, which drew the students' attention and prompted them to explore further and learn new things about the language. On many occasions, the students expressed their pleasure in learning new English vocabulary in relation to attractive multimodal app features. Yara, for example, described the Claymation letters and animals in the Talking ABC app (Figure 6.14) as attractive and appealing, encouraging her to use the app to learn new letters and animal names:

*I like the alligator [pointing to Talking ABC app], it's so delightful, especially the clay when it quickly changes. I enjoyed it so much. Like when I touch the letter it changes into a clay ball then it forms a funny animal. All made in clay. So it teaches me every letter with a new animal like 'd', 'dinosaur', and their sounds are so funny [the group agrees]. (PS FG2).*



**Figure 6.14: Claymation, a feature of an English-specific app teaching students new letters and animal names**

In addition to the students' satisfaction with their incidental learning when using these apps, the data also indicated that the students purposefully used other interactive English-specific app features such as flashcards (e.g. My First Words flashcards) to learn new English vocabulary. The children enjoyed and appreciated these apps due to their multimedia elements, which elicited and increased their sense of curiosity. Many of the young EFL students indicated that the combination of real HD images, pronunciation and written text motivated them to use these digital flashcards to learn more new English words (Figure 6.15), as explained in the following extract:

*Farah: I like the flashcards [Fatimah agrees].*

*Aiysha: I like them so much; I'm using the ones in the apps*

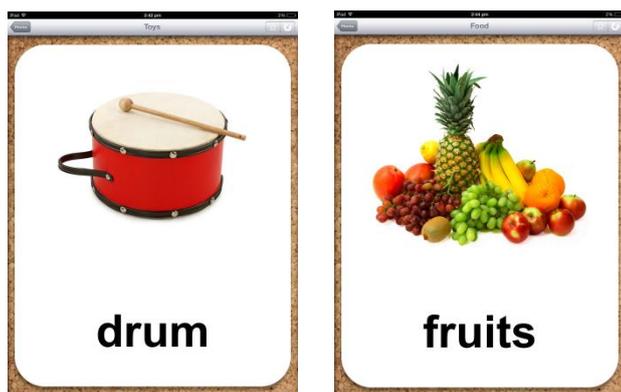
*Mona: Do you mean the ready-made ones?*

*Aiysha: Yeah, they're fabulous... Like they teach me English words like 'bee' and 'drum'. Very exciting. I only have to touch the card and it teaches me English like 'girl', 'baby', 'fruit', and the photos are so amazing and so real*

*Farah: Yeah I found them very exciting and very good, like it says a word that I don't know and I have to guess its meaning then when I touch the card the image appears and I know what it is!*

*Aiysha: Before there were so many words that I didn't know how to say or how to read them in English, like I didn't know how to say 'vegetables' but now I know... also I now know how to say 'fruit'. I have memorised many new words that nobody else knows.*

*Fatimah: Me too. (PS FG2)*



**Figure 6.15: Multimedia elements offered by Flashcards app, increasing students' IM-knowledge**

Furthermore, the young EFL students' curiosity-based exploration (Deci & Ryan, 2000) appeared to be significantly stimulated and enhanced by the use of content-access apps. Web-browsing and search-engine apps such as Google and Yahoo were common content-access tools; the students often used them to search for and access English-language resources (e.g., English teaching lessons, images of words representing letters). However, apps offering access to multimedia English LL resources, such as YouTube, were also a very popular and highly motivating tool that increased the students' general knowledge and enhanced their IM-knowledge. The data indicated that the students recognised YouTube's potential to help them learn more about the English language. Many students, for instance, found watching English cartoons on YouTube to be an enjoyable method of learning English, as indicated by Yara:

*Yara: I like to watch the George episodes on YouTube.*

*Mona: George?*

*Yara: George the monkey [Curious George]. I always watch it and I feel that I learn English from it. But I don't understand everything. I only understand things when he points at them.*

This finding concurs with those of Sun and Dong (2004) who indicate that multimedia

technologies such as cartoons can offer an authentic and multi-sensory environment that helps children to learn vocabulary more effectively, as they benefit from contextual cues to infer the meaning of new words.

Lana, on the other hand, considered YouTube her main tool for exploring and finding any information she wanted, particularly new English learning input to improve her LL. For instance, she used the YouTube app to search for educational content and songs to learn more about the English language:

*I'm using YouTube as well. It's the thing I use most and I depend on it to know anything. At the beginning I used to search there in Arabic but now I can search in English like for English learning songs. There is also someone who gives English teaching lessons on [the words for] vegetables such as 'tomato' and 'potato'. He has an education channel on YouTube; I follow it.*

The quick and easy translation of English words and text into the students' mother tongue (Arabic) enabled by dictionary apps seemed to foster the students' IM-knowledge. The data indicated that the students enjoyed using these apps because they could easily look up unknown English words, thus satisfying their curiosity. The students explained that the features of some dictionary apps (e.g. Arabic Dict Box), such as auto-correcting the spelling of the entered word, enabled them to test their English-language knowledge. The audio feature, which offered the pronunciation of written words, also seemed to improve the students' English-listening skills. The data thus indicated that the students used these dictionaries for the satisfaction associated with exploring and finding out more about the English language, not solely for necessities (e.g. doing schoolwork). These findings are supported by earlier studies demonstrating that the convenience and accessibility of dictionary apps (instant search

functionality) motivate language learners to use dictionary apps to fit vocabulary learning into their everyday lives (Deng & Shao, 2011; Steel, 2012).

Some of the young EFL students in this study enjoyed testing their knowledge using these apps and searching for the meanings of new English words to gain more knowledge of the English language:

*I downloaded this dictionary [pointing to Arabic Dict Box] and another one. What I like most is that it says what I write. But the thing I enjoyed most about this dictionary is that it lets me test myself; I write then I see what I wrote, if it is correct the word appears and if it is wrong it gives me many other words and I choose the right word. But sometimes I use it to learn words from the textbook, words that we haven't studied yet, so when the teacher asks who knows their meaning I say that I know. (Nada interview)*

The above excerpts suggest that some of the young EFL students were highly motivated by the affordances of these content-access apps, as they intentionally and autonomously used such apps to develop their linguistic knowledge.

#### **6.2.1.2.2 Exploration and Discovery of New Apps and App Features**

As well as increasing their IM-knowledge when using the tablet apps to explore, select and access English-language content, the children enjoyed exploring the apps during the English classes and discovering and searching for new apps to use for ELL beyond the school setting. This led to many new discoveries regarding apps and app features.

During the English lessons, the method I used to introduce new apps and new English activities seemed to allow the children reasonable freedom to explore and exploit the apps. For example, each time I introduced a new app, I provided the children with

basic guidelines and instructions on completing their tasks, and gave them some time to test the app, explore its features and plan their work. Although the time allotted to class activities was limited, the data revealed that the children did not rush to finish their tasks but were immersed in exploring the apps' features and making use of their various affordances in their language productions. This is in line with earlier research on the use of iPads in educational contexts, which indicates that learners should be provided with the necessary guidelines and instructions on using the devices and their apps but offered considerable freedom in their selection and use of app activities (Milman et al., 2012). On many occasions, the children were excited to announce their discoveries and happy to share them with me and their classmates, as illustrated in my following recorded observation:

*Yara called me over to tell me that she discovered a new feature that changes the effect of the images. I asked her to show me and she pressed –page– then pressed –page FX–. She was extremely happy and proud that she had taught me something new. (Field notes, lesson 8)*

Some apps, such as some of the productivity apps, had many features and choices that aroused the children's curiosity and eagerness to explore them. The children informed me of their discoveries on Doodle Buddy, such as audio stickers, stencil prints and colouring effects, from the first to the last lesson. Some of these discoveries were new to me, as explained in the next extract:

*Mona: OK, I noticed that several times you showed us your own discoveries in the class regarding some app features; can you talk more about that?*  
*Hana: Yeah, like here in Doodle if you don't like your drawing you can simply shake it like this and it can be deleted [demonstrating excitedly].*  
*Mona: Wow, awesome. (Hana interview)*

In addition to the students' exploration and discoveries when using the apps allocated to complete their class tasks, the data revealed that the children frequently used the list

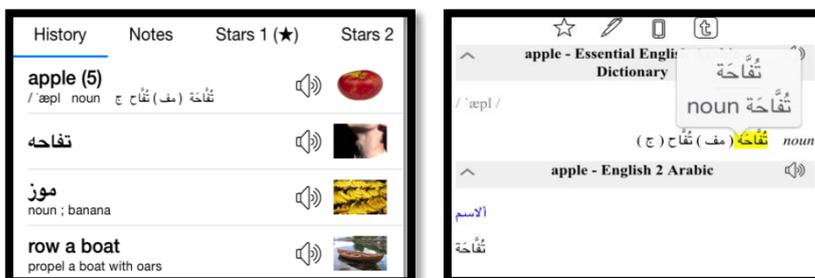
of apps I gave them at the start of the project to download new apps, explore their characteristics and test their functions when using their tablets outside school. As I pointed out in relation to the previous theme, this list provided the students with the necessary basic information about each app, but did not explain all of the app features and choices. The data, however, indicated that the children enjoyed downloading many of these new apps and other self-discovered apps, and were excited to find out about every app they downloaded. Nearly all of the students downloaded at least one new app from each category and reported their experiences to their classmates through the class blog or during the focus groups and interviews. For example, Hana expressed feelings of satisfaction and enjoyment when she discovered and explored the Arabic Dict Box dictionary (Figure 6.16). She excitedly listed all of the features that she identified while using the app, as illustrated in the following excerpt:

*Hana: I write the word in Arabic and the English [translated] appears, then I touch the sound [pointing to the speaker icon] and it says it to me. I can repeat it many times. Also it sometimes shows a photo of the word, and when you write something like ‘apple’, you can find it in a list like a little dictionary that can show you all the words you searched for [i.e. search history]*

*Mona: Oh, so it saves them for you.*

*Hana: Yeah it saves every word, and you can also record your voice when you say the word.*

*Mona: Wow, very interesting.*



**Figure 6.16: Different features offered by e-dictionary apps that increased students' eagerness to explore**

Despite the perceived distinctive features of translating apps, which elicited and enhanced the IM-knowledge of some of the students, the sub-category of e-dictionary apps was one of the students' least favourite sets of apps, as the students often found them irrelevant and were thus not interested in exploring or downloading them. This was illustrated by many students, who preferred using Google Translate:

*I live on Google [sic]. I translate everything, even numbers... I go to Google Translate and type a number like 29 in English and see what is it in Arabic. (Nora, PS FG3)*

Some students justified their preference for Google Translate on the grounds that it translates long texts rather than words only, as explained by Salma:

*I didn't use it, I get everything from Google. It doesn't only translate words but also long stuff. (PS FG1)*

Apps in the storage category appeared to be the students' least favourite of all of the apps in my typology, because the option of saving work was provided by almost all of the apps they were using. Consequently, very few students seemed eager to download and use the storage apps. One of those few students who liked storage apps was Nada. She commented:

*I downloaded all of these [pointing to Dropbox, Sugersynec and Evernote]. I knew that they are for storing. I can store my stuff; my paintings and books in them. They tell me that [my work] has been saved. But I'm using this one now [pointing to Dropbox], along with my sisters.*

Furthermore, it emerged that the students frequently searched for and explored new apps using the App Store, possibly indicating a high level of IM-knowledge. This was illustrated by a group of students who found apps that offered stories in both Arabic and English and other apps that allowed the story's language to be customised. These

kinds of apps seemed to increase the students' IM-knowledge, as they were moderately challenging and thus enabled adequate comprehension of the language input, which in turn encouraged the students and aroused their interest to read more in English:

*Farah: I downloaded story apps that show the story in Arabic and English on the same screen.*

*Yara: Me too.*

*Farah: They're translated, like it shows the story in Arabic and English. I read it in Arabic and it reads it for me in English. I can understand that way.*

*Yara: Now many of these are available in the App Store and also many in English.*

*Fatimah: There are story apps where I can choose the language. I choose Arabic then stories appeared in Arabic and they can also be narrated in Arabic, then I choose English and the same stories appeared in English. That way I understand the story much better and sometimes I try first in English to test whether if I understand then I go to the Arabic [version] to see whether I understood the story correctly or not. (PS FG2)*

Along the same lines, Yara reported that she had discovered an interesting app that taught her shapes in English through games. Her excitement in reporting her experience as well as her clear recall of one of the shapes hint at her enjoyment of and satisfaction with discovering new apps and learning new English vocabulary:

*I found a funny app that teaches shapes but through playing, like it says 'star' [changes voice while saying the word as if imitating the voice in the app]. (PS FG2)*

Similarly, the students' IM-knowledge was evident when they exchanged their experiences of their discovery and utilisation of new English-learning apps, as illustrated in the following focus-group discussion:

*Ward: I downloaded an app that teaches all the English letters, it has a picture of Dora on it.*

*Mona: I remember that someone told me she had the same app? Probably Lana.*

*Huda: Is it on the app list?*

*Mona: No, it's not.*

*Ward: It shows the letters and says them along with words like umm... 'zebra'.*

*Mona: Ward, where did you get it from?*

*Ward: From the App Store [looks extremely happy].*

*Reem: I downloaded an app of a cat singing the letters ABCDEFG [singing as in the app]. I repeated it until I memorised the song and also I wrote all of the letters.*

*Mona: How did you find out about it?*

*Reem: I found it in the App Store. (PS FG1)*

These findings support Ciampa's (2013) account of the affordances of tablets and their apps for learning, including greater and easier access to various types of learning content. These affordances may play an important role in arousing and cultivating young students' cognitive curiosity and thus their willingness to autonomously explore and search for new apps to use for learning.

The students' IM-knowledge, however, appeared to be injured by over-challenging apps. This was indicated by a number of students who explained that some apps were inaccessible due to their complex operation, as illustrated by Lana:

*I also downloaded this app [pointing to Haiku Deck]. I tried it only once because it has long complicated steps for registration and it requires an email and number [sic]. It's somehow similar to Showme [another app], but Showme doesn't need registration so it's easier.*

Similarly, Fallon (2013) reports that children's persistence in learning engagement and their interest in increasing their knowledge when using tablet apps are negatively affected by difficult app content. The app under study automatically increased its difficulty level, eventually exceeding the students' capability and thus leading the children to close the app and select a different one. Additionally, my finding is in agreement with those reported by Brown et al. (2012), according to whom a music-

creation app developed by Apple (Garageband) was confusing for adult students, who had to follow too many steps to create and record their music.

In light of the motivational outcomes reported and discussed in relation to this theme, it seems that the tablet apps elicited and enhanced the young language learners' intrinsic motivation by arousing their curiosity and thus their eagerness to explore and search for new apps or app features, as well as their interest in extending their ELL beyond the school setting. This may have been aided by the variety of apps available in the App Store, the variety of components and choices provided by the apps, and the additional language content offered by some of the apps. These affordances seemed to provide the young EFL students with a vast range of new learning opportunities, eliciting curiosity and helping them to develop their digital and linguistic knowledge both in the English class and beyond. The students' reported feelings of IM-knowledge when using tablet apps for ELL were significantly influenced by the tablets' digital affordances and the various functionalities discussed in detail in the first chapter on data analysis. The mobility and accessibility of the tablet, facilitated by its instant connectivity, ease of use and students' ownership of the devices as well as its multi-functionality, enabled instant access to an extensive range of educational materials. This is supported by earlier research highlighting the affordances of tablets that increase young learners' access to various learning materials (Ciampa, 2013; Henderson & Yeow, 2012). These affordances seemed to intrinsically motivate the students to volitionally and autonomously explore and search for new and supplementary ELL materials. This is generally in accord with recent research indicating that the affordances of mobile technologies motivate language learners to pursue regular learning, as they encourage exploration and discovery of new online

language resources (Kukulska-Holmes, 2013b). This finding is also in line with previous studies in which young students are shown to enjoy the unlimited opportunities provided by some tablet apps them (e.g., iBooks) to search for additional learning content, encouraging in turn their spontaneous and intentional learning and the extension of learning beyond the class, bridging the gap between school learning and home learning (Ciampa, 2013; Kukulska-Hulme, 2015; Traxler, 2013). It is also in line with the findings obtained by Kucirkova et al., (2014), which indicate that tablet apps' tools and features preserve children's intrinsic interest in the apps, as they become meaningfully engaged in exploring their features and looking for particular functional tools to use in their work. It may be this sense of choice and agency in their learning that intrinsically motivated the young EFL students in this study to explore, make choices and self-direct their learning. The findings obtained for this theme suggest that the students enjoyed the increased freedom enabled by the tablets and some of the apps to self-regulate and self-direct their learning, consistent with data obtained in earlier mLearning research (Sha, Looi, Chen & Zhang, 2012). The tablets and their apps seemed to encourage the students' autonomous decision-making and control over their learning, which are highlighted as two of the key motivational factors in mLearning contexts by Jones et al. (2006).

### **6.2.1.3 IM-Stimulation**

In addition to the feelings of IM-accomplishment and IM-knowledge elicited and enhanced by some of the tablet apps, as discussed in the previous two sections, the data indicated that the intrinsic motivation of the young language learners was significantly provoked and preserved by the feelings of fun and excitement and

aesthetic appreciation the students felt when using some tablet apps for ELL. The students' IM-stimulation seemed to be positively influenced by the multi-sensory experience of the ELL tablet apps and the increased personal relevance of the learning materials to their interests and skills. This finding is in agreement with the model of L2 SDT proposed by Noels et al. (1999, 2000), which describes language learners' IM-stimulation as the sensation of pleasure and excitement stimulated by carrying out a fun and enjoyable task or by the aesthetic of the experience. In the next subsections, I report on and discuss in detail the two sub-themes identified in relation to the students' feelings of IM-stimulation when using tablets apps for ELL, namely multi-sensory pleasure and the increased relevance of learning materials to the students' interests and skills. The following sub-themes thus offer useful clues as to how and why the tablet apps were perceived as fun.

#### **6.2.1.3.1 Multi-Sensory Pleasure**

The multi-sensory pleasure offered by some of the tablet apps emerged in this study as a crucial factor motivating the children to use the apps for ELL. The data indicated that the students' IM-stimulation was elicited and maintained by the high levels of multi-sensory stimulation offered by some of the ELL tablet apps. The apps' multimodal elements, such as sound effects, musical songs, graphics, animation, and multimedia, appeared to be greatly enjoyable and highly motivating for the children, and ultimately contributed to their fun, excitement and aesthetic appreciation of the app-based ELL experience. These findings seem to corroborate those of Ciampa (2013) and Pellerin (2014), who report that the multimodal sensory affordances of mobile technologies, such as tablets, positively influence young learners' motivation

to learn. Many of the apps the children used encompassed varied forms of modality that provided the children with rich sensory stimuli (often simultaneously visual, auditory, tactile and kinaesthetic). The tactile and kinaesthetic elements of the apps, which I discussed intensively in the first chapter on data analysis, appeared to greatly motivate the children to use tablet devices for ELL (Chapter 5). In terms of visual and auditory elements, I frequently noticed that the children greatly enjoyed the multimodality offered by some English-specific apps (e.g., Starfalls ABCs), as I recorded in the following field-note:

*Some letters were presented with new words starting with the letter with animation and sound effects. For example, when introducing the word 'kitchen' with the letter 'k', a multimodal animation was shown including the sound of tap water, the opening and closing of a fridge door and sausages jumping in the pan.... One of the students laughed at and seemed to enjoy the dancing locks that appeared after introducing the new word 'locks'. The students seemed happy with the songs and games that concluded each letter. (Field-notes, lesson 14)*

My observation, which captured the children's delight and excitement with the app's multimodal characteristics, was confirmed by the students, who voiced their preference for and enjoyment of this type of app due to its cheerful multimodal features:

*The most cheerful thing is when we hear the sounds of the stickers [she moves a sticker of a bell to hear its sound]. I love it. (Aiysha, PS FG1)*

Equally, Fatimah liked the My Blackboard app because:

*The sound of [virtual] chalks when I write is so fun. (PS FG1)*

A similar view was expressed by Sarah, who indicated that the fun and enjoyment she experienced were increased by the Claymation component of the Talking ABC app.

This motivated her to use the interactive app autonomously and volitionally at home to learn English:

*I love interactive English apps, especially this one [pointing to Talking ABC on the iPad screen]. I downloaded it at home. I watch letters like letter 'a', when I touch it, it changes into an alligator and records your voice like a dinosaur and has the animals song starting from 'a' to the last letter. This app amuses me and makes me happy; everything is fab like its images and music.*

Sound effects, music and songs seemed to elicit and enhance the children's IM-stimulation when using the interactive apps, as the children expressed their delight in the sound effects and English songs, which motivated them to use these apps for ELL:

*Nora: I also like how it teaches the colours. I love the sounds so much, like one time a sound of a squirrel, one time a sound of an old man, and another time the flower itself produces a sound like it says, "Aaaaaa," as if it's saying I'm growing.*

*Dana: I like this [pointing to the old man], it's so funny.*

*Nora: The voice of the old man is really funny.*

*Sarah: Even the ant... its sounds are so funny [the group laughs]. (PL FG10)*

In the same vein, Nada commented as follows:

*Interactive English is my second favourite group, and the app I liked most is ABC Fruit because it has the English alphabet song that I love so much, and her voice is beautiful. (PS FG3)*

I inferred from the data that the multimodal features of some interactive English-specific tablet apps, such as sound effects, musical songs, images and animation, effectively prompted and enhanced the children's IM-stimulation while using these apps for ELL. This is consistent with the findings obtained by Ciampa (2013), who reports that the multimedia effects such as videos, audio, music, animation and interactive capabilities afforded by some apps may arouse young learners' interest and

sensory curiosity (e.g., mathematics apps that include colourful patterns, charts, and tables).

Content-access apps such as e-stories were also perceived as fun and exciting due to their incorporation of songs that aroused the children's interest and provoked their IM-stimulation to use them beyond the school setting:

*I also downloaded these stories [pointing to Storybook 1,2, and 3] and one day I found my little sister, she is in Year 1, she opened the app and she was singing with it and saying the words and numbers in the song. I was so amazed and I felt so excited then my sister and I started reading and singing the stories with them and it was so much fun. (Aiysha, PS FG1)*

Many students regarded the e-story apps as the best category of apps, amongst other types of apps, because the stories were animated and musical, which increased their enjoyment:

*Huda: I like this group [of apps] most of all [Hana agrees].  
Mona: Why did you like it?  
Saud: First because the stories were entertaining and because the cartoons and songs were all cool. (PS FG1)*

Although musical and animated stories were highly favoured and enjoyed by many children, the rhymes or melodies of the songs occasionally demotivated the students, who perceived them to be silly:

*The best thing about the stories are the stories that have cartoons but the songs, um... I feel they're silly. (Nada, PS FG3)*

This finding seems to be largely in agreement with the findings of Ciampa (2013), who reports that apps that lacked appealing elements (e.g., suitable pictures and sounds as

well as attractive app interface) were perceived as unenjoyable and demotivating by young learners.

Comparably, Nora explained that these kinds of musical and animated stories were basically designed for babies and very young children, which caused her similarly aged cousins to implicitly criticise her for using them. However, the feelings of joy she experienced when reading the stories, in addition to her increased IM-knowledge, motivated her to keep using them at home:

*Nora: My cousins were telling me that these musical stories are only for little children [implying that they were making fun of her]. I know. But they're so fun and I like to choose the ones that sing the story; it makes it easier to understand and the songs make them fun and cheerful. (PS FG3)*

The above excerpts may illustrate the young EFL students' IM-stimulation as a result of the multimodal affordances of some apps. Such affordances seemed to motivate the students to use these apps to learn the English language for the pleasurable feelings they provided, not due to external pressure. These findings generally concur with the results of Kukulska-Hulme (2013b), who identifies multimodality as one of the most valued aspects of MALL.

#### **6.2.1.3.2 Increased Personal Relevance of Learning**

As discussed in the previous sub-section, the integrated multimodal affordances of some tablet apps were attractive and appealing and thus increased the young EFL students' multi-sensory pleasure and excitement. In addition, IM-stimulation seemed to be evoked and enhanced by the increased personal relevance of the learning activities to the students' interests and skills due to the variety of apps available in the

App Store as well as the multi-functionality of some of the apps. The data indicated that apps with various choices or multi-functional features were perceived to be more appealing and highly enjoyable by the children than those with limited affordances. These findings are consistent with those of Ciampa (2013), who reports that some apps (e.g., iBrainstorm) made the children's reading and writing activities more exciting due to the options offered by their built-in tools, such as the opportunity to add virtual sticky notes and change their colour and location.

The productivity apps, for instance, were among the most popular categories in this study due to their various functional characteristics that catered to the children's different interests and enabled them to demonstrate their skills (e.g., drawing, photography), which in turn stimulated feelings of pleasure (Figure 6.17). Accordingly, the children's determination to use and persistence in using such apps for ELL greatly increased. The comments made by the young EFL students during the focus-group discussions and interviews supported this assertion:

*Fatimah: Doodle [Buddy app] is loved by millions [all agree].*

*Mona: Why does everyone like Doodle? Why is it so popular among you guys?*

*Fatimah: It's really very exciting; it makes drawing so cool and fun.*

*Aiysha: We write the numbers and decorate our paintings; you can make your picture artistic and show it to others.*

*Fatimah: And it has backgrounds.*

*Yara: If you don't find a background that you like here in the app or on Google Images you can draw your own background.*

*Farah: What I liked most was the game you did with us in Doodle: it was so fun and exciting; the two of us could both draw and write at the same time.*

*Yara: And printing with the stencils like these shoes; you can make them bigger like this shoe can be big and this is small [demonstrating how to change the size of stencil prints] and we can take pictures and insert them here as well.*

*Aiysha: The most cheerful thing is when we hear the sounds of the stickers [she moves a sticker of a bell to hear its sound]. I love it.*

*Fatimah: That's honestly my best app, I would never get bored of it. (PS FG 2)*



**Figure 6.17: Productivity apps catering to the students' different interests**

Strip Designer, another app from the productivity group, was also perceived to be more enjoyable than the other apps because it offered more interesting options and enhanced the fun and excitement of the children's MALL. Lana explained that this was her favourite app because 'it has many interesting choices, more than the others'. She added the following comments:

*...It's wonderful. We choose the design we like according to the photos or pictures we want to draw. So I can draw, add [speech] balloons, stickers or images; so many choices that make you easily an artist and the coolest thing is that I can save my work in Dropbox. (Lana interview)*

Similar to Doodle Buddy and Strip Designer, Tinytab seemed to have appealing multi-functional features that stimulated the children's creativity, thus motivating them to continue using the app on their own to create language output:

*Its tools [the TinyTab app] are awesome. I can write, I can type, I can draw, I can use it for hours without getting bored of creating artistic things with it. (Fatimah, PS FG2)*

I inferred from these findings that the young EFL students' determination to use and persistence in using these apps for ELL were enhanced by their strong personal motivation, which was driven by their pleasure and excitement in the various functions and options provided by the apps, which increased both their IM-accomplishment and

the personal relevance of the learning activity. The variety of options and functional tools afforded by the tablet apps provided the children with more opportunities to choose activities that suited their personal interests and skills. These findings are in accord with those of recent studies indicating that tablets, among other touch-screen mobile devices, enhance children's motivation and engagement in LL tasks due to their apps' multimodal sensory features, which meet the children's different learning needs and interests (physiological, cognitive, and emotional) (Pellerin, 2014). These findings further support the claim made by MALL researchers that the opportunity to make learning more personally relevant is one of the most significant affordances of mLearning (Kukulska-Hulme, 2013b).

The data indicated that the children preferred apps that suited their personal interests and skills, such as apps that offered drawing, recording (e.g., audio, video, animations or photos), games and stories.

#### **6.2.1.3.2.1 Drawing**

As drawing was very popular among the young EFL learners, their views of apps that enabled drawing were affected by their range of tools and functions. Once again, Doodle Buddy and Tinytab were highly favoured because they satisfied the children's passion for drawing and painting, as illustrated by Lana:

*I like them because I like drawing since I was a little child; it's my hobby, and the second thing is these apps like Tinytab and Doodle are the most beautiful apps I've ever used, like I can add images, I can draw, add stickers, create my own games and a lot of stuff; I practise English in an artistic way. (PS FG3)*

Some of the students explained their preference for the category of drawing and writing apps as follows:

*Nada: Because I love drawing [Lena, Amira and Nouf agree].*

*Amira: We all love drawing.*

*Nora: They are really professional; we always ask them to draw for us. (PS FG2)*

The affordance of unlimited colours offered by colour wheels in certain apps (e.g. Doodle Buddy) (Figure 6.18) attracted the young painters, as it enabled them to create their own shades:

*There is more than one colour shade; I can even invent my own shade like this one... very light [demonstrating]. Colouring pencils usually don't have very cold colours like these; I can't find them in colouring packs. (Sarah interview)*



**Figure 6.18: Affordance of accessing and creating unlimited colours provided by productivity apps**

In contrast, apps with limited colour options (Figure 6.19) were perceived to be less enjoyable and thus demotivating, despite the children's awareness that the apps' main

function was screen-casting, and that the drawing tool was thus intended to be illustrative and not professional:

*I downloaded it [the Showme app] at home and tried it; I drew and recorded while I was drawing and writing but I didn't like it because it doesn't have all the colours. When I wanted to draw a tree I found the green but the brown wasn't there and also the font size was fixed; I couldn't make it bigger or smaller. (Hana, PL FG 12)*



**Figure 6.19: Limited colour options in some productivity apps**

However, whereas the screen-casting app Showme was not enjoyed by the students whose favourite hobby was drawing, due to its restrictions on font colour and size, it was highly appreciated by the children who liked recording:

*I like this [pointing to Showme app] because it has video recording. I love the way I can record what I'm doing on the app: it was so fun, like what some TV programmes do. (Lena interview)*

#### **6.2.1.3.2.2 Recording**

Apps that enabled recording, such as the animation apps (Figure 6.20), seemed to provoke and increase the children's IM-stimulation. The children greatly enjoyed the experience of creating animations by recording their own imaginative stories and then playing them back:

*Huda: I love this app so much [pointing to Puppet Pals 2]; it's so fun, we let it [the character] ride on the horse and go around in the desert.  
Reem: I like that we create funny cartoons, we were laughing all the time.  
Hind: I feel it's me who's talking and not the puppet [she laughs] and also I feel like I'm talking a lot in English with my friend.  
Salma: I also like Sock Puppet. The cool thing is that we make these things*

*[puppets] talk in a funny voice. Reem and I chose two puppets then we started talking to each other in English like how old are you? What's your name? And so on... we never get bored from playing with it*  
*Sarah: It's so fun to create cartoons and speak with others in English*  
*Arwa: I like Sock Puppet too [Hana agrees], like when we talked in English*  
*Hind and I were laughing on our voices and when we heard the recordings they were so funny as if we're on TV. (PS FG1)*



**Figure 6.20: Recording affordance of animation apps**

### 6.2.1.3.2.3 Embedded Mini-Games

In addition to drawing and animation, the mini-games integrated with some apps emerged as another affordance enhancing the children's IM-stimulation to use apps for ELL. The children indicated that they gained great pleasure from interactive English-specific apps such as Starfalls ABCs (e.g., putting upper- and lower-case letters in the right places) (Figure 6.21) and Kids Learn English with Busuu (e.g., Make a Match) (Figure 6.22) because they offered many built-in games that kept them entertained throughout the language activities:

*I like Starfalls too because it has games and entertainment like puzzles.*  
*(Nouf, PS FG3)*

Similarly, Nora added the following comments:

*It [the Busuu app] has new games, the best apps so far are those that include games, they're the most fun apps [everyone agrees]. (PL FG5)*

The children's feelings of excitement and pleasure, however, appeared to be affected by some restrictions such as in-app purchase features, which disappointed and frustrated the children:

*Busuu is so fun and has many games. At the beginning Dana and I thought it was only games but we found that it teaches us numbers, colours, and animals. But the problem is that some stuff is locked – we have to buy it to play it! (Yara interview)*



**Figures 6.21-6.22: Embedded mini games offered by English-specific apps**

#### 6.2.1.3.2.4 Stories

Apps that provided stories (Figure 6.23) were also extremely popular among those who were keen on reading:

*I love reading stories in general but I like these electronic stories more [pointing to Play Tales Gold app]; its stories are so beautiful. (Fatimah, PS FG2)*

Although Lana too enjoyed reading the e-stories, she complained that the app's frequent notification alerts were annoying. This may have reduced her motivation to use the app to read English stories:

*I also downloaded the app with a boy carrying a yellow book [Play Tales Gold]: it's so cool and has many wonderful stories for those who love stories like me, but its problem is that it calls me a lot and this is a little bit annoying. (Lana interview)*



**Figure 6.23: Apps offering stories**

#### **6.2.1.3.2.5 Multimedia**

As well as being popular and enjoyable due to their positive impact on the children's IM-knowledge, as pointed out in the previous section, content-access apps such as YouTube were favoured by the children for the greater opportunities they offered to access multimedia learning content that suited their various interests. For example, the children enjoyed using YouTube because they could easily find educational songs on any topic they chose, satisfying their personal interest in music and songs when using their tablets at home, as indicated by the following transcript:

*Hana: I also like YouTube; the coolest thing is searching for songs about numbers, letters or colours. I find many of these, so I open them and sing and memorise them.*

*Huda: there are many songs about the English numbers in YouTube I search and choose the newest ones each time*

*Mona: why do you choose to specifically search for songs in YouTube?*

*Huda: Because I love songs; I love to sing along with them. (PS FG 1)*

This view was confirmed by Nada, who explained that using YouTube facilitated her access to materials relevant to her own interests. This seemed to enhance both her IM-knowledge and IM-stimulation, as she enjoyed learning new things as well as

searching for, choosing and accessing suitable learning materials when using her tablet beyond the school setting:

*What I like best is to write in YouTube [in the search box] 'English language learning for children' [in Arabic] and it shows me so many lessons. That's better. This way I watch new suitable lessons every day, even how to use the apps in the iPad for learning; some apps we're using now in the class.*

The findings reported and discussed in this section suggest that the young EFL students were especially excited about using certain tablet apps to learn the English language due to their multi-functional tools and multimodal choices, which seemed to cater to their particular interests. The children's IM-stimulation seemed to be strongly elicited and enhanced by these affordances, in line with Ciampa's (2013) finding that sensory stimuli as well as the multimedia capabilities offered by tablets and other mobile devices may encourage children to use these technologies for learning, as they allow them to interact with relevant content.

The increased IM-stimulation associated with using some apps for ELL seemed to promote a greater sense of autonomy among the children, as they were able to exercise freedom and control over their learning. This was made possible by the variety of multimodal tools and functions afforded by many of the apps they were using for ELL, which enabled them to choose activities that best suited their interests and skills. These findings are in line with the results of a previous study by Pellerin (2014), who reconceptualises task-based approaches through the use of mobile technologies (iPods and tablets) in the L2 classroom. This study shows that the functional and multimodal options of touch devices increased the autonomy of young Canadian students in French classes, as they were able to choose the tools they preferred to develop their

learning and produce L2 output (e.g., oral recordings using some apps) that displayed their knowledge and skills.

In my study of young Saudi students learning English as beginners, the young EFL learners took responsibility for their own learning and were determined to persist with tablet apps that they considered relevant to their interests and skills, not only during the English classes but also at home. The fun, excitement and pleasure resulting from the various affordances of the app, as illustrated in this theme, encouraged the young EFL students to autonomously use them at home, indicating a high level of self-determination.

### **6.2.2 Extrinsic-Motivation (EM)**

IM-accomplishment, IM-knowledge and IM-stimulation were not the only subtypes of motivation strongly exhibited by the young EFL students. EM (i.e., undertaking a task or engaging in an activity due to external pressure rather than enjoyment of the activity per se) also emerged as significant. More specifically, high levels of identified regulation (the most self-determined type of extrinsic motivation) were reported by the young EFL students, which clearly reflected the multifaceted nature of the children's motivation to learn in this MALL context. Many of the children's responses to my questions, as well as their comments on each other's answers and thoughts during focus-group discussions, revealed the multidimensionality of their motivation: they appeared to be motivated both intrinsically (experiencing IM-accomplishment, IM-knowledge and/or IM-stimulation) as well as extrinsically (experiencing identified regulation) when using the tablet apps for ELL.

Therefore, in addition to the multiple types of IM discussed in a previous section of this chapter, forms of EM-identified regulation emerged in the data because the children were eager to use certain tablet apps that they perceived to be particularly valuable or important to their ELL progress. As a result, the young EFL students used these apps volitionally and autonomously in the English classes and beyond to achieve their valued outcomes. These findings are in line with those of Ryan and Deci (2000), who point out that EM-identified regulation is mainly associated with feelings regarding the value of an action that make one willingly perform the action and accept its regulation as one's own. The results are also consistent with the findings of Noels et al. (2000), who report that language learners may spend more time and make extra effort to learn an L2 through repetitive verbal drills if they believe that such activities will help them to achieve a goal of L2 competence that they consider necessary to their educational development.

#### **6.2.2.1 EM-Identified Regulation**

Identified regulation was the only type of extrinsic motivation I identified in the data. A possible explanation for the absence of more externalised forms of SDT is that participation in the ELL tablet project was voluntary and the participants could withdraw at any time they wished, so all of the children in the study performed the tasks and undertook the activities of their own volition. Additionally, the children were aware that they would not be assessed or marked on their tablet-based tasks and activities, as the assessment of their English curriculum was done separately by their English teacher following the official English curriculum rules and guidelines. As the young EFL students did not use the tablet apps due to external pressure or because

they wanted to obtain instrumental outcomes, they tended to report more self-determined forms of motivation: various forms of intrinsic motivation and identified regulation. Furthermore, the time spent using the tablet apps to learn English and practise what they had been taught was limited during school hours (two classes a week), which may have encouraged them to spend more time and effort outside school on learning and practising the English language via tablet apps, especially apps that they perceived to be helpful and valuable to their ELL progress.

The need to improve their English seemed to extrinsically motivate the children to use even apps they considered silly. One example was a musical e-story app which, although perceived enjoyable and interesting by some of the children, as I pointed out in the previous theme, appeared to be valued by other students *despite* its silliness, due to its potential to enhance their ELL:

*I like this story [pointing to Storybook 1 app]; it's for like three-year-olds and as Nada said you feel it's silly but it teaches you, it's basically for three-year-olds but if you're older you can still learn from it (Nouf, PS FG 3)*

This view was generally shared by Yara when talking about English-specific interactive apps:

*I feel that these apps [pointing to interactive apps folder on the iPad screen] are more suitable for my little siblings; they work well with children who are possibly four or five [years old], but I feel they do help me to learn English.*

Although Yara perceived the tracing apps to be boring, she found them useful for learning and practising writing in English:

*This [pointing to Little Writer: The Tracing App for Kids] is very useful for writing; [learning] how to write letters and numbers. I didn't like it when it taught shapes like square, though, as it was a bit boring.*

The functional value of some apps for ELL seemed to increase the young EFL students' determination to use and persistence in using the apps' features for learning. Some of the young EFL students seemed to be aware of their own ELL weaknesses and thus chose apps that were relevant to their ELL needs. The children appeared to find value in the English-specific apps, such as tracing apps, because they perceived them to be an important means of improving their English writing skills. As reported in earlier research (Sha et al., 2012), this may be due to the apps' built-in drilling and scaffolding features, which tend to encourage more autonomous and self-regulated learning. This was illustrated by Nora, who revealed her identified regulation in the following extract:

*Interactive English [apps] are the best: Little Writer [Little Writer: The Tracing App for Kids] first, because it teaches writing and I need to learn how to write because it's so hard for me to write the letters, then Starfalls ABCs and ABC Writer, because I want something to help me to write and to make my writing better.*

Nora, however, encountered a potential problem when using the tracing apps to practise writing numbers, as she felt that their scaffolding features might allow even inaccurate tracing to be marked as correct, impeding the development of her English writing skills (Figure 6.24):

*Nora: But I have a problem with numbers so I practise them with a pen and paper; this is better than the app because...my writing isn't good so it [the app] makes it correct... sometimes I wiggle when writing and even if the line is a bit wiggly it says it's correct, but when I write with the pen I become more careful. This happens only with numbers, but with letters this app is so good; paper isn't because I wouldn't know where to start the letter, and this [the app] teaches me how to write them.*

*Mona: Have you tried a stylus for your iPad?*

*Nora: No.*

*Mona: Give it a try if you can; you might like it.*



**Figure 6.24: Issues with scaffolding features offered by tracing app**

The animation apps were also valued by the young EFL students, as they gave them the opportunity to practise speaking English conversationally:

*Farah: This app [pointing to Puppet Pal 2] is so good for getting used to talking in English.*

*Yara: Yeah for conversation in English [Dana agrees].*

*Rana: So we will know how to talk in English if we go to English [speaking] countries.*

*Fatimah: I know what she says in English and she understands what I say.*  
(PS FG2)

In the same vein, Lena seemed to find content-access apps such as YouTube useful, as she was able to search for ELL videos to supplement the ELL input she was receiving in the English classes:

*I use YouTube mostly to search for lessons to learn English letters and numbers because I want to learn them well.*

The functional value and relevance of the apps' affordances and content to the young language learners' needs were further reflected in their experiences of identified regulation. Driven by their desire to improve their ELL skills, the young EFL students

appeared to make choices and identify ways to satisfy their ELL needs. Therefore, they seemed to be motivated to autonomously use certain tablet apps or undertake certain app activities that they perceived to be important and valuable to their ELL. Consistent with earlier studies in the MALL field (Godwin-Jones, 2011; Kearney et al., 2012; Kearney et al., 2015; Kukulska-Hulme & Shield, 2008; Steel, 2012), the ubiquity of the tablets, the wide variety of apps and functions and the customisable features of some apps seemed to encourage the children to take control of their own learning and give them freedom to choose their content and improve their own performance. Taking advantage of these affordances, the children seemed to self-regulate their English learning by developing digital ELL strategies that suited their particular needs. This was illustrated by Lana as follows:

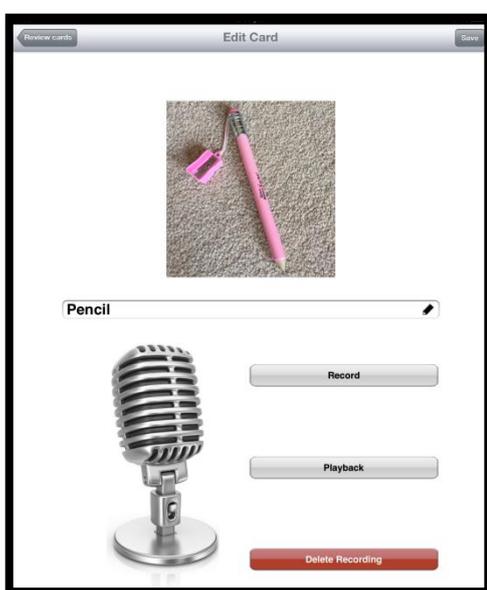
*When I want to learn English at home I always start with interactive English [category of apps] then drawing and writing [apps]. I organise my time: I open interactive English [app folder] and choose an app to learn letters like abc, and... practise writing with my finger, then I go to the drawing and writing group and start revising what I've learned and writing it down, then I go to recording [apps]. I have downloaded all the apps and found it helpful to record myself when reading the words, write on the images and save my work in Dropbox as well. (PS FG 2)*

In line with MALL research (Gromik, 2012; Palfreyman, 2012), I found that the functions of some apps, such as audio and visual recording tools that enabled the students to create authentic language materials for language practice and revision, seemed to enhance the young EFL learners' autonomy and self-regulation. For instance, Hind and Sarah seemed to find value in the customisation features of the flashcards apps (Figure 6. 25), and thus used them as a revision exercise, constructing their own flashcards for newly learned English vocabulary and saving them for 'any time, anywhere' revision:

*I prefer the educational flashcard [apps] for revision because I need to make my own flashcards and revise them whenever I wish. (Hind, PS FG 1)*

Lena added the following comments:

*Like in the class when we just learned the word 'chair', I took a photo of a chair and created a flashcard in which I recorded my voice, so for example if I forgot the word and wanted to remember it, what would I do? I might feel stuck and not know what to do, but now I can go back to the flashcard [I created] and benefit from it in revision, I revise the word and it sticks in my head. I mean I go back to it every time I forget it.*



**Figure 6.25: Role of customisation features in creating meaningful and authentic LL materials**

The customisability of some apps, combined with the ownership, mobility and accessibility of the tablets, probably encouraged the convenient and flexible exploitation of these apps by the young EFL students. This inference is consistent with data obtained by Steel (2012), indicating that adult language learners valued the customisation enabled by some language-specific mobile apps such as flashcards as well as the mobility of their devices, as they increased their opportunities to learn and

revise the target language at their own pace, met their individual learning needs, and connected their mLearning with classroom learning.

Similarly, Yara found content-access apps such as search engines useful for accessing the English input she was learning at school. To enhance her learning of the English alphabet, she searched for a picture of each letter using Google Images, saved the images, printed them and displayed them for regular revision:

*I searched for pictures of all the English letters through Google Images and I printed them and hung them up so I can memorise them and not forget any of them. (PS FG 2)*

Building on these findings, I infer that the customisability of some apps, along with the personalisation enabled by the affordances of the tablets (i.e., accessibility and mobility), encouraged and fostered more self-determined learning among the young EFL students. This was accurately reflected in their ability to self-regulate their ELL, i.e., their strong sense of responsibility, agency and autonomy in volitionally searching for and undertaking relevant app activities in their own time to augment their ELL classes. These findings are broadly in accord with mLearning literature highlighting the usefulness of the personalised learning offered by the “just enough, just-in-time, just-for-me” features of some mLearning activities (Kearney et al., 2012; Viberg & Grönlund, 2013). The findings also emphasise the value of the customised features of some apps (Steel, 2012). These factors have together been reported to encourage autonomous learning (Fayed et al., 2013) and to increase learners’ choice, agency and self-regulation (McLoughlin & Lee, 2008; Traxler, 2007).

### **6.3 Conclusion of Chapter**

In this chapter, I reported and discussed four key themes that emerged from the data regarding the motivational affordances of the tablet apps used for ELL. The findings suggested that the use of tablet apps for ELL was linked with the young EFL students' generalised feelings of intrinsic motivation (IM-accomplishment, IM-knowledge, and IM-stimulation) and extrinsic motivation (identified regulation) to learn English, in a manner consistent with Deci and Ryan's (1985) theoretical formulation and the findings reported by Noels et al. (1999, 2000).

These more self-determined forms of motivation were the only types of motivation identified from the data. This could reflect the enjoyment the children gained from using tablet apps for ELL (i.e., through their sense of accomplishment, exploration, and aesthetic appreciation of the app activities) and their high levels of responsibility and agency indicated by their identified regulation (i.e., their volitional and self-regulated use of apps to meet their ELL needs and valued goals).

In the next chapter, I conclude this thesis by summarising the main findings and the principal issues and recommendations that have arisen from this discussion.

## CHAPTER SEVEN

### CONCLUSIONS AND RECOMMENDATIONS

#### 7.1 Introduction

In this final chapter of the study, I present the conclusions I have drawn from my research. The aim of this chapter is to assimilate and synthesise the various topics and issues covered in the two findings chapters, while reflecting the initial research objectives and providing answers to the research questions. The study's key empirical findings are addressed with respect to each research question and in light of relevant research in the fields of mLearning, MALL and SDT. In the subsequent section, I address the contributions and limitations of the study, followed by a consideration of the possible implications of the study. I conclude by recommending directions for app designers, further research, policy and practice.

The major aim of my study was to explore and understand the educational and motivational affordances of tablets and their apps used by young beginner-level EFL Saudi students in a MALL context. Throughout the study, I examined the lived experiences of the young EFL language learners during their use of tablets and tablet apps for ELL both in the classroom and virtually, through a blog. To explore and understand the effects of the affordances of tablets and their apps on the young EFL students' motivation to use them for ELL, I undertook an exploratory case study in which the views, attitudes and perceptions of the children were collected through interviews, focus groups, participant observation and blogging. The analysis of the

collected data was informed by SDT (Deci & Ryan, 1985; Noels et al., 1999; 2000) and carried out with reference to relevant literature on the topic.

The study revealed that the affordances of tablets and their apps positively affected the young Saudi EFL students' intrinsic motivation and self-regulation in using these devices for ELL. The young EFL participants showed a clear preference for using the iPad tablets and various categories of iPad apps for ELL, as the devices' affordances helped to fulfil their innate need for relatedness, autonomy and competence. This in turn helped to elicit, increase and maintain the students' intrinsic motivation and encouraged them to internalise their extrinsic motivation to use the iPads for ELL. Therefore, the findings of the study are generally consistent with SDT (Deci & Ryan, 1985; Noels et al., 1999; 2000), according to which conditions and individuals in the learner's social world that support the learner's sense of competence, autonomy, and relatedness are likely to help the learner to develop and sustain an intrinsic and more self-determined extrinsic orientation (Comanaru & Noels, 2009).

## **7.2 Key Empirical Findings in Relation to Literature**

The findings of Chapter 5, which addresses the first research question which was:

**What are the motivational affordances of tablets for ELL by Saudi children learning EFL as beginners?**

The findings suggest that the technological affordances of the iPads, the increased social interaction and encouraged collaborative learning, as well as the overall positive iPad-based ELL experience, were important factors motivating the students to use the tablets to learn English in classroom settings and beyond.

The analysis of the data in this chapter closely follows the SDT principles established by Deci and Ryan (1985) and Noels et al. (1999; 2000). Alm-Lequeux's (2004, 2006), claim that SDT offers a valuable means of exploring the potential of different forms of technology to motivate language students by satisfying their need for autonomy, competence and relatedness seems to be borne out by the results of this study. Tablets were identified as motivational tools for young language learners due to their various affordances, which seemed to help satisfy the children's aforementioned three needs. I have used one of the main concepts proposed in research on the use of technology in L2 learning: MALL. This concept offered useful insights into the observed role of tablet affordances in enhancing young EFL students' motivation to learn English.

The findings of Chapter 5 seem to back up the various assertions in the literature that the affordances of tablets make these devices important tools in mLearning and MALL contexts (Chapter 3), as well as important motivators of learning (Chapter 4). The main affordances seem to be related to the technological features of the tablets, such as their mobility, accessibility and multi-functionality, which increase students' sense of autonomy and competence (Butcher, 2014; Fisher et al., 2013; Linder et al., 2013; Pellerin, 2014; Sandvik et al., 2012). The data analysis confirmed that affordances such as the large multi-touch screen, mobility and multi-functionality enhance collaborative learning and support social interaction (Butcher, 2014; Davies, 2014; Falloon & Khoo, 2014; Henderson & Yeow, 2012; Hutchison et al, 2012; Kucirkova et al., 2014; Pellerin, 2014; Sandvik et al., 2012). These two motivational aspects of the use of tablets in a MALL environment resulted in a positive tablet-based ELL experience that was greatly appreciated by the young EFL students. The analysis confirmed previous research on both the practical and the enjoyable components of the educational use of tablets (Dundar & Akcayır, 2014; Ward et al., 2013).

However, the use of tablets for learning creates some challenges and difficulties linked with their technological and social features, which may affect children's self-determination to use them for ELL. Technical issues (Butcher, 2014; Hutchison et al., 2012; Isabwe, 2012; Rossing et al, 2012; Sloan, 2012) may affect students' 'any time, anywhere' learning (Huang & Huang, 2015; O'Bannon & Thomas; 2015; Traxler, 2013) and reduce their sense of relatedness (Butcher, 2014; Hoffman, 2013; Kinash et al., 2012; Vesey, 2013). These issues emerged from the data as potential factors reducing students' motivation to use tablets for ELL. Figure 7.1 presents an infographic of the findings of the first research question.

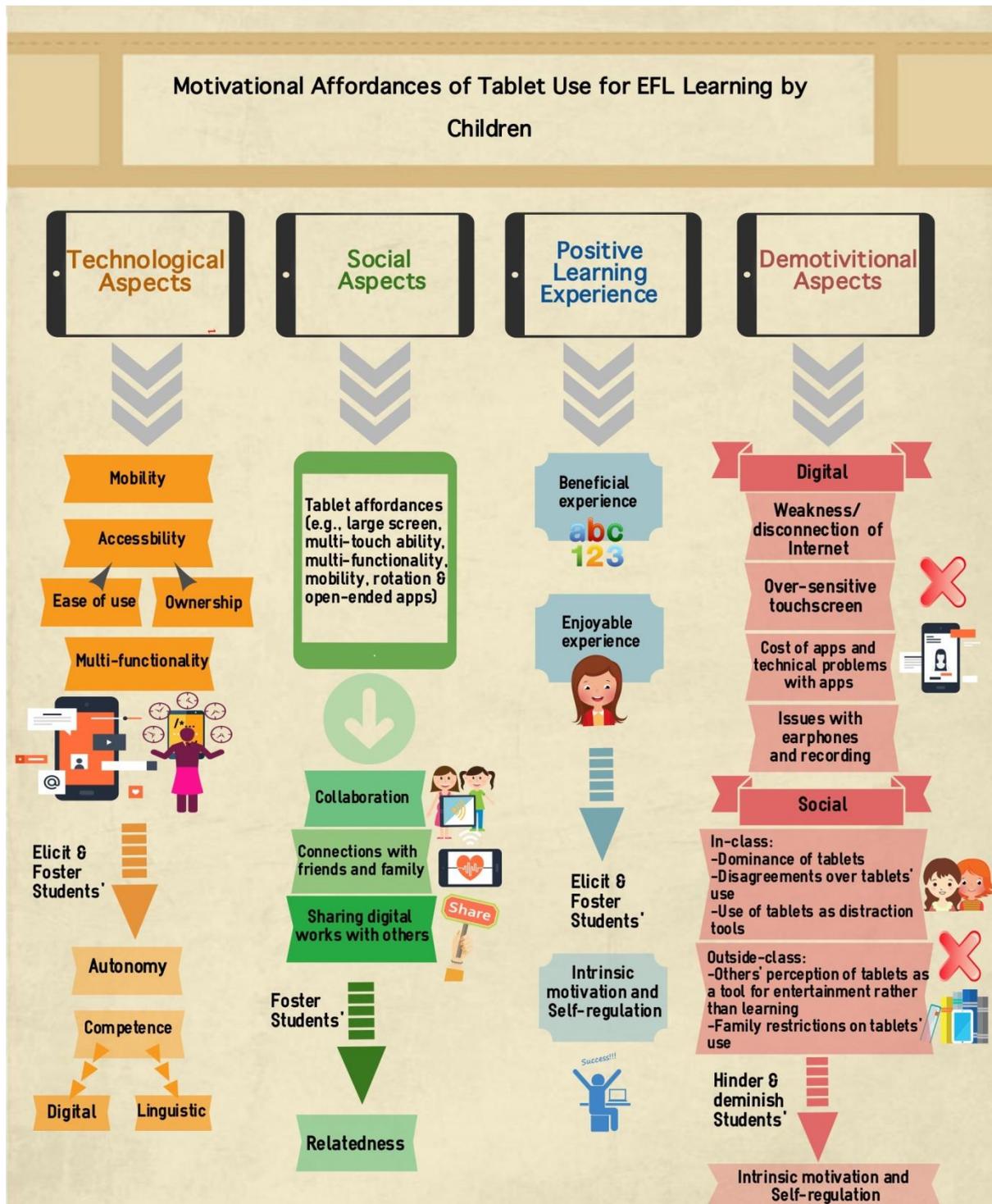


Figure 7.1 Infographic of the findings of the first research question.

In terms of the second research question, which was:

**What are the motivational factors of the most popular apps used for ELL by Saudi children learning EFL as beginners?,**

the findings discussed in Chapter 6 of this study indicate the children's positive perceptions of and attitudes towards the use of tablet apps for ELL both in and outside the English classroom. Deductive and inductive thematic analysis guided by both SDT (Deci & Ryan, 1985; Noels et al., 1999, 2000) and a typology of tablet apps for use with young beginner-level EFL students as beginners (Alhinty, 2015a) revealed all of the three subtypes of intrinsic motivation (IM-knowledge, IM-accomplishment and IM-stimulation) and the most self-determined form of extrinsic motivation (EM-identified regulation). This suggests that the children were highly intrinsically motivated and positively self-regulated by the use of the tablet apps for ELL. The children's perception of tablet apps as enjoyable and entertaining reflects their intrinsic motivation, and their perception of the apps as personally meaningful and beneficial suggests their identified regulation. However, their intrinsic motivation and self-regulation seemed to be significantly affected by differences in the affordances of apps in different categories. In other words, the children's preferences for certain categories of apps were determined to a large extent by the apps' affordances and their role in fulfilling the students' innate need for autonomy, relatedness and competence. Apps that met these needs seemed to encourage and maintain intrinsic motivation and more self-determined forms of EM. These findings build in particular on the work of some of the SDT researchers reviewed in Chapter 4. Many of these studies emphasise the need to understand ways of fostering and sustaining various types of IM, to determine the forces and influences that may hinder the development of IM, to examine the different types of EM, and to determine effective ways of facilitating and

fostering the internalisation of EM in order to achieve successful learning (Noels, 2001; Ryan & Deci, 2000), as discussed in Chapter 6.

Consistent with previous research on SDT (Deci & Ryan, 1985) and L2 SDT (Wu, 2003), the children's IM-accomplishment appeared to be affected by the features of the apps (and environmental factors). Apps that offered optimal challenges, instructional support and technical scaffolding, and feedback and rewards enhanced their enjoyment of competence and accomplishment. Apps that lack these features however were perceived over-challenging and thus demotivating, a finding in accord with earlier research on apps (Falloon, 2013). In line with MALL literature (Gromik, 2012; Martí & Ferrer, 2012), one of the significant affordances of some apps that were most appreciated by the children was the multi-functionality of the apps, which empowered the children to create their own digital ELL materials or access suitable English resources via the apps' embedded features. This resulted in an enhanced sense of accomplishment and increased motivation to learn, which supported their need for competence.

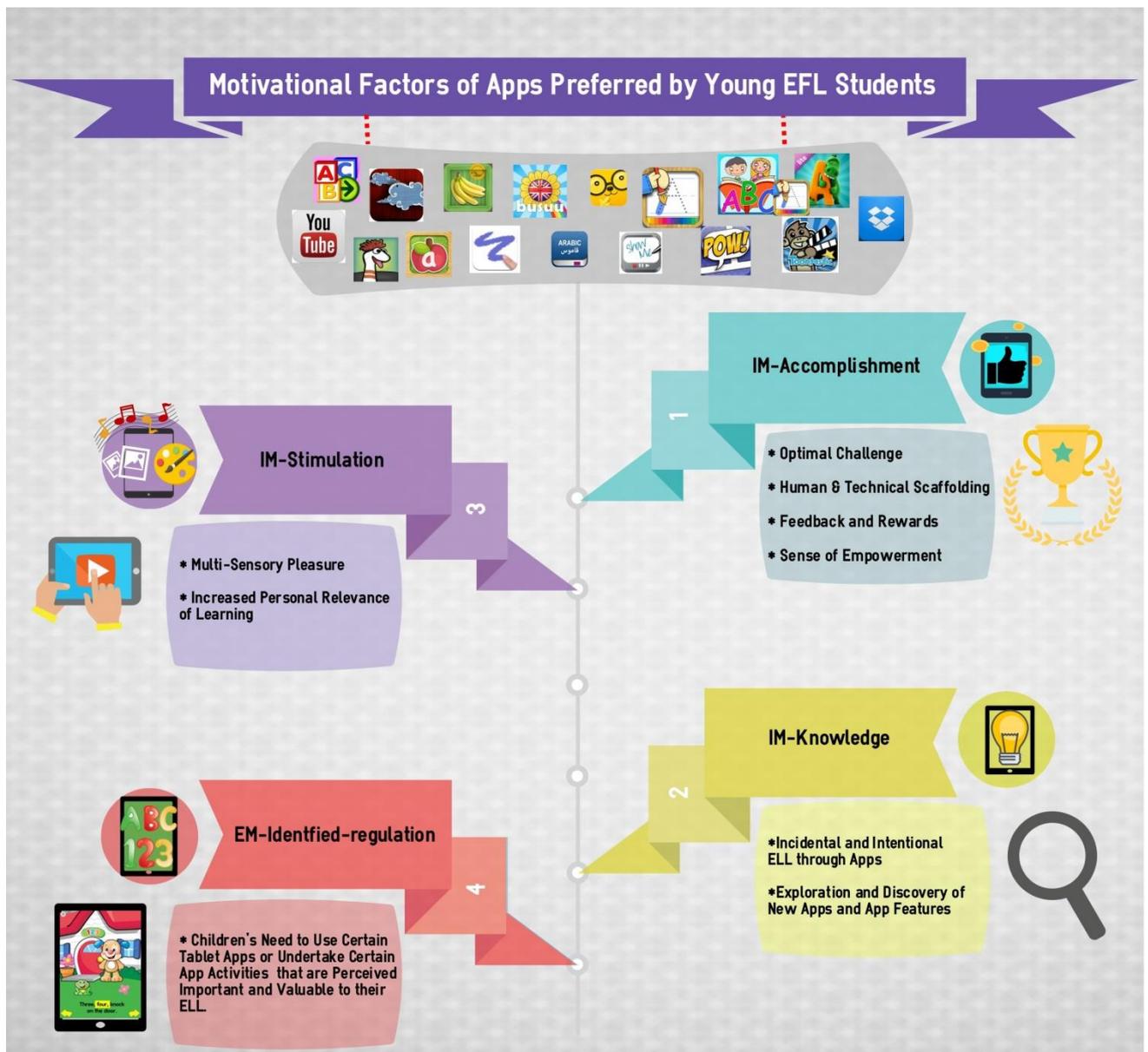
The children's IM-knowledge reflected in the extent to which they enjoyed exploring and learning about new digital and linguistic items, was greatly affected by key app affordances. Apps that regularly introduced a small new chunk of English input to illustrate the item taught were perceived as enjoyable, and motivated both intentional and incidental ELL. The children's pleasure in exploring new features of apps and discovering new apps for ELL indicated their strong IM-knowledge. The students' need for autonomy seemed to be supported by the various options offered by the apps, as well as their ease of navigation, which encouraged volitional and spontaneous exploration; the students searched for materials to supplement their learning both in class and beyond. These findings are broadly consistent with data obtained by Ciampa

(2013), Kucirkova et al., (2014), Kukulska-Hulme (2015) and Traxler (2013). However, the children's freedom to explore and choose their own learning paths was occasionally restricted by apps with excessively difficult content. This finding is similar to those obtained by Brown et al. (2012) and Fallon (2013).

The young language learners' IM-stimulation generated by the use of tablet apps for ELL was amply reflected in their accounts of sensory pleasure, fun and excitement when using various apps. Their high levels of IM-stimulation may be due to the multi-sensory experience afforded by the integrated multimodal elements of the apps, such as sound effects, music and songs, graphics, animations and multimedia content, which seemed to entertain the children and motivate them to use the apps for learning. In addition, some apps may have increased the personal relevance of the learning materials, tailoring them to the children's interests and skills. With their multi-functional capabilities such as drawing tools, recording features, integrated mini-games and animated stories, some apps catered to the children's particular interests and skills, making the students even more excited about using the apps to learn English. These findings are consistent with the results of earlier studies by Ciampa (2013) and Pellerin (2014). The children's IM-stimulation also seemed to be associated with their sense of autonomy. In searching for and choosing apps that made them feel happy and excited and best suited their interests and skills, the children were able to exercise volition and control over their learning.

EM-identified regulation was the only form of EM to emerge from the data analysis. This type of EM may have arisen due to the children's awareness that some tablet apps were of value to their ELL. This awareness seemed to encourage more volitional and autonomous app-based ELL, both in the classroom and beyond, to achieve the desired learning outcomes. English-specific apps with drilling and scaffolding

features, content-access apps offering access to a wide range of ELL materials, and apps with customisable features were greatly favoured due to their functional value in improving the children's ELL. These affordances appeared to foster the students' sense of responsibility and increase their self-regulation, agency and autonomy in willingly using apps in their own time to supplement their classroom ELL. These findings are generally consistent with the results reported by Ryan and Deci (2000), Noels et al. (2000), McLoughlin and Lee (2008) and Traxler (2007). Figure 7.2 below offers an infographic of the findings of the second research question.



**Figure 7.2: Infographic of the findings of the second research question**

### 7.3 Contribution of the Study

The present study adds to the literature on the application of L2 SDT to the uses of tablets and their apps in MALL environments, as research in these three areas is relatively new and the related literature is still limited.

My review of existing research, which is discussed in Chapter Two, suggested that exploiting the affordances of tablets (such as their large multi-touch screens, mobility, accessibility, powerful functionality and vast selection of apps) to support learning (Butcher, 2014; Falloon & Khoo, 2014; Fisher et al., 2013; Kucirkova et al., 2014; Linder et al., 2013; Pellerin, 2014) is a fairly new phenomenon, especially in MALL contexts. Although an increasing number of studies have been published on the uses of tablets and their apps in educational contexts, the majority of these papers are concerned with examining the devices' application in higher education, among students with disabilities, in early childhood, or for first-language learning by primary-school children. Many researchers have investigated the design and construction of mLearning systems via tablets and tablet apps to convey educational content relevant to a curriculum or course. These studies have helped to increase our understanding of the potential uses of tablets and their apps for educational purposes. However, most studies investigating such uses have focused on first-language learning by children or adult learning in various domains. No research has previously been conducted on the educational uses of tablets for ELL by children studying EFL at beginner level, or the influence of these uses on their ELL performance. Therefore, my study has broken new ground in offering data on the factors that motivate young EFL students to use tablets and tablet apps for ELL.

This study not only provides insights into the role of tablets as tools for ELL by young EFL students, but offers new information on the use of tablet apps for ELL. A key accomplishment of the study is the development of a typology of tablet apps for use by young beginner-level English-language learners both in classroom settings and outside school (Figure 4:4). This typology enhances our understanding of the potential

of iPad apps to assist language learning, and the findings of its practical implementation provide useful insights into the motivational and demotivational factors affecting the use of iPad apps in MALL environments.

My application of the concept of L2 SDT increased the originality of my study. Although this concept was first considered in the context of LL in the late 1990s (Noels et al., 1999, 2000), its influence on young EFL students' use of tablets and their apps for ELL has received no attention from researchers. Research on the applications of L2 SDT in technology-mediated language-learning contexts has focused on the use of computers to support language learners' need for autonomy, relatedness and competence and thereby increase their L2 self-determination (Alm-Lequeux, 2004; 2006). This study expands our understanding of L2 self-determination by analysing CALL in relation to the satisfaction of basic human needs. My study opens up a new dimension of research by contributing to understanding of how the affordances of tablets, as a type of mobile technology, can support young language learners' need for autonomy, relatedness and competence, which are all necessary to their L2 self-determination. The study also shows how the various affordances of tablet apps can support children's L2 self-determination. This study is the first to analyse the affordances of tablet apps in relation to different types of IM and degrees of EM, as specified in the L2 SDT model (Noels et al., 1999; 2000). The data subject to qualitative analysis were obtained entirely from the young participants' lived experiences in their own words, supplementing the existing findings of L2 SDT research, which are mainly quantitative.

This study offers a valuable exploration of the effects of tablets and their apps on young EFL students' L2 self-determination from the perspective of the children themselves, who were able to voice their opinions and perceptions of their own experiences and thus act as active constructors of knowledge rather than passive receptors (James & Prout, 1990). The children involved in the study were very proud of and pleased with their participation in the study, not only because they enjoyed and benefited from the project but also because taking part in this research made them feel that their experiences were valued and gave them the chance to express their opinions and feelings freely, which they had never done before. The crystallisation of several qualitative methods of data collection not only strengthened the findings of the study but offered the children different platforms from which to describe their feelings, opinions and real-life experiences. Research based on children's own perspectives is very rare in the context of the study (Riyadh, Saudi Arabia). Therefore, this study also contributes to the literature by indicating the need for more children's voices to be included in research on children; children should share the role of researcher rather than simply being researched (Darbyshire, 2000; Oakley, 1994).

#### **7.4 Limitations of the Study**

Despite their value in enabling in-depth exploration of a given phenomenon within a defined setting, case studies are traditionally criticised for their lack of generalisability. Their findings cannot be statistically generalised to a wider setting than the targeted population due to their small sample size (Merriam & Associates, 2002; Schewardt, 2007). In this study, although 22 young participants were closely observed and interviewed to explore the topic in depth, only one 4<sup>th</sup>-grade English

class from one state primary school in Riyadh, Saudi Arabia was sampled, as this method and sample suited the particular objectives of the study. As this one class does not represent all of the schools in Saudi Arabia, the findings of this study cannot be generalised beyond schools whose demographic characteristics match those of the school in which the study was undertaken. However, as the case study is qualitative, the concept of statistical generalisation is less appropriate than that of analytical generalisation (Yin, 2009). The aim of this research was not to statistically generalise the findings to a larger population. Instead, I sought to expand and generalise existing theories of the use of tablets and their apps in MALL contexts by young learners, offering a prelude to extended research on this phenomenon from which more statistically generalisable results can be obtained. Nevertheless, the findings of my study may be applicable to schools and classes with characteristics similar to those of my case-study site and participants (Lincoln & Guba, 1985). I provide rich descriptions of the case and the methods of data collection and analysis to help other researchers make decisions about the transferability of the findings to their own contexts.

One of the limitations of this case study is the use of only one specific brand of tablets which was the Apple iPads. However, as I previously outlined (see Section 2.5) Apple iPads and IOS apps were chosen due to the widespread popularity and use of them in the context of this study, compared with other tablets.

As this case study was conducted as part of a PhD degree, it has some practical limitations due to the constraints placed on time and resources by the presence of only one researcher. As all human activities are limited, including academic research,

perfection can hardly be claimed; researchers must simply make as much effort as possible and deploy their available resources and time as efficiently as possible to accomplish their desired goals.

### **7.5 Implications of Findings**

My study offers suggestive insights into the potential of tablet devices and their apps as educational tools to motivate young beginner-level EFL students to learn English. The findings suggest that the young EFL students' experience of the tablets and their apps as educational tools for ELL both in the classroom setting and beyond was highly positive and motivating. The positivity of this experience was due largely to the enjoyable and beneficial affordances of the tablets and their apps. However, the children's motivation was adversely affected by a few factors. To elicit, enhance and sustain children's self-determination and intrinsic motivation, conditions for learning that fulfil children's needs for autonomy, competence and relatedness must be provided. Both the contextual factors examined in the study and the affordances of tablets and their apps had to meet these needs in order to encourage and maintain the self-determined forms of motivation needed for effective ELL.

The findings suggest that when satisfying the needs for relatedness, autonomy and competence, the affordances of tablets and their apps can increase children's intrinsic EFL learning motivation and self-regulation in and outside school settings, thus maximising their exposure to and practice of the target language. These findings may be of interest to education practitioners and other individuals and communities concerned with the topic under study. This research has enlightened and deepened our understanding of this topic, and may thus offer language teachers and researchers

insights into the possible uses and motivational aspects of tablet apps for ELL by children.

The tablet-app typology presented in the study offers a useful guide for EFL teachers in young beginner classrooms. Additionally, I report valuable lessons learned through my exploration of integrating tablets and apps into the EFL classroom. For instance, although tablets and their apps have affordances that can greatly motivate ELL, some aspects of their use can be demotivating. I hope that this typology, along with the lessons learned from its practical integration in the young EFL students' classroom, will encourage and guide EFL teachers to exploit the affordances of these devices and their apps, especially given their popularity among children, to enhance students' self-determination to use them for ELL.

This can be achieved by supporting children's sense of belonging and relatedness to significant others and fulfilling their need for accomplishment and their need to exercise agency and control over their own learning. Many teachers wish to make use of these devices for learning. However, they may be inhibited by insufficient knowledge and a lack of the necessary experience to use the devices for teaching and learning. I witnessed this myself during my study at the primary school in Riyadh. Individuals teaching other subjects expressed the desire to learn about the educational use of apps for ELL. They already used iPads and their apps for entertainment, but wished to learn more about the devices' educational uses to encourage their own children, who were also learning EFL, to learn more English. Some of them asked for copies of the list of recommended apps I had created for the students. Although these teachers worked in different disciplines and sought to teach their own children informally, this might shed light on teachers' need for practical guidance and training to effectively integrate and exploit tablets and tablet apps in the classroom.

Furthermore, the findings of this study may be beneficial in EFL contexts in which LL is restricted by formal teaching methods and limited exposure to or practice of the target language outside class. Despite some technical and social limitations on the tablets' educational use, the children's exposure to and practice of English significantly increased as a result of using the tablets and their apps. Although the school's provision of ELL was still limited to two classes per week, the children made the most of their devices and their apps to supplement their formal ELL outside school hours. The affordances of the tablets, including their mobility, accessibility and multi-functionality, as well as the various uses of the apps, helped the children to learn and practise English at any time and anywhere.

This leads us to another interesting finding of the study: the new sense of control and agency over their learning experienced by the children as a result of using tablets and their apps for ELL. These devices and their apps offered the children opportunities to make their own decisions and learn autonomously, both outside school and within their English classes. This increased sense of autonomy, together with the communicative and collaborative learning mediated and fostered by the tablets and their apps, appeared to encourage a shift in classroom learning and teaching from teacher-centred to more learner-centred approaches. These findings may be of great interest in similar contexts in which children still struggle with deeply rooted traditional learning and teaching approaches characterised by their teacher-centeredness and emphasis on memorisation, repetition and grammar exercises. Most language learners, especially young beginners, are discouraged by this emphasis on solo and passive learning and correctness, which inhibits fluency and makes learners afraid of making mistakes in public. The current findings offer insights into ways for teachers and other educators to exploit tablets and their apps to encourage

communicative and autonomous LL both in the classroom and beyond. Associated with the emergence of more collaborative and autonomous ELL in this study were feelings of confidence and competence enhanced by the educational use of tablets and their apps.

## **7.6 Practical Recommendations**

The prevalence and popularity of tablets and their apps amongst children cannot be ignored. Their potential as motivational tools in the EFL classroom urgently requires further attention. However, “introducing new practices into classrooms is a complex business” (Merchant, 2012b, p. 163) that requires careful consideration. Therefore, this section presents recommendations for policy, practice and future research based on the findings of the study.

### **7.6.1 For Policy Makers**

As noted earlier, the introduction of tablets and their apps to the EFL classroom was extremely popular among the children, who perceived the devices to be motivating, enjoyable and valuable for their ELL. The current CALL programme in primary schools in Saudi Arabia does not seem to respond adequately to children’s need for autonomy, relatedness and competence, as it lacks the fundamental qualities to support autonomous learning, collaborative learning and the acquisition of sufficient ELL competence. MALL programmes are mostly absent in this context, especially in state primary schools. Therefore, the implementation of an effective MALL programme via tablets and their apps is highly encouraged. However, the key questions here are as

follows: What considerations should be taken into account to establish and develop an effective MALL programme using tablets and their apps? How can such a programme be conducted in real-life Saudi primary schools, where teachers are not supplied with the appropriate methodological expertise, classroom-management skills and technical and technological competence needed to work with this technology?

As noted by Pegrum (2014), the challenge of education nowadays is not the delivery of knowledge but the design of environments, tools and meaningful activities in which learners can construct knowledge; teachers should be perceived as techno-pedagogical designers. The Saudi Ministry of Education could promote change by developing a long-term plan with the aims of a) introducing tablets and their apps to EFL classrooms in a planned way that takes full account of curriculum objectives, b) offering EFL teachers training in effective and useful ways of using tablets and apps prior to the implementation of the tablets, along with regular in-service training, c) allocating more financial resources to improve schools' technical infrastructure, d) providing on-site and online support for teachers and staff, and e) encouraging collaboration and discussion among teachers to identify instructional needs and management issues regarding tablets and their apps.

It is, however, crucial to consider how tablets' ownership crosses with levels of social and economic advantage and disadvantage as highlighted by Merchant (2015a), who indicates that integrating tablets in education may draw on the cultural capital of some children and not others, thereby aggravating current inequalities. This issue has to be taken into consideration when planning the integration of new technologies such as tablets in education.

### **7.6.2 For Practitioners**

It is crucial to emphasise that tablets and their apps are not magical tools that invariably motivate children to learn English or other languages. EFL teachers need to know that increasing their young students' intrinsic motivation and self-determination is not achievable merely by throwing tablets into their classrooms. Students need to be properly guided – both technologically and methodologically – in the best use of these devices for ELL. Not all students are digital natives; many lack the necessary knowledge and skills to solve problems when embracing new technologies. Consequently, designing a supportive environment accompanied by expert and peer assistance is vital for MALL. Teachers' guidance on how to best exploit tablets and apps for ELL is crucial, “since students may not be aware of the technological affordances of the new technology, the cognitive underpinnings of LL or how they could be combined to foster competence” (Chen, 2013, p. 29).

As suggested by the findings of the present study, the social affordances of tablets play a crucial role in supporting students' need for autonomy, competence and relatedness. To make effective use of these powerful tools, EFL teachers should be aware of the students' needs, skills and interests and the equivalent affordances of tablets and their apps.

EFL teachers should take several considerations into account when planning to implement tablets and their apps into young EFL students' classrooms.

- 1- They should be acquainted with the curricular and technological objectives for their school/region.
- 2- They are advised to thoroughly review apps of potential use in achieving EFL classroom objectives. The typology offered in this study provides very useful

guidelines for teachers. However, teachers still need to regularly examine the content of these apps, as many are not regularly updated and some are updated with new, distracting elements (e.g., banners and advertisements). In addition, an enormous range of apps are added daily to app stores, with potentially great educational value for EFL students.

- 3- The motivational and educational potential of tablets and their apps should be discussed with school leadership to enable co-planning of their integration and funding.
- 4- English app activities for students should be designed according to the English syllabus and the students' needs and interests to motivate all children to learn. They should also be informed by pedagogical approaches necessary to encourage more self-determined forms of learning, and should be designed to exploit the motivational affordances of tablets and their apps. Teachers' choice of apps should strike a balance between functionality and enjoyment.
- 5- Students should be offered opportunities to explore the content of apps and experiment with their tools while teachers demonstrate the main functions and model learning practices.
- 6- More collaborative learning via tablets and their apps should be offered; students should be encouraged to assist, teach and scaffold each other and share their work and learning experiences with their peers. In addition, students need to be given enough time to accomplish their tasks and create digital output in order to foster their competence. Regularly introducing new apps with powerful multi-functional tools and various features that cater to students' different interests and skills is recommended.

- 7- EFL students need more exposure to and opportunities to practise the language in order to achieve effective ELL. Teachers, therefore, are recommended to encourage students' utilisation of the affordances of tablets and apps to expand their formal classroom learning to other contexts in which they can flexibly access and practise the language. Teachers could facilitate and scaffold this learning through social platforms accessed through tablet apps.
- 8- Finally, teachers are advised to develop a mobile system to assess students, manage their work and monitor their progress (e.g., using the Edmodo app).

### **7.6.3 For App Developers**

The findings of this study may also offer insights and suggestions for app developers who wish to design apps with educational content suitable for beginner EFL students of different ages. As identified in this study, most of the English-specific apps suitable for 9- to 10-year-old children at beginner level were basically designed for English-language pre-schoolers, so their design was perceived by the children to be babyish and silly. Other demotivating features of tablet apps reported in this study included a lack of clarity in the purpose of some apps or app-based activities, and the complex instructions provided for some apps. These features were problematic due to the language barrier (as the app instructions were given in English) and/or to the many complicated steps involved in using the apps. App developers are advised to enable users to choose their preferred language of instruction, to clearly model the usage of apps (via animated items or pedagogical agents), and/or to add clear logos denoting the apps' features to enhance understanding of their use. In addition, app developers should offer more opportunities to customise the settings of apps, such as

disabling/muting app notifications, choosing between portrait and landscape mode and using apps singly or concurrently. Apps with a recording function should not impose a time limit on recordings, as this was perceived to be demotivating by the children in this study. Tracing apps could be improved by making them more sensitive to children's finger movements; children should be told whether their tracing has been neatly done or needs improvement rather than simply whether it is correct or incorrect. In addition, apps offering a wide range of choices and features (e.g. colours and font sizes), functions (e.g. audio/video recording, taking photos, drawing, searching the Internet, storage, embedded mini-games), forms of scaffolding and rewards were perceived to be motivating, as they catered for the children's different needs, interests, skills and personal preferences.

App developers should thus pay more attention to the different needs, skills and interests of students of various age groups, and take advantage of the insights offered here into the affordances perceived as motivating and demotivating when designing apps.

#### **7.6.4 Directions for Future Research**

The findings of this study suggest several areas that are in need of further investigation. This research was a case study of one EFL classroom, focusing on the perceptions and attitudes of young EFL students and investigating the motivational aspects of tablets and their apps. Further studies that examine the connection between the motivational aspects of tablets and their apps and students' achievement and learning outcomes could provide an even broader perspective on this subject, and

generate quantitative and generalisable data. Possible areas for further research include the use of tablets and apps by different age groups, the acquisition of non-English languages, and the study of non-language subjects. In addition, other researchers may wish to investigate this topic more deeply by extending the investigation to include parents' and teachers' views to gain a full picture of the motivational features and influence of tablets and apps on young students' EFL learning. Furthermore, future researchers investigating this topic could incorporate video recording as a tool to collect data in order to maximise the analytical possibilities. Future research on tablets and their apps for ELL by children could also include more longitudinal studies to determine whether the children's intrinsic motivation and self-determination to use tablets and their apps change over a longer period of time and explore the factors responsible for any change.

## **7.7 Final Words**

At the end of this research, I hope that the main questions have been adequately addressed and a foundation laid for others to investigate the educational and motivational possibilities of tablets and tablet apps in MALL contexts. The findings of this study not only highlight the vast range of opportunities provided by tablets and their apps for EFL beginners to learn and practise the English language, but show how the affordances of these tools can both greatly motivate ELL and negatively affect students' self-determination to use them for ELL.

Despite identifying certain demotivational aspects of tablets and apps, the young EFL students involved in this study emphasised the enjoyment and value gained from their

experience of using tablets and apps for ELL. They felt that the study offered most of the key ingredients of effective EFL learning and improvement, and all wished that these principles could be applied nationally in a country-wide ELL programme. As young learners studying in a traditionally restricted teacher-centred EFL context, their participation in this study enabled them to exercise their self-determination in a way that they had never done before. This was enabled by both the affordances of the tablets and apps and the opportunity I gave them to freely express their own views and voice their own opinions on their use of these tools for ELL. My own view, today, is that this fundamentally optimistic portrait of children's EFL learning via tablets and apps indicates fruitful ground for further research designed to improve current EFL programmes to attain educational excellence.

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## APPENDICES

### Appendix 1 Handouts of iPad use rules (English version)

# OUR IPAD RULES

1. Clean your hands before using your iPad



2. Tap the screen gently



3. Keep drinks away from your iPad



4. Sit down while using your iPad



5. When moving, carry your iPad with BOTH hands



6. If there is a problem ask for help



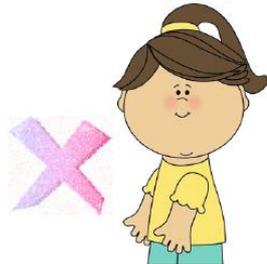
7. Turn your iPad off when you are finished



8. Only use the apps or websites you have been instructed to use



9. Don't delete any apps or change any setting on your iPad



10. Share is care; share it with your partner and take turn



## Appendix 2

### Handouts of Recommended Apps- English Version

**Recommended Apps**

**Apps to record audios and videos and take photos**

-  Camera (Take photos)
-  Voice Memos (Record voice)
-  AudioNote (Record voice+ take photos+ add text+ paint)
-  Drawp (Record voice+ take photos+ add text+ paint + save/share)
-  ScreenChomp (Screencasting + write +paint + save/share)
-  Pic College (Add photos + text + save /share)
-  Tiny Tap (Record voice+ take photos+ add text+ save/share)
-  Doceri (Screencasting + write +paint + save/share)
-  ShowMe (Screencasting + write +paint + save/share)
-  Educreations (Screencasting + write +paint + save/share)

1

## Apps to take notes and practise writing



My blackboard (Take notes +paint +save/share)



Totes m'Notes (Take notes +paint +save/share)



Haiku Deck (Write +paint+ add photos +save/share)



Paperless (Write +paint+ add photos +save/share)



Notes (Take notes)



TopNotes (Create notebook, write + paint+ save/share)



Doodle Buddy (Write +paint+ add photos +save/share)



MyScript Memo (Write +paint+ add photos +save/share)



Sketchbook Express (Paint + add text + save/ share)



Strip Designer (Add photos + text + save /share)

## Apps to create animation and multimedia



Sock Puppets (Create animation)



Puppet Pals HD (Create animation)



Animation Creator HD (Create animation)



Toontastic (Create animation)

## Apps to practice listening, speaking & writing



Endless Alphabet (Learn English alphabets + vocabulary)



Little Writer-The Tracing App for Kids (Alphabets + numbers + shapes)



I love ABC (Learn English alphabets)



Kidpedia (Learn English alphabets)



Talking ABC (Learn English alphabets)



Learn the Alphabet- ABC Tracing (Write English alphabets)



ABC Fruit (Learn English alphabets + alphabet chant)



Everybody English (Learn feelings + sea animals)



Busuu Kids (Learn colours + numbers + pets)



ABC's Writer (Write English alphabets)



Comparative Adjectives

## Flashcards Apps



Animal Zoo Flash Cards & Games (Learn animals + create flashcards)



Flash Cards for Kids-First Food Words (Learn food + create flashcards)



My First Words-Flashcards Apps (learn words + create flashcards)



Evernote Peek (Create flashcards)



First English Words for Arabic Speakers (Arabic/English words)

## Apps for searching English learning materials



Safari (Searching English materials)



Google (Searching English materials)



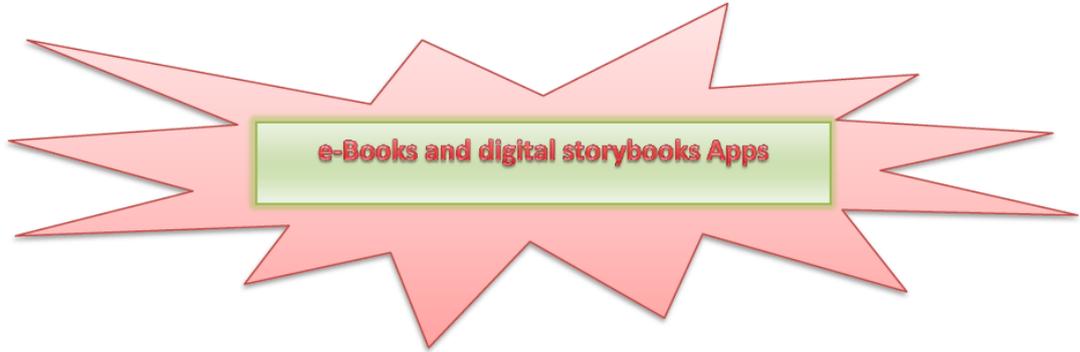
iPad App Store (Searching English materials)



iTunes (Searching English materials)



iTunesU (Searching English materials)



Storybook Rhymes Volume 1 (Storybook)



Storybook Rhymes Volume 2 (Storybook)



Storybook Rhymes Volume 3 (Storybook)



iStoryTime (Storybook)



PlayTales Gold (Storybooks)



iBooks (Online English books)



Free Books (Online English books)



iTunes U (Online English reading materials)

## e-Dictionaries



Arabic Dictionary Box

## Apps to access educational audio-video materials in English



YouTube (Accessing English audio-video materials)



iTunes (Accessing English audio-video materials)

## Apps to save and store English content



Dropbox (Saving/ storing)



Evernote (Saving/ storing)



SugarSynac (Saving/ storing)

*Please note,,*

- *This list is a collection of free Apps that may include In-App-Purchase. Please take the permission of your parents before downloading any of these free or paid apps.*
- *Avoid taking photos of yourself or any members of your family*
- *If you have any questions or need any help regarding the use of these Apps please feel free to ask me either directly or through the blog.*

*Mona*

## Appendix 3

### Ethical Approval Letter from University of Sheffield



**The  
School  
Of  
Education.**

**Mona Alhinty  
PhD**

**Head of School  
Professor Cathy Nutbrown**

**School of Education  
888 Glossop Road  
Sheffield  
S10 2JA**

21 June 2018

**Telephone: +44 (0)114 222 8180  
Email: MPhil-PhD@sheffield.ac.uk**

Dear Mona,

**ETHICAL APPROVAL LETTER**

**"Tablets as educational tools for learning English by children in Saudi Primary Schools; an investigation of iPad usage, and learning perspectives"**

Thank you for submitting your ethics application. I am writing to confirm that your application has now been approved.

We recommend you refer to the reviewers' additional comments (please see attached). You should discuss how you are going to respond to these comments with your supervisor BEFORE you proceed with your research.

This letter is evidence that your application has been approved and should be included as an Appendix in your final submission.

Good luck with your research.

Yours sincerely

**Professor Dan Goodley  
Chair of the School of Education Ethics Review Panel**

cc Jackie Marsh  
Davy Heymann (RIS)  
Enc Ethical Review Feedback Sheet(s)

# Appendix 4

## Code Map of Nvivo 10

Tablets in MALL.nvp - NVivo

Look for: Search In Motivational aspect Find Now Clear Advanced Find

| Name                                   | Sources | References | Created On       | Created By | Modified On      | Modified By |
|--|---------|------------|------------------|------------|------------------|-------------|
| Task design                            | 3       | 12         | 14/10/2014 12:05 | HY         | 29/09/2015 12:49 | HY          |
| Technological aspect of iPads          | 0       | 0          | 14/10/2014 12:02 | HY         | 29/09/2015 10:11 | HY          |
| Multi-functionality                    | 0       | 0          | 14/10/2014 13:01 | HY         | 29/09/2015 11:58 | HY          |
| Multi-functional capabilities          | 15      | 77         | 14/10/2014 13:55 | HY         | 29/09/2015 12:12 | HY          |
| Photos taking and voice recordin       | 14      | 33         | 14/10/2014 13:06 | HY         | 29/09/2015 12:01 | HY          |
| Enable searching, surfing and lea      | 6       | 7          | 14/10/2014 14:18 | HY         | 29/09/2015 12:02 | HY          |
| Multimedia; music and films            | 7       | 16         | 14/10/2014 14:20 | HY         | 29/09/2015 12:02 | HY          |
| Social media                           | 5       | 6          | 14/10/2014 14:20 | HY         | 29/09/2015 12:03 | HY          |
| eBooks                                 | 7       | 7          | 14/10/2014 14:18 | HY         | 29/09/2015 12:03 | HY          |
| Educational apps and entertaining ap   | 11      | 19         | 14/10/2014 14:31 | HY         | 29/09/2015 12:12 | HY          |
| Touch-screen (interactivity)           | 14      | 29         | 14/10/2014 14:47 | HY         | 29/09/2015 12:12 | HY          |
| No wires needed                        | 1       | 1          | 16/10/2014 02:58 | HY         | 29/09/2015 12:12 | HY          |
| Looks attractive                       | 1       | 1          | 22/10/2014 14:31 | HY         | 29/09/2015 13:43 | HY          |
| Sounds                                 | 5       | 5          | 16/10/2014 03:58 | HY         | 29/09/2015 12:12 | HY          |
| Mobility (lightweight+ no wires+ rotat | 18      | 64         | 14/10/2014 14:32 | HY         | 29/09/2015 12:05 | HY          |
| Accessibility                          | 0       | 0          | 14/10/2014 14:32 | HY         | 29/09/2015 11:39 | HY          |
| Personal ownership                     | 10      | 44         | 29/09/2015 11:11 | HY         | 29/09/2015 11:25 | HY          |
| Ease of use                            | 12      | 52         | 29/09/2015 11:11 | HY         | 29/09/2015 11:27 | HY          |
| Quick and easy navigation of iPa       | 12      | 54         | 29/09/2015 11:42 | HY         | 29/09/2015 11:53 | HY          |
| Self-downloading, fixing and upd       | 9       | 21         | 29/09/2015 11:42 | HY         | 29/09/2015 11:54 | HY          |
| Less technical problems                | 4       | 15         | 29/09/2015 11:42 | HY         | 29/09/2015 11:56 | HY          |
| Social aspect of iPad use              | 0       | 0          | 14/10/2014 12:01 | HY         | 29/09/2015 13:32 | HY          |
| Collaboration                          | 0       | 0          | 14/10/2014 12:07 | HY         | 29/09/2015 12:38 | HY          |
| Sharing and co-production of tasks     | 17      | 62         | 14/10/2014 12:29 | HY         | 29/09/2015 12:40 | HY          |
| Scaffolding                            | 15      | 45         | 14/10/2014 14:02 | HY         | 29/09/2015 12:36 | HY          |

Tablets in MALL.nvp - NVivo

Look for: Search In Motivational aspect Find Now Clear Advanced Find

| Name                                    | Sources | References | Created On       | Created By | Modified On      | Modified By |
|---|---------|------------|------------------|------------|------------------|-------------|
| Collaboration                           | 0       | 0          | 14/10/2014 12:07 | HY         | 29/09/2015 12:38 | HY          |
| Sharing and co-production of tasks      | 17      | 62         | 14/10/2014 12:29 | HY         | 29/09/2015 12:40 | HY          |
| Scaffolding                             | 15      | 45         | 14/10/2014 14:02 | HY         | 29/09/2015 12:36 | HY          |
| Taking turn                             | 11      | 33         | 17/10/2014 12:39 | HY         | 29/09/2015 12:37 | HY          |
| Friendship                              | 21      | 74         | 14/10/2014 13:25 | HY         | 29/09/2015 12:45 | HY          |
| Family connection                       | 15      | 46         | 14/10/2014 13:43 | HY         | 29/09/2015 12:46 | HY          |
| Sharing their digital works with others | 14      | 38         | 20/10/2014 13:57 | HY         | 29/09/2015 12:48 | HY          |
| Positive iPad ELL experience            | 0       | 0          | 14/10/2014 12:03 | HY         | 29/09/2015 13:25 | HY          |
| Better learning                         | 23      | 74         | 14/10/2014 12:55 | HY         | 29/09/2015 13:18 | HY          |
| Learning is fun                         | 12      | 35         | 14/10/2014 13:14 | HY         | 29/09/2015 13:24 | HY          |
| Wishes and suggestions of learning with | 4       | 8          | 14/10/2014 13:16 | HY         | 29/09/2015 13:24 | HY          |
| Demotivational aspects                  | 0       | 0          | 14/10/2014 12:05 | HY         | 29/09/2015 13:31 | HY          |
| Aspects related to the technology       | 0       | 0          | 14/10/2014 14:01 | HY         | 29/09/2015 13:34 | HY          |
| Screen too sensitive                    | 3       | 4          | 14/10/2014 14:51 | HY         | 29/09/2015 13:34 | HY          |
| Related to the apps (paid, in-app pur   | 5       | 6          | 15/10/2014 19:14 | HY         | 29/09/2015 13:28 | HY          |
| Weak or no wireless connectivity or i   | 5       | 5          | 16/10/2014 02:40 | HY         | 29/09/2015 13:35 | HY          |
| Issues with recording and earphones     | 3       | 12         | 16/10/2014 04:02 | HY         | 29/09/2015 13:32 | HY          |
| Social aspect                           | 0       | 0          | 14/10/2014 14:02 | HY         | 29/09/2015 13:40 | HY          |
| Others' perception of iPad; iPad is no  | 5       | 11         | 15/10/2014 18:40 | HY         | 29/09/2015 13:38 | HY          |
| Dominating the iPad                     | 18      | 54         | 15/10/2014 18:51 | HY         | 29/09/2015 13:39 | HY          |
| Personal aspect                         | 0       | 0          | 21/10/2014 12:49 | HY         | 29/09/2015 13:41 | HY          |
| preferring traditional handwriting over | 1       | 1          | 21/10/2014 14:33 | HY         | 29/09/2015 13:40 | HY          |

Tablets in MALLnvp - NVivo

File Home Create External Data Analyze Query Explore Layout View

Look for: Search In Motivational orient Find Now Clear Advanced Find

### Motivational orientations of preferred apps

| Name  | Sources | References | Created On       | Created By | Modified On      | Modified By |
|---|---------|------------|------------------|------------|------------------|-------------|
| Problems and issues in using some apps (categories)                       | 18      | 45         | 29/09/2014 20:01 | HY         | 29/09/2015 13:48 | HY          |
| Intrinsic motivation  | 0       | 0          | 18/09/2014 12:03 | HY         | 18/09/2014 12:03 | HY          |
| IM-Accomplishment   | 21      | 58         | 18/09/2014 12:06 | HY         | 13/05/2015 20:48 | HY          |
| Sense of empowerment  | 15      | 38         | 29/09/2014 11:53 | HY         | 14/10/2014 21:27 | HY          |
| Moderately challenging tasks  | 9       | 14         | 29/09/2014 11:54 | HY         | 16/01/2015 10:34 | HY          |
| Use of pictures, sounds and multimedia                                    | 6       | 10         | 29/09/2014 11:55 | HY         | 15/04/2015 10:37 | HY          |
| Less words appear in the screen   | 1       | 1          | 10/10/2014 10:52 | HY         | 29/09/2015 13:49 | HY          |
| Past experience   | 9       | 17         | 29/09/2014 11:57 | HY         | 24/04/2015 09:54 | HY          |
| Others' scaffolding   | 17      | 41         | 29/09/2014 12:12 | HY         | 13/05/2015 20:48 | HY          |
| Technical scaffolding   | 8       | 12         | 29/09/2014 18:15 | HY         | 29/09/2015 13:50 | HY          |
| Items appear slowly allowing more time for learning                       | 1       | 1          | 30/09/2014 11:44 | HY         | 29/09/2015 13:51 | HY          |
| Customising language of instructors                                       | 2       | 2          | 09/10/2014 17:57 | HY         | 29/09/2015 13:50 | HY          |
| Feedback, rewards (by apps and humans)                                    | 11      | 39         | 29/09/2014 11:58 | HY         | 13/05/2015 20:48 | HY          |
| IM-Knowledge  | 0       | 0          | 18/09/2014 12:03 | HY         | 29/09/2015 13:55 | HY          |
| Incidental ELL (acquiring new EL items)                                   | 17      | 68         | 29/09/2014 11:46 | HY         | 29/09/2015 13:54 | HY          |
| Discovering new apps and new apps' features                               | 18      | 43         | 29/09/2014 11:47 | HY         | 29/09/2015 13:54 | HY          |
| IM-Stimulation  | 0       | 0          | 18/09/2014 12:06 | HY         | 29/09/2015 14:04 | HY          |
| Enjoying music, songs and pictures  | 13      | 35         | 29/09/2014 11:59 | HY         | 29/09/2015 13:58 | HY          |
| Enjoying audio and video recording and taking photos                      | 19      | 38         | 29/09/2014 11:59 | HY         | 29/09/2015 14:04 | HY          |
| Enjoying drawing  | 17      | 40         | 29/09/2014 12:00 | HY         | 29/09/2015 14:01 | HY          |
| Enjoying playing games  | 11      | 27         | 29/09/2014 12:00 | HY         | 29/09/2015 14:01 | HY          |
| playing or sharing with friends and others (saving feature helps sharing) | 12      | 25         | 29/09/2014 12:01 | HY         | 29/09/2015 14:01 | HY          |
| Enjoying reading stories or watching animated stories                     | 6       | 10         | 29/09/2014 12:01 | HY         | 29/09/2015 14:01 | HY          |
| Enjoying ELL  | 3       | 3          | 29/09/2014 12:02 | HY         | 29/09/2015 14:02 | HY          |
| Enjoying the various choices and tools some apps have                     | 22      | 65         | 29/09/2014 20:42 | HY         | 29/09/2015 14:03 | HY          |

HY 29 Items

Tablets in MALLnvp - NVivo

File Home Create External Data Analyze Query Explore Layout View

Look for: Search In Motivational orient Find Now Clear Advanced Find

### Motivational orientations of preferred apps

| Name  | Sources | References | Created On       | Created By | Modified On      | Modified By |
|---|---------|------------|------------------|------------|------------------|-------------|
| Incidental ELL (acquiring new EL items)                                   | 17      | 68         | 29/09/2014 11:46 | HY         | 29/09/2015 13:54 | HY          |
| Discovering new apps and new apps' features                               | 18      | 43         | 29/09/2014 11:47 | HY         | 29/09/2015 13:54 | HY          |
| IM-Stimulation  | 0       | 0          | 18/09/2014 12:06 | HY         | 29/09/2015 14:04 | HY          |
| Enjoying music, songs and pictures  | 13      | 35         | 29/09/2014 11:59 | HY         | 29/09/2015 13:58 | HY          |
| Enjoying audio and video recording and taking photos                      | 19      | 38         | 29/09/2014 11:59 | HY         | 29/09/2015 14:04 | HY          |
| Enjoying drawing  | 17      | 40         | 29/09/2014 12:00 | HY         | 29/09/2015 14:01 | HY          |
| Enjoying playing games  | 11      | 27         | 29/09/2014 12:00 | HY         | 29/09/2015 14:01 | HY          |
| playing or sharing with friends and others (saving feature helps sharing) | 12      | 25         | 29/09/2014 12:01 | HY         | 29/09/2015 14:01 | HY          |
| Enjoying reading stories or watching animated stories                     | 6       | 10         | 29/09/2014 12:01 | HY         | 29/09/2015 14:01 | HY          |
| Enjoying ELL  | 3       | 3          | 29/09/2014 12:02 | HY         | 29/09/2015 14:02 | HY          |
| Enjoying the various choices and tools some apps have                     | 22      | 65         | 29/09/2014 20:42 | HY         | 29/09/2015 14:03 | HY          |
| Extrinsic Motivation  | 0       | 0          | 18/09/2014 12:07 | HY         | 18/09/2014 12:07 | HY          |
| Identified-regulation   | 0       | 0          | 18/09/2014 12:08 | HY         | 29/09/2015 14:07 | HY          |
| Need for tasks because they are important for ELL                         | 19      | 68         | 29/09/2014 12:04 | HY         | 29/09/2015 14:06 | HY          |
| Developing digital ELL strategies   | 14      | 29         | 29/09/2014 12:04 | HY         | 29/09/2015 14:06 | HY          |

HY 29 Items